TECHNICAL REPORT

ON MANTARO PHOSPHATE DEPOSIT

JUNIN DISTRICT, PERU

Zone 18 8680000N 456000E (PSAD'56 datum)

Report for NI 43-101

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1 SUMMARY

EXECUTIVE SUMMARY

Stonegate Agricom Ltd. (“Stonegate” or “the Company”) engaged Hains Technology Associates (“HTA”) and Caracle Creek International Consulting Inc. (CCIC) to prepare an independent Technical Report on the Mantaro phosphate project (the “Project”), located near Sincos, Junin Department, Peru. The Project is located within a regionally significant geological structure known as the Mancaspico Syncline. This Technical Report is based on the results of exploration work conducted by Stonegate since acquisition of the Property in 2008. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

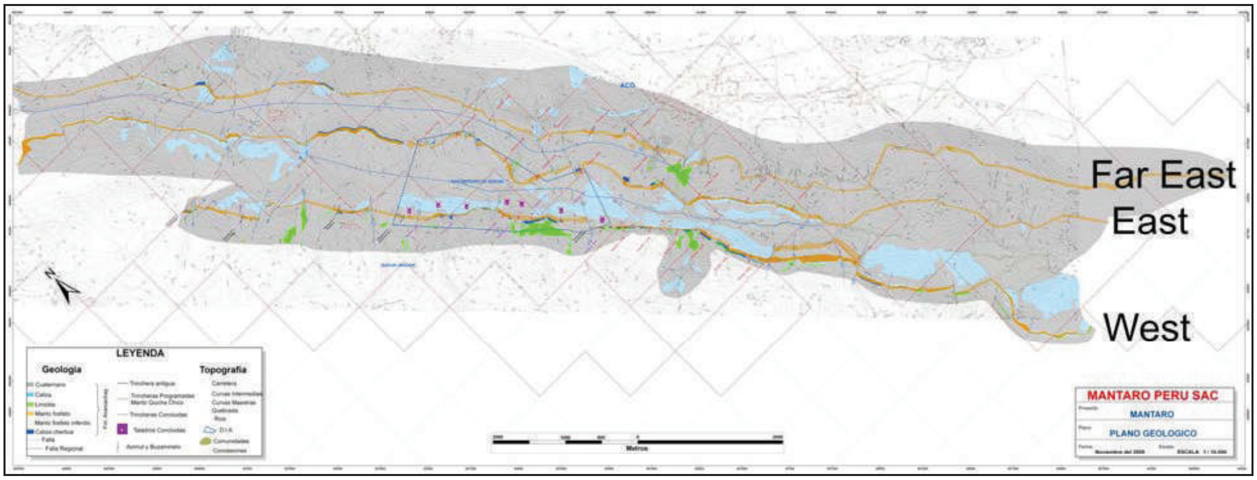
Stonegate is engaged in the business of the acquisition, exploration and development of mineral properties with a focus on agricultural nutrients. The Company owns, through its wholly-owned subsidiary, Mantaro Peru SAC (“Mantaro Peru” or “MPS”), a 100% interest in the Mantaro Property. Stonegate was formed from the merger between Stonegate’s predecessor, Stonegate Minerals Ltd., with a subsidiary of Sprott Resource Corp. (“Sprott”). Sprott was the previous owner of the Mantaro Property and Project and holds an approximate 73% interest (62% fully diluted) in Stonegate.

The Mantaro Project is an exploration project located near Sincos, Peru, in the central Andes (Figures 4-1 and 4-2). Previous exploration work on the Project in the 1980s and 1990s had identified an extensive zone of phosphate mineralization amenable to beneficiation and production of phosphate rock concentrate. In this report, references to historical work on “the Property” refer to the Philip concession and the adjacent Sincosa concession, which is owned by others.

The major asset associated with the Project, and the subject of this Technical Report, is a mineralized zone of phosphatic rock currently defined by surface outcrops, trenches and drilling extending over a strike length of more than 30 km and a width of more than 5 km on the west side of the Mantaro River. The total area covered by the concessions comprising the Property is 12,800 ha. This area is known as the Mantaro deposit in this report. Mineralization is exposed as three roughly parallel exposures (manto) trending in a NW-SE direction noted as the West, East and Far East zones in this report (Figure 1-1).

Figure 1-1

Mantaro Property (partial plan)



MPS also holds an additional 7,000 ha of mineral concessions on the east side of the Mantaro River (Puerta de Piedras 9-16 concessions, known as the Mantaro East deposit) and 1,700 ha of mineral concessions (Alora 1-7 concessions) approximately 60 km northwest of the Mantaro Property.

The Property is located near a major rail line connecting Huancayo with Lima and the port of Callao. High tension electric transmission lines cross the Property on its western side. The Property is accessible from the national highway connecting Huancayo to Lima via gravel roads from the towns of Sincos, Aco, Mitu and several other communities.

Doe Run (Peru) Corporation ("Doe Run") operates a base metal smelter at La Oroya, approximately 60 km west of the Property. The Doe Run smelter is a potential source of sulphuric acid for use in fertilizer manufacture.

The Mancaspico Syncline region has been the subject of extensive exploration work over several decades, beginning in the early 1960s. Work by Cerro de Pasco Corporation ("CDP") in the 1960s outlined a regional historical geological resource estimated to contain over 300 million tonnes. Later work involving Zublin Mining of Chile ("Zublin Mining" or "Zublin") and Doe Run provided additional information on the extent and quality of the phosphate resource on the Property and the potential for phosphate fertilizer production based on trenching and channel sampling within the area currently defined by the Philip concession and the adjacent Sincosa concession. Bulk sample material from widely spaced trenches was used by Bateman Phosphate Technologies ("Bateman") in 2000/2001 in beneficiation studies and to prepare a scoping study. The 2001 Bateman prefeasibility study concluded that a 30% P_2O_5 concentrate could be economically produced.

Companhia Vale do Rio Doce ("Vale") conducted a site inspection of the Property and completed mineralogical examination of the rock and laboratory scale beneficiation studies in 2006. Vale was successful in producing a concentrate grading in excess of 30% P_2O_5 and in producing a market specification single superphosphate (SSP) fertilizer from the concentrate.

Since acquisition of the Property by Stonegate in 2008, the company has initiated a program of detailed geological mapping, trenching, drilling, sampling; metallurgical and mineralogical test work, and community studies in support of advancing the Project to the prefeasibility stage.

CONCLUSIONS

The deposit is of a marine sedimentary type of syngenetic origin. The deposit lies within the Mancaspico syncline and is exposed in surface outcroppings as three parallel mineralized zones extending over a distance of approximately 30 km. Detailed exploration work on the Philip concession indicates the phosphate mineralization extends to depths of at least 200 m below surface. Review of available data and the results of the 2009 exploration program indicate the potential for a commercially significant phosphate deposit.

Trenching and drilling over an approximately 8 km strike length on the Philip concession demonstrates excellent stratigraphic correlation within the phosphatic sandstone and mudstone member of the Aramachay Formation. True thickness ranges from +9 m to 35 m. There is a generalized thickening of the deposit towards the southeast. Phosphate mineralization is in the form of francolite and collophane pellets. Variations in true thickness of the phosphatic member are due to sedimentological parameters prevalent during the deposition of the unit. No structural complications or faulted-out portions of the member are observed.

A program of mineralogical and metallurgical test work conducted by SGS Mineral Services (Lakefield) and Bateman Advanced Technologies has confirmed the historical beneficiation work. Laboratory scale tests produced phosphate concentrates ranging from 28.8% (drill core samples) to 32.5% (trench samples) with acceptable phosphate grade and mass recoveries and quality suitable in the marketplace. The projected phosphate concentrate grades are suitable for production of merchant grade phosphate rock concentrate and production of concentrate for use in phosphate fertilizers such as single superphosphate (SSP) and potentially the ammonium-based phosphate fertilizers DAP and MAP. Additional test work to improve phosphate concentrate grade, recovery and quality is planned.

An independent market study conducted by British Sulphur Consultants ("BCS") for Stonegate confirms that the Mantaro Project is strategically located to supply phosphate rock and/or upgraded phosphate fertilizer products to regional and international markets and that the projected grade of phosphate concentrate will be competitive with current major producers. Slight improvements in beneficiation performance to reduce iron and alumina levels could yield a premium product. More detailed market analyses are planned following completion of beneficiation studies.

BCS estimated demand for phosphate concentrate will increase at a rate of 2.9% per annum during the 2010 – 2020 time period to reach approximately 222 MM tonnes. The market for internationally traded phosphate concentrate is projected by BCS to increase from 23 MM tonnes in 2010 to approximately 30 MM tonnes in 2020. Prices for phosphate concentrate are projected to remain above $100/tonne in real terms during the forecast period. BCS concluded in its report that the Mantaro Project is strategically located with respect to existing and emerging demand for phosphate rock and phosphate fertilizer derivatives; the projected quality of the concentrate is acceptable in the marketplace; there is considerable merit in examining the potential for SSP production; and that the Mantaro Project can be expected to be cost competitive.

Current mineral resources on the West zone of the Mantaro Property are estimated as detailed in Table 1-1 (effective date February 21st, 2010).

Table 1-1
Estimated Mineral Resources
West zone, Mantaro Property

Resource Class[1]	Tonnes[2]	P_2O_5 (%)
Measured[2]	5,548,000	10.8
Indicated[2]	33,975,000	9.9
Measured + Indicated[2]	39,523,000	10.0
Inferred[3]	376,265,000	9.0

[1]Measured and Indicated are reported using a 4% P_2O_5 cut-off.
[2]Tonnes have been rounded to the nearest 1,000 and the phosphate grade to 1 decimal place.
[3]Inferred is reported with no cut-off and a grade of 9% is assumed.

The total estimated Measured plus Indicated and Inferred resources and the grade are comparable to the large Bayovar phosphate deposit currently under development by Vale SA in northern Peru.

Insufficient work has been undertaken to estimate mineral resources on the East and Far East sections of the Mantaro Property. However, these areas have been delineated by geological mapping and exhibit surface mineralization widths similar to the West zone. Given that the deposit is of marine sedimentary origin, there is every reason to believe that comparable grades and depth of mineralization are present within these zones. Based on this assumption, potential mineral deposits within the East and Far East zones are estimated to be approximately:

East	425-435 MM tonnes @ 9-9.5% P_2O_5
Far East	280-290 MM tonnes @ 9-9.5% P_2O5

These potential quantities and grade are conceptual in nature, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in these targets being delineated as a mineral resource. However, should such conceptual tonnages be confirmed by trenching and drilling, the Mantaro Property would rank as one of the most significant phosphate deposits in the world.

The Property is located in an area of intensive subsistence agriculture. Extensive community consultations have been conducted during the current exploration work and are continuing. Community relations discussions are lengthy and impose constraints on the pace of exploration work. The success of the community relations program in securing approval for exploration and development activity is key to advancement of the Project to production.

Availability of sufficient water for mineral processing may be a significant issue. This aspect will require detailed analysis as the Project advances.

RECOMMENDATIONS

The recommendations follow a phased approach to exploration, metallurgical, market research and social science work necessary to advance the Project through to the prefeasibility stage.

Exploration efforts should focus on upgrading the classification of the resource base within the West zone, and enabling classification of the mineral potential in the East and Far East zones to at least the Inferred Resource category. This will require a program of surface mapping, trenching and drilling.

Metallurgical work should focus on enhancements to the beneficiation process to improve phosphate concentrate grade and recovery and develop preliminary engineering data for design and costing of a process flow sheet to ±30%.

The geological block model should be enhanced to permit development of preliminary mine plans and estimation of mining costs to ± 30%.

Market research work should focus on better establishing the potential for sale of phosphate rock concentrate in the regional market (Peru, Brazil, Chile, Argentina, Ecuador, Colombia, Mexico) and the international market (Asia/Pacific region, especially New Zealand). Market research work should also examine the potential for production of SSP and potentially other value added products such as phosphoric acid, DAP and MAP. Market research work must include an analysis of available transportation options, including shipments to Brazil using the Amazon river system.

An expanded program of community consultations, archaeological research and community development designed to cover those areas not covered by the current program, and deepening of social development activity within the current area of focus should be implemented.

Assuming positive results from this work in the form of a prefeasibility study, efforts should then be directed to completing a bankable feasibility study leading to a production decision.

The following recommendations are made:

PHASE 1

1. Conduct detailed topographic and outcrop surveying of the area north of the Sincosa concession in the West zone of the deposit. Mapping should be at 1:10 000 scale or better.
2. Relog/resample the existing drill core at 1 m intervals to better define high grade intersections within lower grade intervals and the nature of the mineralization.
3. Undertake an enhanced program of community consultations and execute community agreements prior to initiating any new exploration and development work.
4. Conduct trenching and drilling at a minimum of 1 km spacing (or closer) on the West zone between the Sincosa concession and Quicha Grande and southeast from Quicha Chico to the limits of the Property to upgrade the resource category.
5. Complete an enhanced program for collection of specific gravity samples to better categorize the mineralization.
6. Conduct a surface sampling program (and as possible, complemented by trenching) on the Quicha Chico and Puerta de Piedras concessions (East and Far East zones) to permit categorization of resources in these areas to at least the Inferred Resource level. Sampling/trenching work should be on section with corresponding work in the West zone and spaced at 1 km intervals.
7. Undertake a more extensive program of metallurgical research to enhance recovery and grade of phosphate concentrate. The focus of the work should be on improvements to recovery and grade of unoxidized material. Metallurgical test work should also include test work to determine the reactivity of the concentrates and the potential for production of SSP, phosphoric acid, DAP and MAP.
8. Conduct product and market specific analysis of the regional and international markets for phosphate concentrates, phosphoric acid and phosphate fertilizers.
9. Prepare a NI 43-101 report based on the results of the exploration program.
10. Initiate the process to convert claims to non-metallic claims.
11. Complete a prefeasibility study for the Project.

Assuming a successful conclusion to the Prefeasibility Study, proceed to Phase 2.

PHASE 2

Phase 2 is designed as a bankable feasibility study. The work to be conducted in Phase 2 consists of:

1. Complete an EIA for the Property south of the Sincosa concession. This must include extensive community consultations and securing agreements from the affected communities for the detailed exploration program.

2. Conduct a program of diamond drilling, sampling and assaying on 250 m spacing in the West, East and Far East zones south of the Sincosa concession to the south end of Puerta de Piedras 7. Drilling should be HQ size. Sampling should be at 1 m intervals within the mineralized zones. Drilling should target resources down to the 3,400m elevation level. The indicated drilling is approximately 26,000m, assuming 2 holes per station and average hole depth of 150m.

3. Construct additional trenches to provide bulk sample material sufficient for a minimum of 60 tonnes of concentrate. This work to include necessary sampling and assaying.

4. Collect and process a representative bulk sample from drill core and trenches sufficient to yield a minimum of 40 tonnes of concentrate.

5. Process trench and drill material to produce representative phosphate concentrates based on the calculated run-of-mine ore grade. The bulk sample to be used for market testing and evaluation of the suitability of the concentrate for SSP, phosphoric acid and DP/MAP production

6. Undertake necessary mine and process plant engineering, transport logistics and market analyses to develop capital and operating costs to ±10 %.

7. Complete as necessary land purchase agreements for proposed plant site and mine.

8. Complete a bankable feasibility study for the Project, including full environmental impact study and agreed community benefits agreement.

BUDGET

The estimated budget for the work outlined above is detailed below:

PHASE 1

Item		Cost (US$ 000)
1.	Geological mapping, north of Sincosa	10
2.	Relog/resample drill core	5
3.	Community consultations program	500
4.	West zone trenching/drilling (6,000 m)	1,500
5.	Specific gravity sample analysis	5
6a.	Surface sampling, QC & PP concessions	40
6b.	Trenching/drilling, QC/PP concessions	750
7.	Large scale beneficiation studies	300
8.	Market analysis	150
9.	NI 43-101 report	150
10.	Claim conversion/property payments	200
11.	Prefeasibility study	1,750
Sub-total		**5,360**
20 % Contingency		**1,00**
TOTAL to Completion of Phase 1		**6,360**

The estimated budget for the work outlined for Phase 2 is detailed below:

Item		Cost (US$ 000)
1.	EIA and community consultation	400
2.	Drilling (26,000m @ $175/m) (incl. assays)	4,550
3.	Trenching and bulk sampling (incl. assays)	200
4.	Bulk sample process test work (to concentrate)	1,500
5.	Bulk sample process test work (acid, DAP/ MAP, SSP)	750
6.	Mine and process engineering design work, logistics analysis, market analysis	2,500
7.	Land purchase (1,000 ha @ $1,000/ha)	1,000
8.	Bankable feasibility study	450
Sub-Total Phase 2		**11,350**
20 % Contingency		**$2,250**
Total Phase 2		**$13,600**

TOTAL BUDGET, PHASE 1 AND PHASE 2	$19,960
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TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

Stonegate Agricom (“Stonegate”), through its wholly owned subsidiary, Mantaro Peru SAC (“MPS”), holds three significant land packages in Peru. The primary property holding and the focus of this technical report is located northwest of Huancayo on the west side of the Mantaro River. This property is termed the Mantaro deposit in this report. It comprises 12,800 ha (see Figures 4-1 and 4-2 for property location). Additional mineral claims totaling 7,000 ha, termed the Mantaro East claims in this report, are held on the east side of the Mantaro River. MPS also holds mineral concessions comprising 1,700 ha known as the Alora concession located approximately 60 km to the north of the Mantaro Property. Neither the Mantaro East nor Alora properties have been subject to detailed exploration.

The Mantaro deposit is located approximately 250 km east of Lima, Peru in the Andean altiplano near the city of Huancayo, Junin District. A paved highway and railway connects Huancayo with Lima. Access to the Property is primarily from the towns of Sincos, Aco and Mito via gravel roads and rough tracks to a number of small villages.

Phosphate mineralization on the Property is observed in surface outcrops exposed in three roughly parallel zones (mantos) extending the length of the Property and a series of trenches and drill holes in the central portion of the Property extending over a distance of approximately 12 km. The phosphate mineralization is of marine sedimentary syngenetic origin and ranges from highly oxidized phosphatic sandstone to phosphatic limestones and mudstones. The phosphatic zone trends northwest-southeast and dips at 39^0 - 55^0 (typically 45^0 - 48^0) to the northeast on the western side. Dips are generally steeper on the eastern side and oriented to the southwest. Surface exposures average approximately 25 m apparent width (21 m true width).

SITE INFRASTRUCTURE

Regional infrastructure is generally excellent. High tension and local electrical distribution lines cross the Property. The Doe Run smelter at La Oroya, approximately 60 km to the northwest, is a potential source of sulphuric acid for fertilizer manufacture. Huancayo is a major regional centre with a population of approximately 300,000 people and offers excellent services. Huancayo is connected to Lima and the port of Callao by a major national highway and a railway.

HISTORY

The exploration history of the Property has been described in Hains (2008) and is not repeated here, except as discussed in Section 6 of this Technical Report.

GEOLOGY

The Mantaro region is located within the Mesozoic fault and fold belt of the Central Peruvian altiplano. The area is dominated by Jurassic-aged sandstone, shale and carbonate rocks of the Pucar Group, which occur regionally in a northwest-striking belt extending from north of Cero de Pasco, south to beyond Huancayo, a distance of over 250 km. The sequence has been folded into a series of generally broad, open anticlines and synclines also of regional extent and up to 25 km wide. Locally intense isoclinal folding, and various generations of fault development are observed.

The phosphate mineralization is hosted in the Aramachay Formation, an early Jurassic sequence of shales, sandstones and cherts. They occur as an integral part of the regional stratigraphic sequence, cropping out around the perimeter of the large Mantaro syncline extending over 150 km in a SE-NW direction and up to 20 km in a SW-NE direction. The Aramachay Formation is overlain by the limestones, shales and cherts of the Middle-to-Late Jurassic Condorsinga Formation and underlain by the Chambara Formation shales and cherts of Triassic age.

The phosphatic member varies in thickness between 50 – 90 metres. The phosphate is present as francolite ($Ca_5PO_4CO_3$) and collophane ($Ca_3P_2O_8H_20$) pellets and, less commonly, as fluorapatite $(CaF)Ca_2(PO_4)_3$. Lateral facies changes are observed. Within the member, two fairly persistent phosphatic zones, separated by a chert and cherty limestone unit, are recognized:

1) A lower blanket zone, 10 m – 15 m thick, which usually occurs below a 10 m to 30 m thick massive bedded chert and above thick shale and thin shaley limestone. The zone contains phosphatic bituminous limestone, dark phosphatic limestone and thin-bedded black chert.

2) The upper phosphatic zone, which is most prominent in the SE part of the Mantaro deposit. It is up to 50 metres thick and occurs immediately below the Condorsinga limestones and above the cherty limestone or bedded chert, which separates it from the lower zone. It is calcareous, sandy and silty, and lighter in colour than the lower zone due to paucity of the carbonaceous material. The entire resource in question (Mancaspico deposit) is hosted in this zone, which is called the phosphatic sandstone and mudstone (PSM). The Upper zone can be further subdivided into three units characterized by high silica and medium carbonate (upper zone), low silica and high carbonate (middle zone) and low phosphate, high silica (lower zone). The Upper zone is classified as a calcareous phosphate, the Middle zone as a sandy, siliceous phosphate and the Lower zone as a sandy chert.

EXPLORATION

Stonegate conducted a program of exploration consisting of surface geological mapping, trenching and drilling in 2009. The surface mapping program covered most of the Property area and was successful in identifying three roughly parallel zones of mineralization trending in a NW-SE direction over a strike length exceeding 30 km. These zones have been termed the West, East and Far East zones of the Mantaro deposit.
Trenching and drilling work was concentrated in the Philip concession portion of the West zone. Nine new trenches were dug and sampled and two historical trenches also

cleaned and sampled. Twenty-three HQ size diamond drill holes totalling 3,414.48 m tested mineralization at depth across dip and down dip (2 holes). All holes intersected the full width of the mineralized zone within the Aramachay formation. Surface enrichment of the mineralization is noted. Oxidized material typically carries 3% - 4% more P_2O_5 than deeper lying unoxidized material. The depth of oxidation varies but can reach up to approximately 40 m below surface.

MINERAL RESOURCES AND MINERAL RESERVES

Estimated mineral resources contained in the West zone of the Property (4% P_2O_5 cut-off) as of February 21, 2010, are:

Measured	5.548 MM tonnes[1] @ 10.8% P_2O_5
Indicated	33.975 MM tonnes[1] @ 9.9% P_2O_5
Measured + Indicated	39.523 MM tonnes[1] @ 10.0% P_2O_5
Inferred[2]	376.265 MM tonnes[1] @ 9.0% P_2O_5

[1]Tonnes rounded to the nearest 1,000 and grade to 1 decimal place.
[2]Inferred material reported with no cut-off and an assumed grade based on the average drill hole grade.

There is considerable potential to expand the resource base. The East and Far East zones of the deposit have been geologically mapped and exhibit surface mineralization widths similar to the West zone. Given that the deposit is of marine sedimentary origin, there is every reason to believe that comparable grades and depth of mineralization are present within the East and Far East zones. Based on this assumption, the potential mineral deposits within the East and Far East zones are estimated to be approximately:

East zone	425-435 MM tonnes @ 9-9.5% P_2O_5
Far East zone	280-290 MM tonnes @ 9-9.5% P_2O_5

These potential quantities and grade are conceptual in nature, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in these targets being delineated as a mineral resource. However, should such conceptual tonnages be confirmed by trenching and drilling, the Mantaro Property would rank as one of the most significant phosphate deposits in the world.

ENVIRONMENTAL AND PERMITTING CONSIDERATIONS

The concessions comprising the Property are currently classified as "metallic", except for Mantaro 7. Reclassification of the concessions to "non-metallic" will be required if the Property is to be developed. In addition, some of the concessions comprising the Property overlap with agricultural lands. The lands designated as agricultural lands will have to be re-designated as mineral lands. This is part of the process of acquiring an interest in the lands and reclassifying them as non-metallic for purposes of exploration and development of the Property.

Exploration and development activity on the Property is subject to obtaining community agreement. MPS is actively engaged in an extensive programme of community relations to ensure its planned exploration activities can be conducted in a timely and cost-effective manner. This work also includes archaeological research in advance of any intrusive exploration activity. The success of the community relations program in securing approval for exploration and development work will be key to advancing the Project to production.

No surface water is available on the Property. Design provisions to ensure adequate water supply for process operations will be required if the Property is to be placed in production.

2 INTRODUCTION AND TERMS OF REFERENCE

Don Hains, P. Geo., principal of HTA, was retained by Stonegate to act as the independent qualified person for supervision of the exploration program conducted by Stonegate, and to prepare an independent Technical Report on the Mantaro Project in Peru. HTA was responsible for supervision all aspects of the exploration program and for preparation of all sections of the Technical Report except Section 17, Mineral Resources and Mineral Reserves, which was prepared by Caracle Creek International Consulting Inc. ("CCIC") under the supervision of Dr. Michelle Stone, P. Geo. Mr. Hains assumes overall responsibility for the report.

The purpose of this report is to provide a review of the exploration and metallurgical test work data conducted on the Property since its acquisition by Stonegate in 2008, and to provide a resource estimate based on the results of the exploration activity. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

Stonegate is engaged in the business of the acquisition, exploration and development of mineral properties with a focus on agricultural nutrients. The Project is an exploration project centered near Sincos, Peru, in the central Andes. Stonegate holds its interest in the Property indirectly through its subsidiary, Mantaro Peru SAC. Previous exploration work on the Property in the 1980s and 1990s had identified an extensive zone of phosphate mineralization amenable to beneficiation and production of phosphate rock concentrate.

The major asset associated with the Project is a mineralized zone of phosphatic rock extending over a strike length of approximately 30 km defined by surface outcrops, trenches and drilling known as the Mantaro Property within the Mancaspico syncline. The total Property area covers 12,800 ha. Mineralization on the Property is present as three roughly parallel zones ranging in width from approximately 20 m to over 100 m extending across the syncline. The phosphate zones (phosphate manto) have an approximate average dip of 48^0 to either the northeast or southwest, depending on which arm of the syncline they are located. Drilling results indicate the phosphate zones extend to a depth in excess of 200 m below surface.

The Project is located near a major rail line connecting Huancayo with Lima and the port of Callao. High tension electric transmission lines cross the Property on its western side. The Property is accessible from the national highway connecting Huancayo to Lima via gravel roads from the towns of Sincos, Aco, Mito and several other communities.

Doe Run operates a base metal smelter at La Oroya, approximately 60 km west of the Property. The Doe Run smelter is a potential source of sulphuric acid for use in fertilizer manufacture.

HTA has provided general exploration and quality assurance oversight of the Mantaro Project since acquisition of the Property by Stonegate. Prior to that, HTA conducted a due diligence site visit and report on the Property to Sprott. Sprott vended its interest in the Mantaro Project to Stonegate in June, 2008. In August, 2008, HTA prepared a NI 43-101 technical report on the Philip concession portion of the Property for Stonegate (Hains, 2008).

This report is based on site visits observations and review of exploration, mineralogical and metallurgical test work data related to the 2009 exploration program. Site visits have been conducted on a periodic basis by HTA since acquisition of the Project by Stonegate. The last site visit by the author was made in September, 2009. A site visit was made in December, 2009 by Mr. Stephen Wetherup, P. Geo. of CCIC, as part of the due diligence associated with estimation of the mineral resources and potential on the Property.

SOURCES OF INFORMATION

The major sources of information for this report are:

1. The results of site visits conducted by the author in 2007, 2008 and 2009;
2. The results of exploration work conducted by Stonegate in 2008 and 2009;
3. Historical exploration and metallurgical test work data as detailed in Section 22, References;
4. The results of mineralogical and metallurgical test work undertaken in 2009; and
5. Legal and other mineral tenure related information provided by Peruvian counsel to Stonegate and Mantaro Peru.

DEFINITIONS

The following definitions are used in this Technical Report:

Property: The mining concessions held by Mantaro Peru and located near Sincos, Junin District, Peru.

Project: The exploration and development of the phosphate mineralization on the Property.

Deposit: The phosphate mineralized area within the Property.

Philip Concession: The original land holding comprising the Property and the location of most of the exploration work discussed in this report.

LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the SI (metric) system. All currency in this report is US dollars (US$) unless otherwise noted.

µ	micron
°C	degree Celsius
°F	degree Fahrenheit
µg	microgram
A	ampere
a	annum
bbl	barrels
Btu	British thermal units
C$	Canadian dollars
cal	calorie
cfm	cubic feet per minute
cm	centimeter
cm^2	square centimeter
d	day
dia.	diameter
dmt	dry metric tonne
dwt	dead-weight ton
ft	foot
ft/s	foot per second
ft^2	square foot
ft^3	cubic foot
g	gram
G	giga (billion)
Gal	Imperial gallon
g/L	gram per litre
g/t	gram per tonne
gpm	Imperial gallons per minute
gr/ft^3	grain per cubic foot
gr/m^3	grain per cubic metre
hr	hour
ha	hectare
hp	horsepower
in	inch
in^2	square inch
J	joule
k	kilo (thousand)
kcal	kilocalorie
kg	kilogram
km	kilometre
km/h	kilometre per hour
km^2	square kilometre
kPa	kilopascal
kVA	kilovolt-amperes
kW	kilowatt
kWh	kilowatt-hour
L	liter
L/s	litres per second
m	metre
M	mega (million)
m^2	square metre
m^3	cubic metre
min	minute
MASL	metres above sea level
M	millimetre
mph	miles per hour
MVA	megavolt-amperes
MW	megawatt
MWh	megawatt-hour
m^3/h	cubic metres per hour
opt, oz/st	ounce per short ton
oz	Troy ounce (31.1035g)
oz/dmt	ounce per dry metric tonne
ppm	part per million
psia	pound per square inch absolute
psig	pound per square inch gauge
RL	relative elevation
s	second
st	short ton
stpa	short ton per year
stpd	short ton per day
t	metric tonne
tpa	metric tonne per year
tpd	metric tonne per day
US$	United States dollar
USg	United States gallon
USgpm	US gallon per minute
V	volt
W	watt
wmt	wet metric tonne
yd^3	cubic yard
yr	year

3 RELIANCE ON OTHER EXPERTS

This report has been prepared by HTA for Stonegate. For the purposes of this report, HTA has relied on ownership information provided by Stonegate, its subsidiary, Mantaro Peru, and Peruvian legal counsel to Stonegate and Mantaro Peru. HTA has not researched property title or mineral rights for the Project and expresses no legal opinion as to the ownership status of the Property.

HTA has relied on Mantaro Peru's legal counsel in Peru for information on mineral tenure law in Peru and the legal, environmental and other regulatory requirements associated with obtaining mineral tenure and undertaking mineral exploration and development work in Peru.

HTA has relied on Stonegate and Mantaro Peru for guidance on applicable taxes, royalties, and other government levies or interests applicable to the Property.

HTA has relied on mineralogy and metallurgical reports prepared by others and on market research reports prepared by others. These reports have been prepared by qualified persons as defined in NI 43-101 with respect to the mineralogical and metallurgical reports, and by reputable professionals with respect to market research reports and HTA has no reason to doubt their validity.

4 PROPERTY DESCRIPTION AND LOCATION

The Property is located approximately 250 km east of Lima, Peru in the Andean altiplano. The closest town is Sincos, Junin District, Peru. The closest major community is Huancayo, approximately 30 km east of Sincos. Access to the Property is from the towns of Sincos, Aco and Mito via gravel roads and then via rough tracks to a number of small villages.

The Property encompasses 12,800 ha on the east side of the Mantaro River trending in a northwesterly direction for approximately 30 km from approximately 8 km south of the town of Aco in the southeast to near the village of Miraflores in Picha district just south of the Mantaro River. The Property varies in width from approximately 3 km to approximately 7 km. The deposit area is characterized by a wide and elongated valley oriented from northwest to southeast. The valley is a remnant of a synclinal fold structure and higher structures on either side have formed by the weathering of the adjacent anticlinal structures.

In a broader context, the main feature of the region is in the Mantaro River valley. The Mantaro River flows from northwest to southeast in a wide braided channel. The river is located approximately 10 km to the northeast of the deposit and is several hundred metres below the site.

The Property lies at the southern end of a highly productive and historically important Cu-Pb-Zn-Ag mining belt in the Central Peruvian altiplano. The Cerro de Pasco mine is located approximately 150 km to the northwest of the Property. As a consequence, regional infrastructure is generally excellent. A paved highway and railway connects Huancayo with Lima, approximately 250 km to the west. High tension and local electrical distribution lines cross the Property. The Doe Run smelter at La Oroya, approximately 60 km to the northwest, is a potential source of sulphuric acid for fertilizer production. Huancayo is a major regional centre with a population of approximately 300,000 people and offers excellent services.

FIGURE 4-1   LOCATION MAP

Phosphate mineralization on the Property and two contiguous concessions owned by others is observed in three distinct but roughly parallel surface outcrops (mantos) forming a faulted synclinal structure stretching over a distance of approximately 30 km. Mineralization is also exposed in a series of trenches cutting across the western outcrop exposure on the Philip and adjacent Sincosa concessions. The phosphate mineralization is of marine sedimentary origin and ranges from highly oxidized phosphatic sandstone to phosphatic limestones and mudstones. The phosphatic zone trends northwest-southeast and generally dips at approximately 45^0 - 48^0 to the northeast on the western side of the syncline. Surface exposures average approximately 21 m true width.

LAND TENURE IN PERU

Mineral tenure in Peru is held in two basic forms: mining pediments (claims), and mining concessions. Both forms of tenure have similar requirements in terms of payment of registry fees and annual payments ($3.00 per ha per year), but differ in terms of permitted work activity. Mining pediments are registered with the Mining and Metallurgic Geology Institute (INGEMMET) of Peru, the Peruvian government agency responsible for granting and registering mineral title, and then converted to mining concessions upon application and approval by INGEMMET. The process for conversion of mining pediments to mining concessions is regulated by statute and typically takes approximately six months for approval. Mining pediments do not allow for intrusive exploration work such as trenching, drilling and bulk sampling. These activities are permitted under mining concessions. Both mining pediments and mining concessions should be registered on title with the public registry office in the appropriate jurisdiction to be able to enforce liens, encumbrances and other rights and obligations respecting the mineral property under Peruvian law.

PROPERTY OWNERSHIP AND STATUS

The Property is made up of the concessions detailed in Table 4-1 and illustrated in Figure 4-2. Stonegate holds a 100% interest in the Mantaro Property and Project. Sprott holds an approximate 73% of the outstanding shares (62% fully diluted) of Stonegate.

Table 4-1
Property Holdings Mantaro

Property Name	Property Status	INGEMMT Record Number	Property Size (ha)
Philip	Concession	010163004	1,000
Quicha Chico	Concession	010590607	1,000
Mesa Corral	Concession	010590507	700
Mesa Corral 2	Concession	010590707	200
Mesa Corral 3	Concession	010590707A	300
Mantaro 1	Concession	010334708	400
Mantaro 2	Concession	010335308	200
Mantaro 3	Concession	010335508	100
Mantaro 4	Concession	010335108	200
Mantaro 5	Concession	010335608	100
Mantaro 6	Concession	010334808	100
Mantaro 7	Concession	010335008	100
Mantaro 8	Concession	010335408	100
Mantaro 9	Concession	010334908	100
Mantaro 10	Concession	010335208	200
Loma Quinta	Concession	010153108	400
Lago Humoso	Concession	010152808	100
Pardubice	Concession	010153608	100
William Primero	Concession	010153208	700
Loma Antoya	Concession	010153008	400
Bellis	Concession	010152908	100
Puerta de Piedras	Concession	010011309	1,000
Puerta de Piedras 2	Concession	010018009	500
Puerta de Piedras 3	Concession	010018109	600
Puerta de Piedras 4	Concession	010018209	700
Puerta de Piedras 5	Concession	010045909	900
Puerta de Piedras 6	Concession	010046009	600
Puerta de Piedras 7	Concession	010046209	900
Puerta de Piedras 8	Concession	010046109	1,000
	Total Hectares		12,800

Source: Mantaro Peru S.A.C.

Concession boundaries are delimited by UTM coordinates (PSAD ’56 datum) on topographic map sheets 24-m (Jauja) and 25-m (Huancayo) issued by INGEMMET. All of the Mantaro Peru property holdings are registered with INGEMMT. Legal counsel to Mantaro Peru report that all property holdings are in good standing. Annual mineral lease payments are current and made as required. There is no expiration date on the concessions provided lease payments are made.

Details of the history of the acquisition of the Property by Stonegate are available in Hains (2008). Subsequent to acquisition of the original concessions and pediments in 2008, Mantaro acquired additional property holdings labelled as the Quicha Chica concession and Puerta de Piedras 1-8 concessions covering the eastern side of the Mancaspico syncline. In 2009, Mantaro also acquired areas of phosphate mineralization exposure in the uplands on the eastern side of the Mantaro River valley denoted as Puerta de Piedras 9-16. The concessions are known as the Mantaro East Property and do not form part of this Technical Report. Stonegate also holds concessions known as the Alora 1-7 concessions located approximately 60 km to the northwest of the Mantaro Property. No work has been done on these concessions and they are not considered in this Technical Report.

The Philip concession and immediately surrounding concessions are subject to a 1.5% gross overriding royalty on the sale of minerals from that portion of the Property. The vendors of the original concessions comprising the Property may receive additional payments of up to US$ 4 million, subject to successful permitting and the conversion of the claims to non-metallic status.

All of the Mantaro Peru property holdings are registered with INGEMMET and with the Public Registry office in Huancayo. The concessions comprising the Property are currently classified as “metallic”, except for Mantaro 7. Reclassification of the concessions to “non-metallic” will be required if the Property is to be developed. Some of the concessions comprising the Property overlap with agricultural lands. The lands designated as agricultural lands will have to be re-designated as mineral lands. This is part of the process of acquiring an interest in the lands and reclassifying them as non-metallic for purposes of exploration and development of the Property. Appendix 1 provides details on the requirements to obtain conversion of the claims from “metallic” to “non-metallic”, as well as requirements related to exploration and environmental permit requirements and registration of mineral claims and concessions.

There are no known current environmental liabilities associated with the Property.

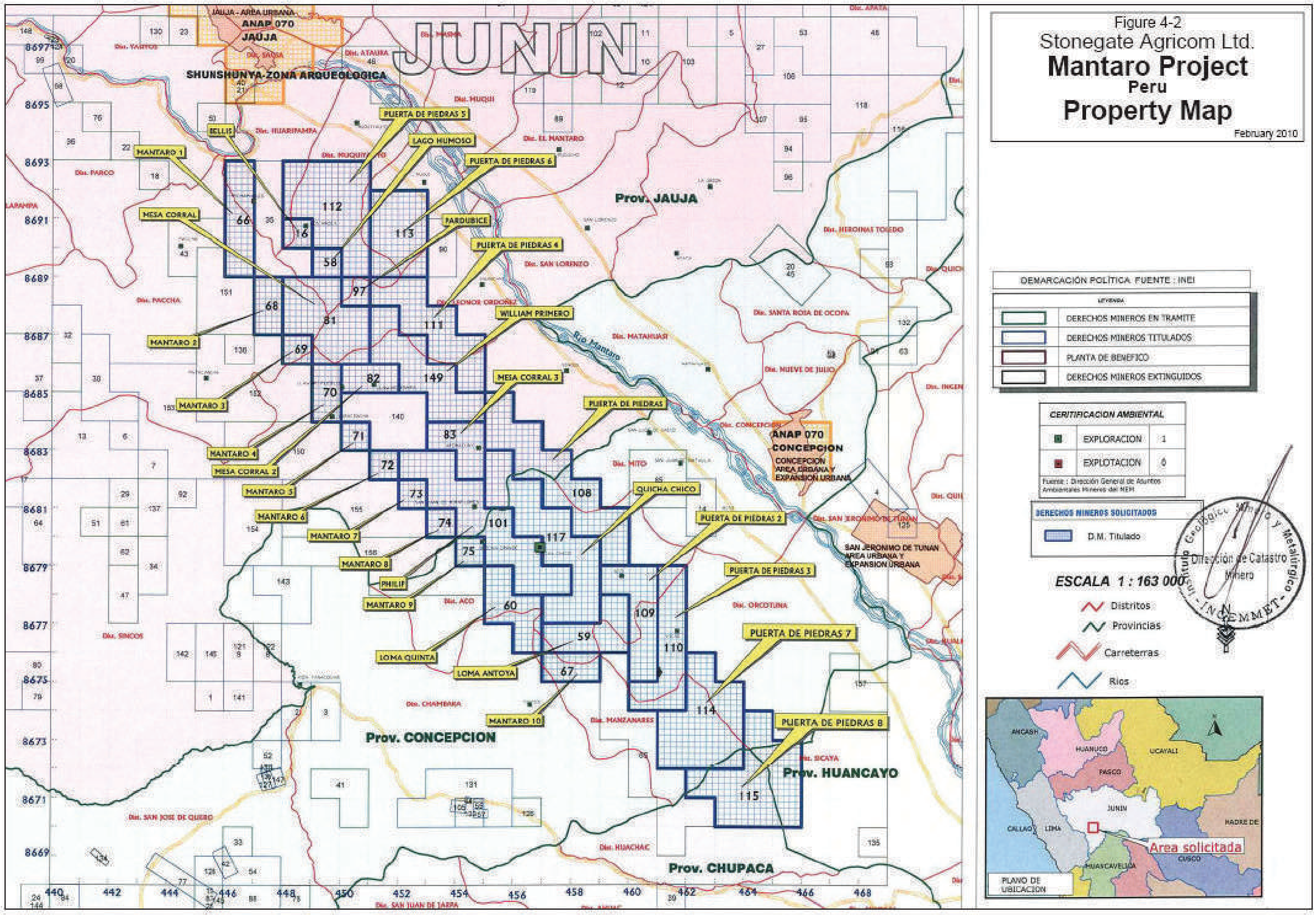


Figure 4-2
Stonegate Agricom Ltd.
Mantaro Project
Peru
Property Map
February 2010
JUNIN
Prov. JAUJA
Prov. CONCEPCION
Prov. HUANCAYO
Prov. CHUPACA
SHUNSHUNYA-ZONA ARQUEOLOGICA
ANAP 070 JAUJA
ANAP 070 CONCEPCION
SAN JERONIMO DE TUNAN AREA URBANA Y EXPANSION URBANA
Rio Mantaro
MANTARO 1
MESA CORRAL
MANTARO 2
MANTARO 3
MANTARO 4
MESA CORRAL 2
MANTARO 5
MANTARO 6
MANTARO 7
MANTARO 8
PHILIP
MANTARO 9
LOMA QUINTA
LOMA ANTOYA
MANTARO 10
ELLIS
PUERTA DE PIEDRAS 5
LAGO HUMOSO
PUERTA DE PIEDRAS 6
PARDUBICE
PUERTA DE PIEDRAS 4
WILLIAM PRIMERO
MESA CORRAL 3
PUERTA DE PIEDRAS
QUICHA CHICO
PUERTA DE PIEDRAS 2
PUERTA DE PIEDRAS 3
PUERTA DE PIEDRAS 7
PUERTA DE PIEDRAS 8
DEMARCACION POLITICA FUENTE : INEI
LEYENDA
DERECHOS MINEROS EN TRAMITE
DERECHOS MINEROS TITULADOS
PLANTA DE BENEFICO
DERECHOS MINEROS EXTINGUIDOS
CERTIFICACION AMBIENTAL
EXPLORACION 1
EXPLOTACION 0
DERECHOS MINEROS SOLICITADOS
D.M. Titulado
ESCALA 1 : 163 000
Distritos
Provincias
Carreteras
Rios
Area solicitada
PLANO DE UBICACION
ANCASH
HUANUCO
PASCO
UCAYALI
JUNIN
LIMA
CALLAO
HUANCAVELICA
CUSCO
MADRE DE
Dirección de Catastro Minero
INGEMMET

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESSIBILITY

The deposit is located approximately 250 km east of Lima centered near Sincos, Junin District, Peru. Access to the Property from Lima is via the Carreterra Central (National Highway 5). The closest major community is Huancayo, approximately 30 km east of Sincos. Access to the Property is through the towns of Sincos, Aco, Mito and several other villages and then via gravel roads. Rough tracks suitable for 4WD vehicles provide general access throughout the Property.

CLIMATE

The climate at the site is seasonal with a dry and clear period between May and November and a wet period for the remainder of the year. Temperatures are typical of a high altitude, equatorial climate; with cool nights and moderately warm days. Temperatures are typically colder during the dry season, but snow is rare. There are no seasonal limits on operations.

LOCAL RESOURCES AND INFRASTRUCTURE

The Property lies at the southern end of a highly productive and historically important Cu-Pb-Zn-Ag mining belt in the Central Peruvian altiplano. As a consequence, regional infrastructure is generally excellent. A paved highway and railway connects Huancayo with Lima, approximately 250 km to the west. The Doe Run smelter at La Oroya, approximately 60 km to the northwest, is a potential source of sulphuric acid. Huancayo is a major regional centre with a population of approximately 300,000 people and offers excellent services. Skillled mining personnel are readily available in the region.

High tension and local electrical distribution lines cross the Property. Villages within the Property boundaries are supplied with low voltage electrical service. There is no surface water available on the Property. Potable water is supplied from local wells. Development of suitable water catchment basins and/or a pipeline to bring water from the Mantaro River will be required for mineral processing operations. Local roads within the Property will require upgrading to support additional mineral exploration and development and mining activity.

Sufficient land is available within the concession boundaries to provide for potential tailings storage facilities and waste rock dumps.

PHYSIOGRAPHY

The deposit is located in the region of the Mantaro Valley. The main drainage feature of the valley is the Mantaro River, which flows from northwest to southeast in a wide braided channel. The river is located approximately 10 km to the northeast of the Property and is several hundred metres below the site.

The Property lies at elevations from 3,600 metres to approximately 4,000 metres. Grasses, shrubs and some cacti form the majority of the natural flora in the area. Trees are generally absent except in the valley bottom and eroded gullies. Agricultural activity is widespread, with cultivation taking place across most of the Property. Agricultural activity is primarily subsistence in nature.

Figure 5-1 illustrates the typical physiography of the Property.

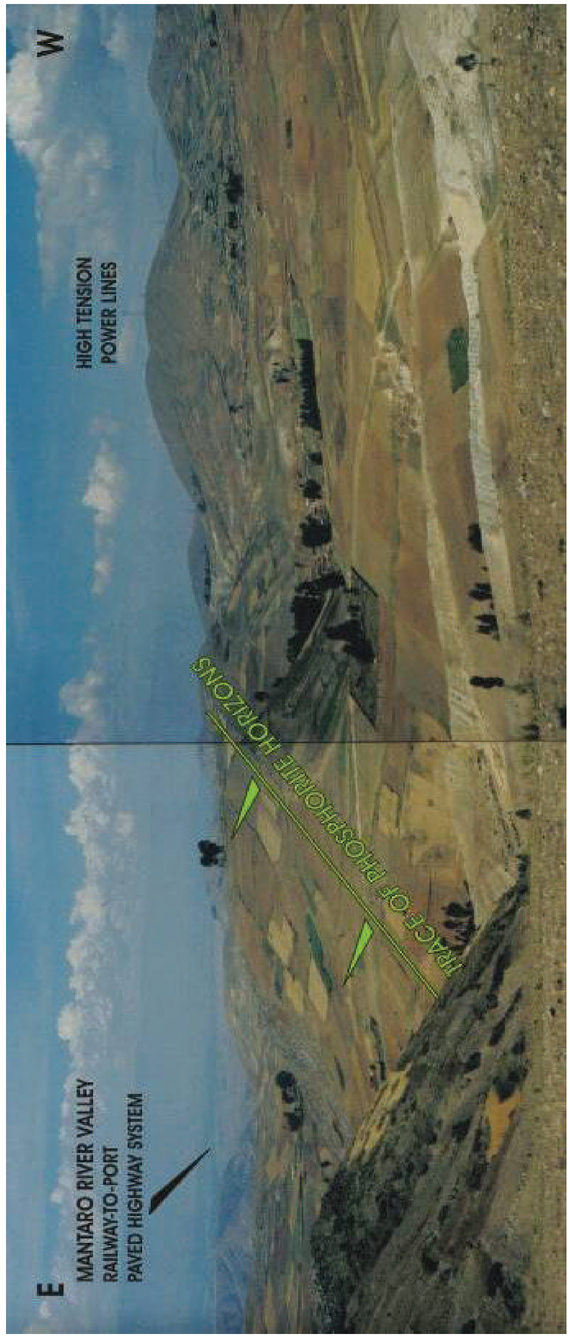


FIGURE 5-1 TYPICAL PHYSIOGRAPHY
Mancaspico Syncline Looking South
View from Alta Vista Trench

6 HISTORY

The deposit area was first explored and claimed by Minera Mantaro S.A., a Peruvian company, in 1960. Exploration work consisted of surface mapping and sampling over a wide area of the Mancaspico syncline. During the 1961-1968 period CDP conducted extensive exploration work on the Property and surrounding area and identified the potential for a significant resource. CDP also prepared a phosphate concentrate by simple washing and gravity concentration. The concentrate grade was reported to range from 26.6% P_2O_5 to 34.1% P_2O_5 based on head feeds grading from 4.96% to 13.19% P_2O_5.

Phosphex S.A. conducted exploration work on the Property in 1998, primarily within the confines of the current Philip concession. Work consisted of re-sampling and confirming earlier work and some preliminary beneficiation studies on weathered rock. The results obtained were similar to those of the previous owner, Cerro de Pasco Corporation.

Zublin Mining and Doe Run undertook exploration work in 1998 and 1999 under an option agreement with Phosphex S.A. Six trenches were dug and channel sampled. Samples from a trench in the Quicha Grande area returned 28.5 m averaging 9.73% P_2O_5, while samples from the Quicha Chico trench returned 15 m with an average of 12.19% P_2O_5. Figure 6-1 illustrates the locations of the exploration work conducted by Cerro de Pasco and the trenching work conducted by Zublin and Phosphex.

A mini-bulk sample obtained from trench samples was collected by Doe Run for beneficiation testing and acidulation testing. Gravity beneficiation work indicated a concentrate could be produced with reasonable grade and recovery. Acidulation tests to produce single superphosphate fertilizer from the concentrate were successful, although the silica content was somewhat above market specifications. It was concluded that floatation of the rough concentrate would be required to reduce the silica level and improve the P_2O_5 grade of concentrate to >30%.

In 2000/2001 Batmen Phosphate Technologies ("Bateman") conducted a scoping study assessment of the Property, including beneficiation testing, and developed an historical resource estimate for the area of the Philip concession. Bateman collected fresh samples from the trenches, which were characterized by lithology and analyzed for P_2O_5 content by Doe Run at La Oroya and SGS Laboratories in Lima. Table 6-1 details results of the sample characterization and analysis.

FIGURE 6-1
HISTORICAL EXPLORATION WORK

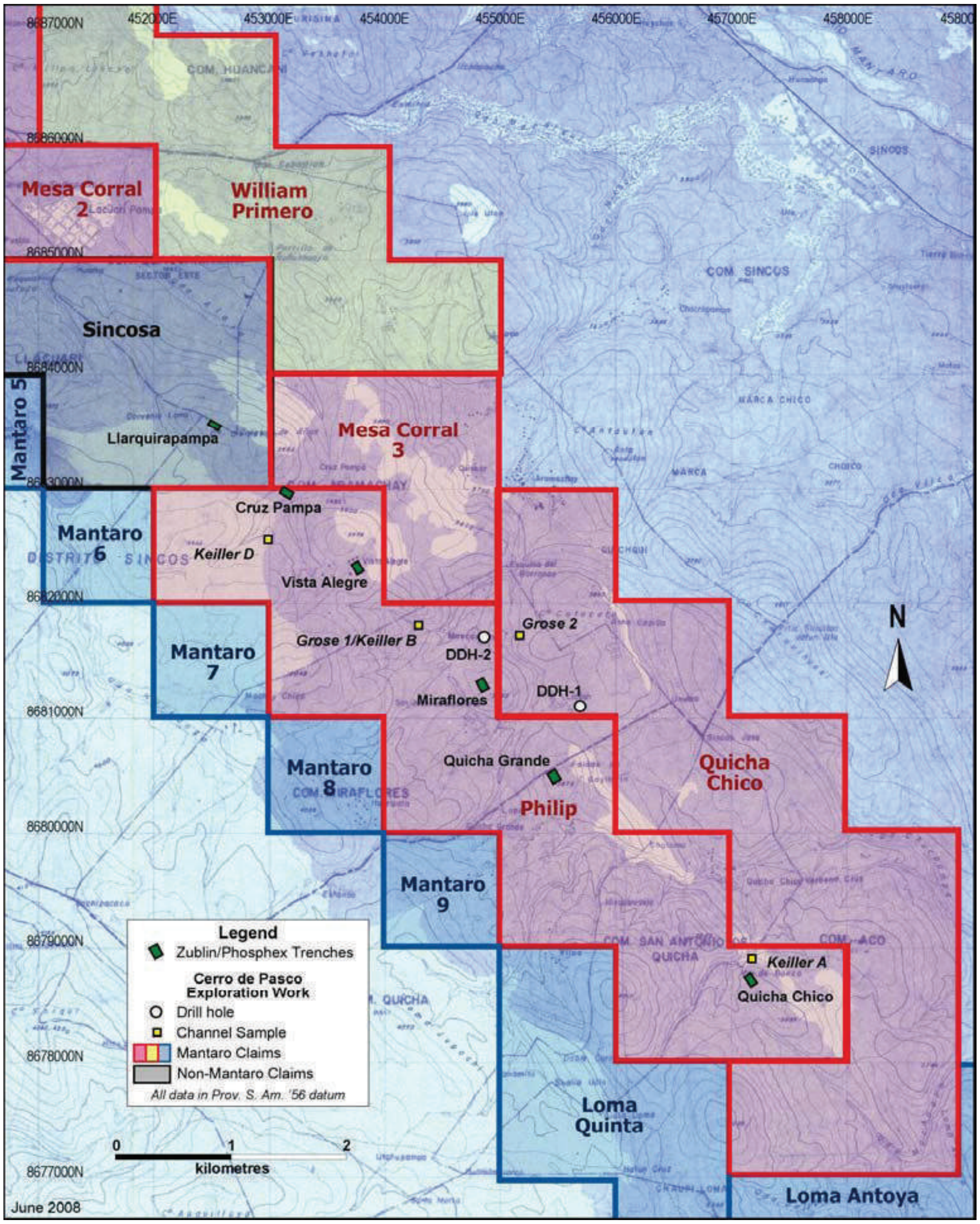


TABLE 6-1
Phosphate Mineral Sample Characterization by Trench
Bateman Test Program 2000/01

Sample No.	Trench	Rock Type	Rock Code	Sampling Width (m)	Dip	P_2O_5 % (1)	P_2O_5 % (2)
09501	Cruz Pampa Norte (Llaquaripampa)	Sandy siliceous phosphate	LAF	14.2 x 0.15	39 NE	16.6	
09502		Sandy chert	ACH	14.9 x 0.15	39 NE	7.0	
09503		Chert	CH	13.4 x 0.16	39 NE	n.a.	
09504	Cruz Pampa	Sandy siliceous phosphate	LAF	19.1 x 0.10	45 NE	14.4	14.0
09505		Sandy chert	ACH	11.0 x 0.10	45 NE	6.2	
09506		Calcareous phosphate	CF	19.7 x 0.10	45 NE	n.a.	
09508	Vista Alegre	Sandy siliceous phosphate	LAF	19.7 x 0.10	44 NE	14.8	
09509		Sandy chert	ACH	18.9 x 0.10	44 NE	3.9	
09510		Calcareous phosphate	CF	2.10 x 0.10	44 NE	n.a.	
09511	Mancaspico (Miraflores)	Sandy siliceous phosphate	LAF	34.3 x 0.10	47 NE	13.2	12.59
09512		Sandy chert	ACH	3.70 x 0.10	47 NE	4.1	
09513		Calcareous phosphate	CF	8.80 x 0.10	47 NE	3.4	
09514	Quicha Grande	Calcareous phosphate	CF	2.50 x 0.10	50 NE	3.4	
09515		Sandy siliceous phosphate	LAF	48.0 x 0.10	50 NE	15.6	
09516		Sandy chert	ACH	17.6 x 0.10	50 NE	2.6	
09517	Quicha Chico	Sandy siliceous phosphate	LAF	41.0 x 0.10	50 NE	19.2	19.08
09518		Sandy chert	ACH	13.3 x 0.10	50 NE	4.2	

1) assays reported by Doe Run Peru 2) assays reported by SGS Laboratories, Lima
Source: Bateman Prefeasibility Study Report, 2001

It is evident from the foregoing that the sandy siliceous limestone (LAF) fraction is the primary exploitable phosphate layer and that the other phosphate layers (ACH, sandy chert and CF, calcareous phosphate) are poor in P_2O_5 content and should be considered as overburden, subject to development of a suitable beneficiation process.

Bateman prepared a composite sample of approximately 900 kg of the sandy siliceous limestone (LAF) material and was successful in producing a concentrate grading 32.5% P_2O_5 with a recovery of 54.3% of the P_2O_5 and an overall mass recovery of 27%. The

MER (Minor Element Ratio) of the concentrate was 0.098 or 9.8 in industry standard terminology. This is considered to be an average grade concentrate with a relatively high, but acceptable MER. Bateman concluded that additional test work was required to optimize grade and mass recovery, and that magnetic separation would reduce the iron level in the concentrate.

Bateman estimated an "Indicated Resource" of approximately 61 M tonnes, with a mineable resource of approximately 40 M tonnes on the Philip and Sincosa concessions. This resource estimate assumed an average true deposit thickness of 21.3 m, a pit depth of 65 m, a strike length of 12 km and a specific gravity of 2.7. Bateman estimated an additional 40 M tonnes in the "Inferred Resource" category, for a total resource of approximately 100 M tonnes.

(Note: The resource estimate by Bateman does not conform to the mineral resource and mineral reserve estimation and reporting requirements as defined in NI 43-101 and should not be relied upon. The estimate is being presented for information purposes only. Stonegate is not treating the resource estimate as a current mineral resource or mineral reserve as defined in sections 1.2 and 1.3 of NI 43-101. However, this estimate is considered by Stonegate to be relevant because it is based on widely spaced trenches demonstrating geological and mineralogical continuity over an extended strike length and reasonable assumptions relating to depth of mineralization and pit geometry.)

Bateman completed a scoping study for the production of phosphate concentrate in 2001. The base case financial analysis prepared for the study resulted in the following parameters (all financial data in 2001 nominal US$ terms):

Market Price	US$ 43/tonne
Nameplate Capacity	1.25 M tpy @ 32.5% P_2O_5
Ore Mined	5.0 M tpy
Capital Cost	US$ 56.5 M
Operating Cost (total to Port)	US$ 27.15/t
(ex plant)	US$ 16.90/t
Cost of Transport to Port	US$ 8.00/t
Cost to warehouse & load	US$ 2.25/t
Net Present value (NPV_6)	US$ 71.8 M
Internal Rate of Return (IRR)	21%

(Note: The data above are provided for historical reference only and are not to be considered reflective of potential financial results based on current costs and revenues).

In 2006 Vale examined the Property and collected trench samples for analysis and beneficiation testing. Vale was successful in preparing a concentrate grading 31.3% P_2O_5, with a P_2O_5 recovery of approximately 53% and a mass recovery of approximately 22%. Vale recommended additional work related to geological exploration and metallurgical testing to better define the resource and the processing requirements. Vale also conducted a preliminary review of the socio-economic conditions in the area to establish parameters for a future community relations program (Ortiz, 2006). Vale decided not to continue work on the Property in favour of its Bayovar phosphate project in Sichura, Peru.

Hains (2008) conducted a site visit to the Property in 2007 on behalf of Sprott. His report indicated a potential for development of a significant resource. An NI 43-101 report prepared by Hains for Stonegate estimated an Inferred Resource of 45.17 MM tonnes grading 15.4% P_2O_5 for the Philip concession and adjacent area based on trench samples. The resource estimate assumed a strike length of 10 km, deposit true width of 22.1 m, pit depth of 65 m, dip of 47^0, and a specific gravity of 2.3 t/m^3.

7 GEOLOGICAL SETTING

REGIONAL GEOLOGY

The Mantaro region is located within the Mesozoic fault and fold belt of the Central Peruvian altiplano. The area is dominated by the Jurassic-aged sequence of sandstone, shale and carbonate rocks of the Pucará Group, which occur regionally in a northwest-striking belt extending from north of Cero de Pasco, south to beyond Huancayo, a distance of over 250 km. The sequence has been folded into a series of generally broad, open anticlines and synclines also of regional extent and up to 25 km wide. Locally intense isoclinal folding, and various generations of fault development are observed.

The Pucará group represents a miogeo-synclinal sequence, unconformably underlain by red clastic and volcanic rocks of the Permian Mitu Group and disconformably overlain by clastic rocks of the Lower Cretaceous Goyllarisquisga Group or by red beds of the Middle Jurassic Cercapuquio Formation.

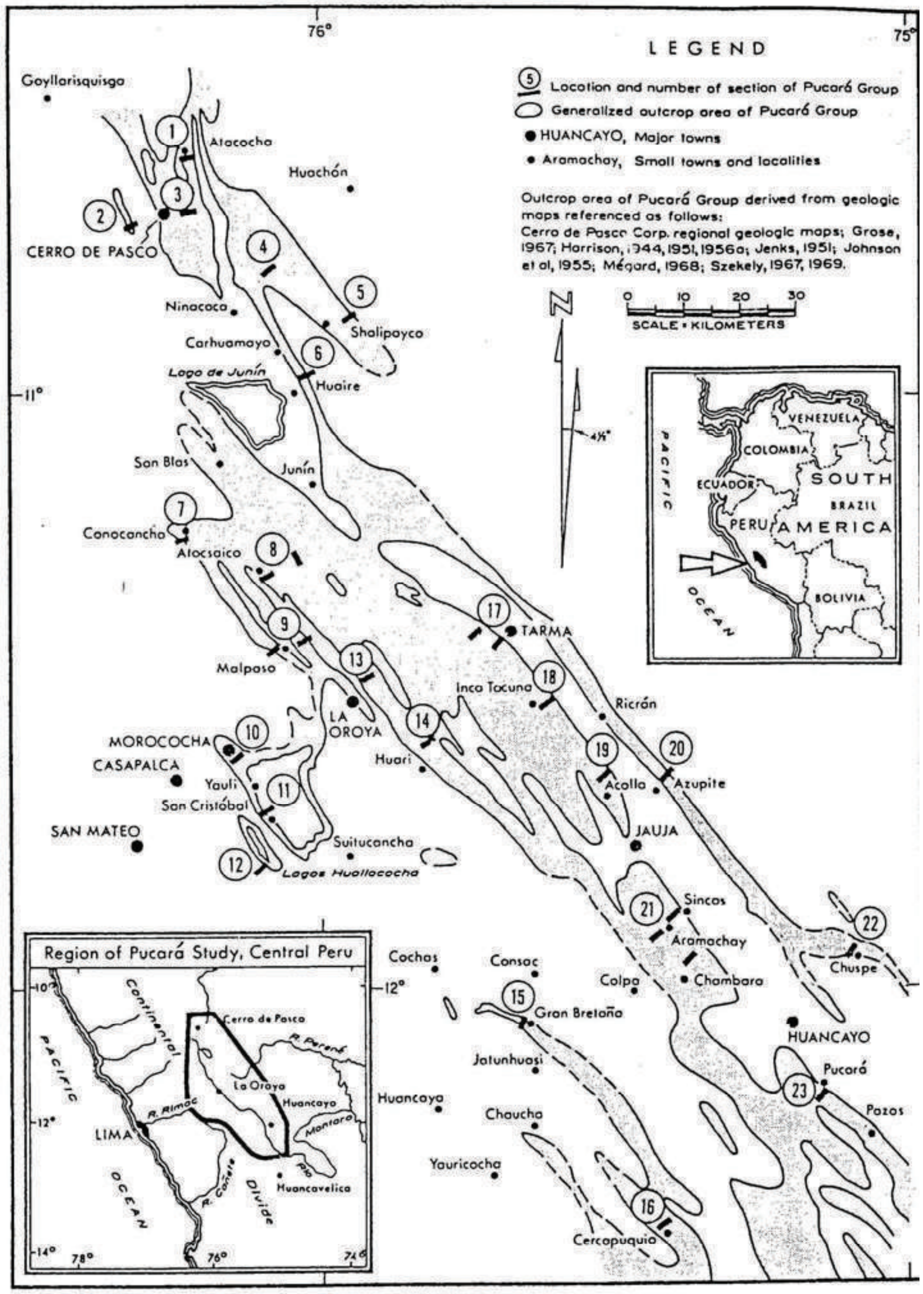
The Pucará Group is subdivided into three formations. In descending order, these are (1) Condorsinga Formation composed of early Jurassic age limestones of shaley, sandy, bioclastic and cherty composition; (2) Aramachay Formation, also of Jurassic age, comprised of bituminous shales and sandstones, cherts and phosphatic rocks; and (3) Chambara Formation of late Triassic age comprised of shaley, bituminous and cherty limestones (Szekely and Grose, 1972).

The Chambara Formation indicates a regionally uniform and relatively deep environment of deposition. The Aramachay represents predominately an accumulation of fine clastics and much organic material in a deep marine basin, which was followed by deposition of diverse sedimentary facies revealing shifting and laterally variable marine environments. The limestone beds of the Condorsinga Formation show relatively uniform and shallower marine sea-floor conditions (Szekely & Grose, 1972).

Regional work by Szekely and Grose (1972, Figure 7-1) demonstrated the presence of phosphatic rocks within the Aramachay Formation from Chambara in the SE to Alocsaico to the NW. Szekely and Grose examined stratigraphic sections in the Pucará group and demonstrated the presence of phosphate mineralization in the Aramachay Formation over a distance of approximately 100 km. The phosphatic rocks occur near the axis of a large trough. This large depo-centre or basin is the main reason for the phosphates.

FIGURE 7-1

Regional Stratigraphy and Phosphate Occurrences



Source: Szekely & Grose, 1972

The general stratigraphy of the Pucar Group in the area of interest is exposed in a broad, open, upright synform known as the Mancaspico Syncline. The Mancaspico syncline forms the southern end of a large synclinal structure which extends for more than 150 km in a SE-NW direction, plunging gently to the NW. The syncline is relatively narrow, 2 km – 3 km wide, and tapers to the southeast with moderate dips (35^0 – 50^0) noted on the south-western flank and somewhat steeper dips on the south-eastern flank. Folding is relatively gentle, with moderate to steep dips. Some large sub-vertical axial plane parallel faults are noted within the large syncline, and minor strike-slip faults locally offset the phosphate horizon by a few metres to a few hundreds of metres. One strike-slip fault with apparent left lateral offset of 250 m is noted near the village of Aramachay. Overall the phosphate horizon crops out continuously throughout the explored area. Figure 7-2 illustrates the regional geology. Figure 7-3 illustrates the regional disposition of the Aramachay Formation in relation to the MPS Property holdings (Note: The Aramachay Formation in Puerta de Piedras 2, 7 and 8 is incompletely mapped in Figure 7).

PROPERTY GEOLOGY

STRATIGRAPHY

The detailed stratigraphy of the Mantaro phosphate occurrences (in ascending order) is as follows:

Chambara Formation: This is the oldest of the Mesozoic sequence. It consists mainly of thin to thick bedded, gray, chert-nodule, sparsely fossiliferous limestone. The upper 65 m is composed of bedded chert and minor beds of phosphatic rock and sandstone. Several minor recessive tan and green shale and sandstone beds also occur.

Aramachay Formation: This formation, which regionally may be up to 600 m thick, hosts the phosphatic rocks of the Mantaro area. It has been divided into three members, two of which are observed to be phosphatic:

1) The uppermost Phosphatic Carbonate and Mudstone Member. This member may be up to 30 m thick in the Mantaro area and is composed primarily of phosphatic carbonate and mudstones. It averages between 5% and 20% P_2O_5 in composition. Petrographic examination indicates the two general rock types may be regarded as end members of an unevenly gradational series between phosphatic limestone and phosphatic mudstone. The phosphatic limestone consists of more than 50% calcite as bioclastic fragments and as crystalline cement in which collophane (finely crystalline apatite) pellets are irregularly scattered. The phosphatic mudstone is comprised of more than 50% illitic clay in which the pellets occur. Varying amounts, usually less than 15%, of microcrystalline silica (secondary chert) occur in both phosphatic rock types. The collophane pellets are usually ovoid, isotropic, structureless, medium to dark brown, and they range in size from 0.25 to 0.5 m in diameter. In hand specimen, the weathered phosphatic mudstones are usually brownish gray, soft,

crumbly, and have a strong clayey odour. The weathered phosphatic carbonates are tan and gray, hard, and dense;

2) The middle Chert and Cherty Carbonate Member. This unit varies up to 20 m thick in the Mantaro area. It is characterized by greenish and grayish cherts which contain only minor intercalations of phosphatic material;

3) The lowermost Phosphatic Mudstone, Shale and Green Volcanic Rock Member. This unit is over 200 m thick in the Mantaro area. The upper 60 m portion contains phosphatic mudstone interbeds, and is characterized by its thinly bedded nature, and the occurrence of thin intercalations of greenish volcanic ashflow and crystal tuff. The upper 60 m portion of this unit averages between 2% and 4% P_2O_5. This portion of the unit is most visible in the Llaquaripampa, Cruz Pampa and Vista Alegre trenches. The lower 100+ m are mainly black organic shales which were studied by Cerro de Pasco for their selenium and vanadium potential.

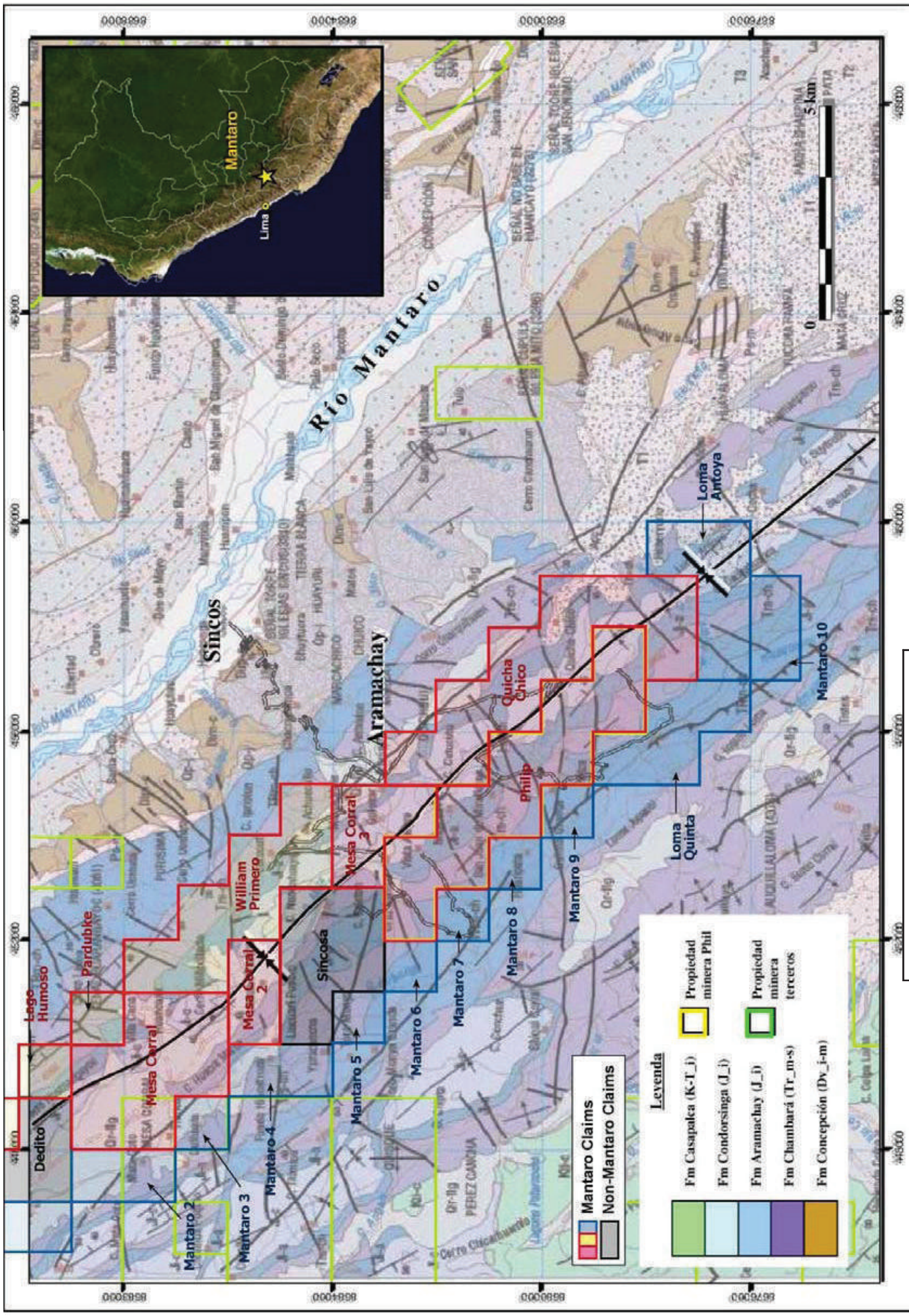
Condorsinga Limestone: This formation conformably overlies the Aramachay Formation and is the youngest of the Mesozoic succession preserved in the Mantaro area. The Condorsinga Formation consists of thin to thick-bedded, gray, clastic, locally cherty (nodular) fossiliferous limestone. The lower part is phosphatic. Thickness is at least 500 m in the Mancaspico syncline, and probably near 1,500 m in full section.

A few hundred metres of variably light coloured, soft sandstones, conglomerates, shales and tuffs of Tertiary age are locally preserved unconformably overlying all older rocks in the region. These Tertiary rocks are in turn unconformably overlain by a few hundred metres of rather uniform massive, gray, pebble and cobble conglomerate, which are essentially Quaternary age river gravels of the Mantaro River.

TECTONISM

Tectonic events have had a significant impact on the local geology and the expression of the mineralization on the Property. The Property presents a classic fold structure with faults running in a longitudinal direction roughly N 30^0 – 40^0 W, resulting in the formation of a major synclinal structure from Llocllapampa to Mancaspico. A system of secondary faults resulting in horizontal translation of the phosphate manto is present, with the faults trending NE at 80^0 to 110^0. Regionally, the folds and reverse faults show a complex geometry indicating a conjunction of more than one tectonic event, with the major impact being observed on the eastern edge of the syncline at Llaquaripampa.

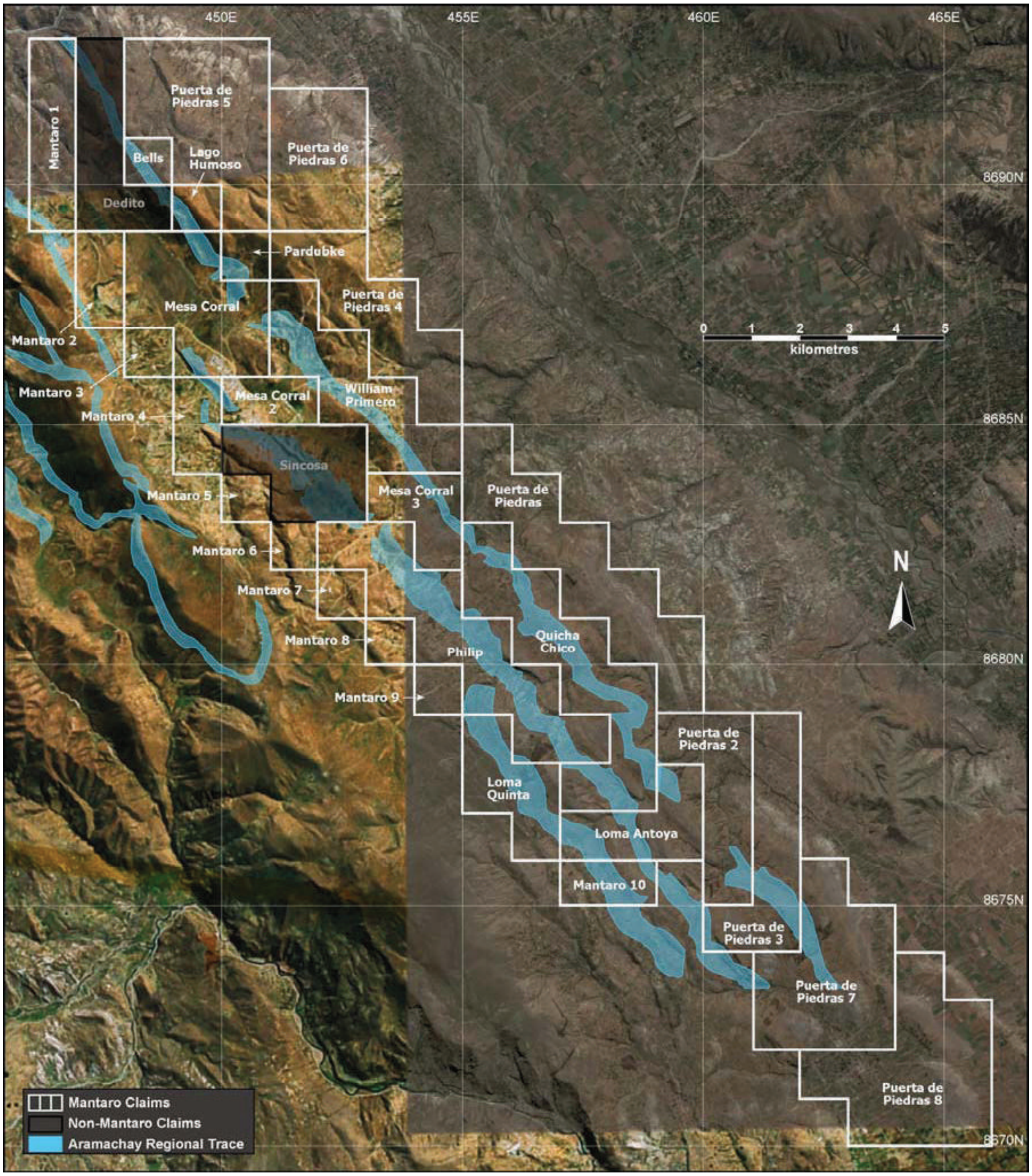
FIGURE 7-2 REGIONAL GEOLOGY



Source: INGEMT, Vale

Figure 7-3

Mantaro Property vs Aramachay Regional Trace



Geology after Grose (1967)

Structurally, the work area presents syncline and anticline folding produced in the Andean orogenic event and primary order inverse faults that have cut across normal, dextral faults, producing displacement of the phosphate mantle. Two roughly parallel faults, the most westerly being a reverse fault located on the western side of the syncline and the other, on the eastern side of the syncline being a normal fault, split the phosphate manto into two sections, effectively doubling the exposed mineralization. These faults are offset by a number of sinistral or dextral strike slip faults, most of which are minor in nature. Figures 7-4, 7-5 and 7-6 provide schematic cross sections illustrating the impact of the tectonic events as one travels northwest from Llaquaripampa to Quicha Chico. Figure 7-7 illustrates a plan view of the local geology within the central portion of the Philip concession, which was the area of focus for the 2009 exploration program.

Figure 7-4

Idealized Section □North End of Philip Concession

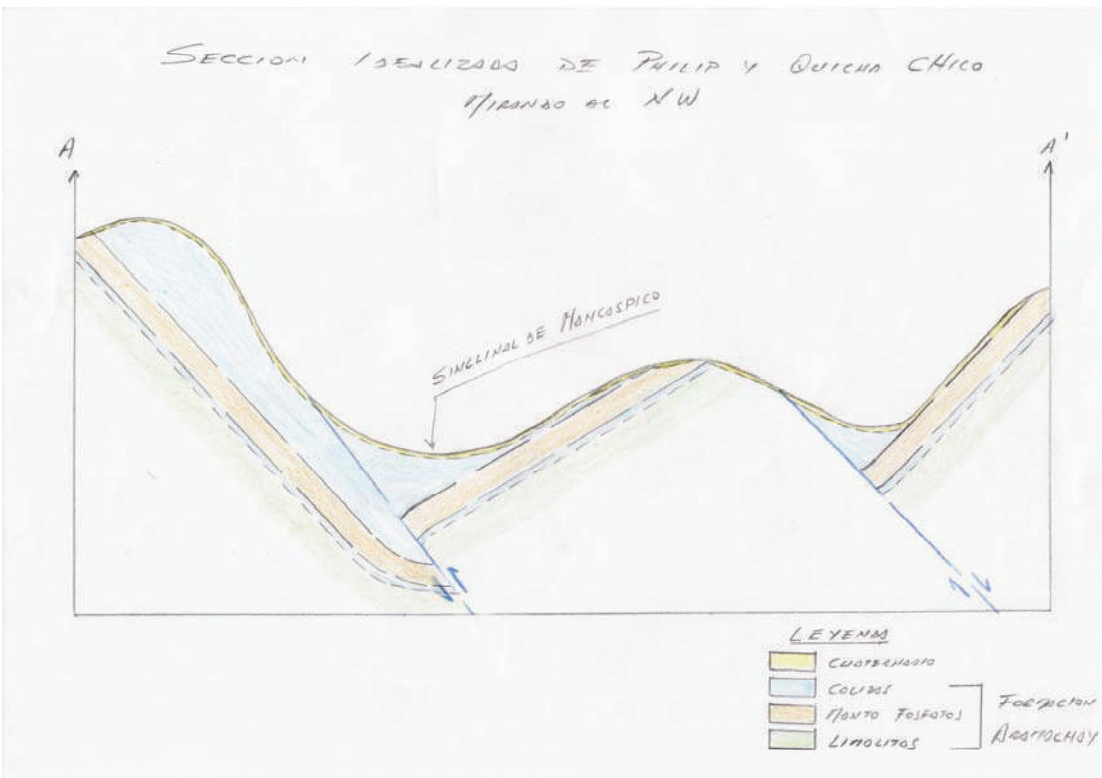


Figure 7-5

Idealized Section Mid Point Philip Concession

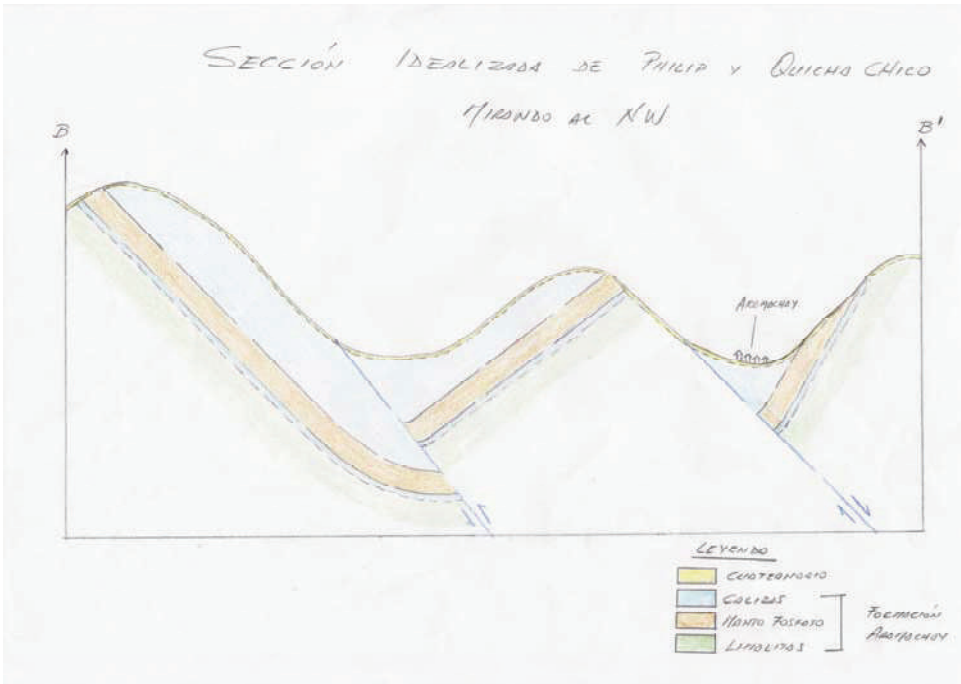
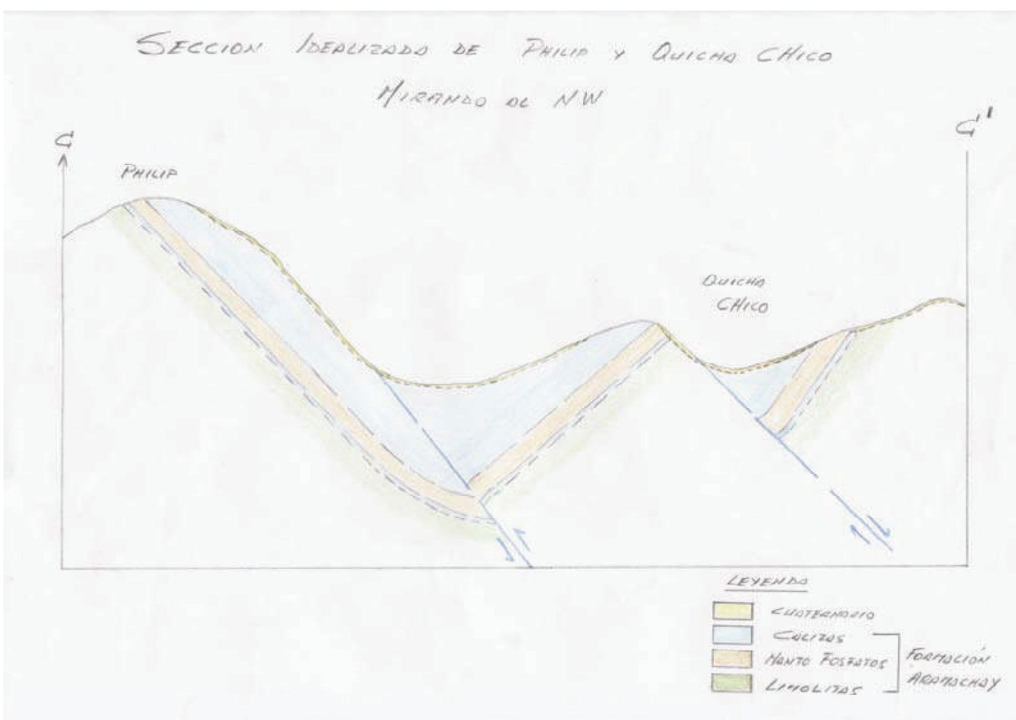


Figure 7-6

Idealized Section South End Philip Concession



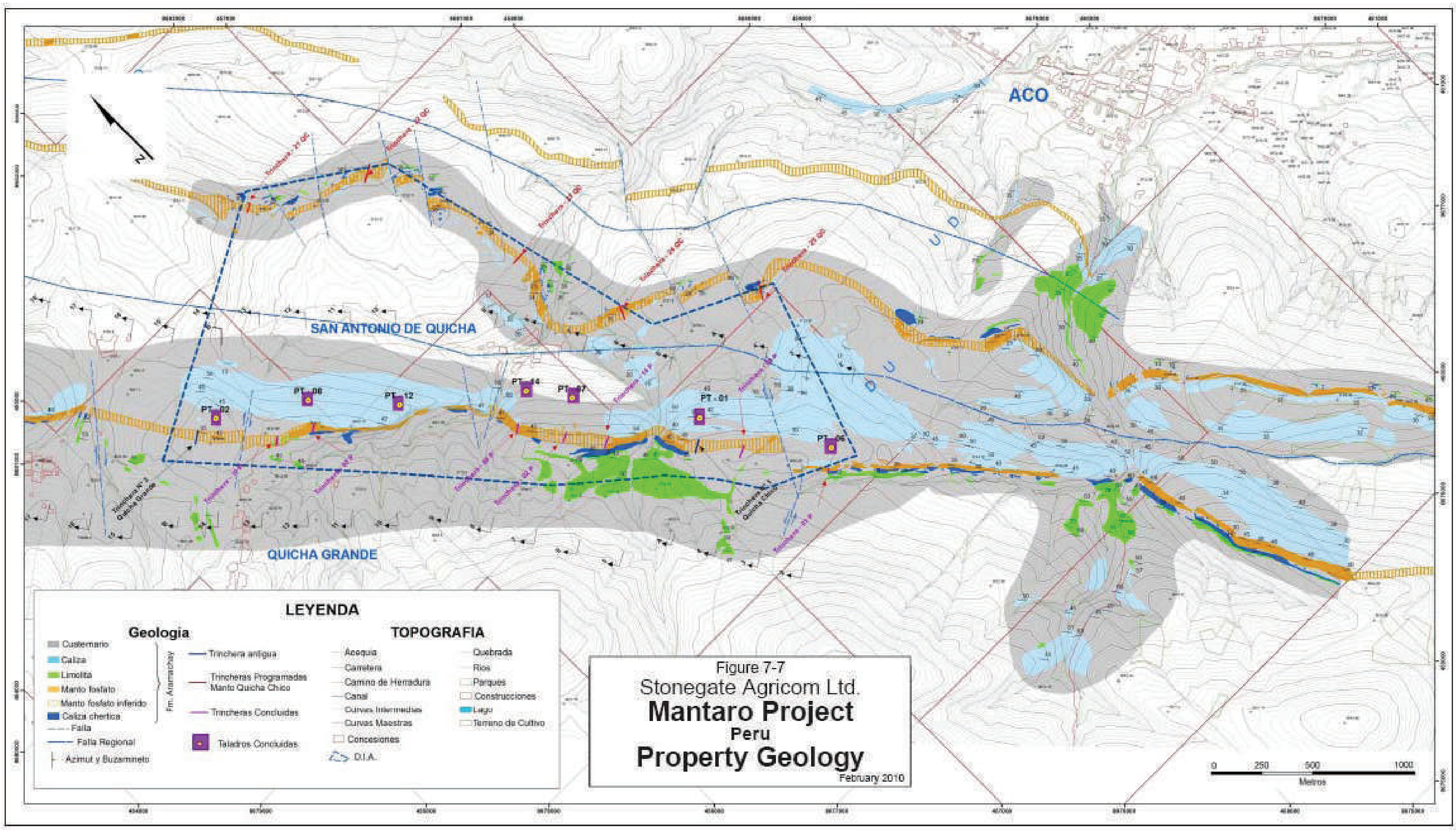


Figure 7-7
Stonegate Agricom Ltd.
Mantaro Project
Peru
Property Geology
February 2010

LITHOLOGY

As described above, the known phosphate occurrences in the region are in the phosphatic member of the Aramachay Formation. They occur as an integral part of the regional stratigraphic sequence, cropping out around the perimeter of the large Mantaro syncline extending over 150 km in a SE-NW direction and up to 20 km in a SW-NE direction.

The phosphatic member varies in thickness between 50 m and 90 m. Lateral facies changes are observed. Within the member, two fairly persistent phosphatic zones, separated by a chert and cherty limestone unit, are recognized:

1) A lower blanket zone, 10 m – 15 m thick, which usually occurs below a 10 m to 30 m thick massive bedded chert and above thick shale and thin shaley limestone. The zone contains phosphatic bituminous limestone, dark phosphatic limestone and thin-bedded black chert.

2) The upper phosphatic zone, which is most prominent in the SE part of the Mantaro deposit. It is up to 50 metres thick and occurs immediately below the Condorsinga limestones and above the cherty limestone or bedded chert, which separates it from the lower zone. It is calcareous, sandy and silty, and lighter in colour than the lower zone due to paucity of the carbonaceous material. The entire resource in question (Mancaspico deposit) is hosted in this zone, which is called the phosphatic sandstone and mudstone (PSM). The Upper zone can be further subdivided into three units characterized by high silica and medium carbonate (upper zone), low silica and high carbonate (middle zone) and low phosphate, high silica (lower zone). The Upper zone is classified as a calcareous phosphate, the Middle zone as a sandy, siliceous phosphate and the Lower zone as a sandy chert.

Table 7-1 illustrates the general tenor of the phosphatic zone and its relation to the underlying and overlying formations. These data are based on analysis of samples from the Quicha Chico trench, which represents the area of widest mineralization of the deposit.

TABLE 7-1
General Lithology and Phosphate Tenor
Mantaro Phosphate Deposit

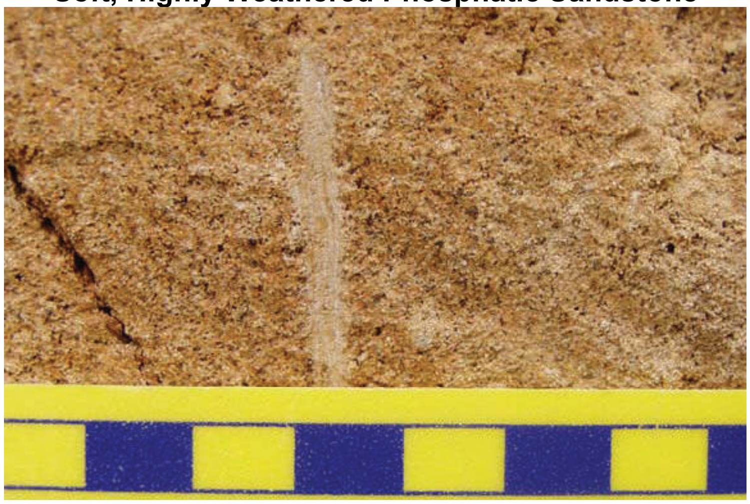
Formation	Member	Unit	Width (m)	Lithology	P_2O_5 %	$CaCO_3$ %	SiO_2 %
Condorsinga				Limestone, low phosphate, low silica	1.1%	76.12%	16.9 %
Aramachay	**Upper**	**Upper**	6.0	Calcareous phosphatic limestone, low to medium phosphate, high silica, medium carbonate	9.11	32.04	37.6
		Middle	22.5	Sandy siliceous limestone, low to medium phosphate, low silica, high carbonate	9.73	47.23	17.5
		Lower	10.3	Sandy chert, low phosphate, abundant silica	1.13	32.26	48.1
	Middle			Cherty limestone and chert			
	Lower						

Source: Ortiz (1998)

The phosphatic member dips at an average of approximately 48^0, with dips varying from approximately 35^0 to up to 60^0. The strike direction is typically approximately N25^0W. Local facies changes along strike are minimal, as determined from the regional mapping program. Pinching and swelling of the phosphorite beds is evident, with the more southerly portions of the deposit generally exhibiting greater widths. Geological mapping indicates that the exposed phosphate manto on the Quicha Chico and Puerta de Piedras concessions east of the Philip concession is somewhat thinner than the exposed manto on the Philip concession. However, substantial local variations in exposed widths within the Quicha Chico and Puerta de Piedras concessions are observed. Overall, the regional extent of the phosphatic members suggests that good lateral thickness and grade continuity can be expected.

Textural differences in the deposit are illustrated in Figures 7-8 through 7-11.

FIGURE 7-8
Soft, Highly Weathered Phosphatic Sandstone



Source: HTA, 2007

FIGURE 7-9
Phosphatic Limestone/Mudstone

Source: HTA, 2007

FIGURE 7-10
Phosphatic Limestone interbedded with Chert

Source: HTA, 2007

FIGURE 7-11
Green Volcanic Tuff/Sandstone

Source: HTA, 2007

8 DEPOSIT TYPE

The deposit bears similarities to the phosphate deposits of the western United States in terms of topography, grade and structure (Cape, 1999). The Mantaro phosphate deposit is of marine sedimentary origin and conforms to the upwelling deposit model type. These deposits are believed to have been formed due to syngenetic deposition in shallow to moderate depth seas, most likely by biogenic processes, followed in some cases by diagenetic and epigenetic enrichment processes (Cook, 1984).

Marine phosphate deposits are noted for their large size (tens to hundreds of millions of tonnes), excellent grade continuity over large distances and high phosphate grades. Most of them have formed in Mesozoic to Cenozoic rocks, have undergone little or no burial and/or deformation, and are amenable to open pit mining. More than 95% of the known world reserves of phosphate are included in this category.

Evidence suggests the deposit was formed in two different environments; the lower phosphatic zone formed in a low energy quiet, moderately anaerobic environment and the upper phosphatic zone formed in a shallow, moderate energy and fairly aerated environment.

9 MINERALIZATION

Mineralization is observed on the deposit exposed in three parallel surface outcroppings and in trenches and drill holes stretching for a distance of over 30 km in a northwesterly direction from southeast of the village of Aco to near the village of Miraflores in Pacha district. As described previously in Section 7, Geology, two major longitudinal faults, one reverse and one normal, control the expression of the phosphate manto. Dextral and sinistral strike-slip faults offset the mantos along strike. These faults are represented by erosional gullies and can form impediments to mine planning.

The trenches are dug across strike and were designed to expose the upper member of the Aramachay Formation, cutting across the phosphatic carbonate, sandstone and mudstone member of the Aramachay Formation, and extending from the lowermost occurrence of the overlying Condorsinga Formation through the phosphatic portion of the Aramachay and into the first occurrence of massive bedded chert in the middle Chert and Cherty Carbonate member of the Aramachay Formation. Typical trench profile descriptions from SE to NW for the historic trenches on the Philip concession are provided below:

> **Quicha Chico (QC)**: Bears 58^0 True looking east. Trench approx. 65 m long, 1 – 2.5 m deep. Deepest at west end of trench. Poorly weathered with limestone interbeds. More phosphatic at east end of trench. Phosphate beds dip 45^0, striking N25^0W. Abundant chert exposed in underlying Lower Aramachay and overlying Condorsinga Formations.
>
> **Quicha Grande (QG)**: 70 m long. Bears 56^0T looking east. Dips 55^0. Thinly bedded phosphatic limestone/mudstone/sandstone. Phosphate more prevalent at the SW end of the trench.
>
> **Miraflores (MF)**: (also called Mancaspico in older reports): 69 m long trench bearing 58^0T. 45^0 dip. Limestone interbedded with phosphate for 20 m (contact with black shale). 1 – 1.5 m deep. Less weathered than Quicha Grande trench.
>
> **Vista Alegre (VA)**: Bears 60^0T looking east. 60 m long. Dips 45^0 N25^0W. 1 m – 2 m deep. 16 – 20 m phosphatic horizon in centre between 20 m waste at east end and 4 m chert at west end. Best phosphatic section to NE end of trench.
>
> **Cruz Pampa (CP)**: 53 m long. Bears 63^0T looking east. Dip 50^0 – 52^0 N25^0W. Thinly bedded green volcanic tuff, highly weathered phosphatic sandstone, phosphatic limestone. 4 m chert at SW end of trench. 10 m soft waste material at NE end of trench.

Mineralization is widest in the more southerly portions of the deposit and thins out to the north. Oxidation of the phosphatic beds appears more widespread in the more southerly trenches than in the more northerly trenches. The three major types of mineralization: sandy siliceous phosphate, sandy chert and calcareous limestone; are exposed in all trenches. Bedding thickness ranges from thin (<1 cm) to thick (>20 cm). The green volcanic ashflow tuff appears only in the more northerly trenches. The sandstones and mudstones have undergone the most extensive oxidation and are characterized by a soft, sandy appearance with a tan to brownish colour. Limestones rich in phosphate tend to be moderately hard.

Phosphate is present in the form of calcium fluorapatite (francolite) and collophane (finely crystalline apatite) pellets. Trench samples exhibit pellets 0.25 mm to 0.50 mm in diameter, usually ovoid, isotropic, structureless, medium to dark brown. Some apatite has been observed as blebs and discontinuous laminae enclosing radiolarian and quartz silt. Pellet content varies from more than 50% in limey and clayey phosphorites to a few percent in phosphatic limestones and mudstones. Where the pellets exceed 50% they form phosphorite beds a few centimetres to a few metres thick. Gradations in calcite, silts and phosphatic material are common.

Distinct differences between the upper and lower phosphate zones are noted, despite petrographic similarities. The lower zone is dark, bituminous and richer in shaley and limey mudstone and is more siliceous and cherty. Pellets are more scattered in the southeastern part of the deposit and more sharply confined to distinct layers interstratified with limestone and chert in the more northern part. Pellets disappear gradually over a distance of 100 m into the underlying shales, without a clear boundary. It has good lateral continuity, well-developed bedding and lack of depositional structures, suggesting a quiet low energy, moderately anaerobic environment of deposition.

The upper phosphatic zone is medium to light gray and richer in limestone, sandstone and siltstone. Variations between phosphatic mudstone and phosphatic limestone are gradational. The phosphatic limestone consists of more than 50% calcite as bioclastic fragments and crystalline sparitic cement, with collophane (finely crystalline apatite) occurring irregularly. The phosphatic mudstone is comprised of more than 50% clay (mainly illite) in which the pellets are found. Both rock types contain up to 15% of cryptocrystalline silica (chert). Pellets occur both scattered in limestone and as distinct calcareous phosphatic mudstone layers. The upper phosphatic zone has more variations in lithology and bedding. Noted in it are local occurrences of cross-bedded phosphatic sandstone with lithic volcanic clasts. This indicates the depositional environment was of a shallow, moderate energy and fairly aerated type. Pellets disappear rather sharply into the bioclastic limestones of the Condorsinga Formation.

Oxidation of near surface material has resulted in supergene enrichment of the phosphorite. Weathering of marine phosphorites results in oxidation of organic matter, leaching of carbonate, evolution of clay and apatite phases, appearance of free iron oxides and genesis of new phosphate and sulphate minerals. The carbonate fluorapatite (francolite) is modified through removal of CO_2 and changes in mineral constitution. Mineralogical changes noted are depletion of the apatite lattice in calcium and fluorine, as well as sodium (Filcoteaux and Lucas, 1984). The net result of weathering is an increase in the P_2O_5 and disaggregation of the ore due to dissolution of the calcite component. The ore is enriched and becomes easier to mine and process.

It is clear that the depth of weathering is quite important for economic evaluation. Trench and near-surface drill core samples exhibit phosphate enrichment due to oxidation of the carbonates. Observation of the trenches, inspection of drill core and down dip drilling results for Hole PM-DDH 3 indicate the oxidation zone extends to vertical depth of approximately 35 m below surface. The weathered mudstones are usually brownish-gray, crumbly and soft, while the weathered carbonates are tan and gray, hard and dense. Grade differences of up to 4% - 5% between weathered surface material and unweathered drill core are noted. Unweathered material is significantly more lithified and contains abundant carbonate. Testing of drill core material with hydrochloric acid exhibited vigorous effervescence.

Mineralogically, there are differences between the near surface material and more deeply buried phosphate. Thin section, X-Ray diffraction (XRD) and X-ray fluorescence (XRF) examination of trench samples and drill core show the following:

Trench Samples

- Two main types: 1) low grade with low apatite and quartz; 2) high grade with high apatite matrix support; typical mineralogical composition as per Table 9-1.

Table 9-1

Typical Mineralogical Composition
Trench Samples

Mineral Composition	Low Grade	High Grade
Apatite	25%	48%
Quartz	16%	15%
K-Feldspar	18%	20%
Illite/Mica	9%	8%
Kaolin	5%	5%
TiO_2 Minerals	0.5%	0.5%
Iron oxide/hydroxides	1.4%	2.5%
Other	<1%	<1%

Source: Vale, 2006

- Low grade material higher in silica and lower in carbonate than higher grade material. Typical chemical analysis as per Table 9-2.

Table 9-2

Typical Chemical Composition
Trench Samples

Chemical Composition	Low Grade	High Grade
P_2O_5	11.70%	14.41%
SiO_2	50.81%	46.58%
CaO	15.86%	19.77%
Al_2O_3	7.60%	7.69%
Fe	1.53%	1.92%
Mg	0.17%	0.17%
Na	0.13%	0.12%

Source: Vale, 2006

- Both low grade and high grade trench samples show a log normal distribution of phosphate with grain size, as per Table 9-3.

Table 9-3

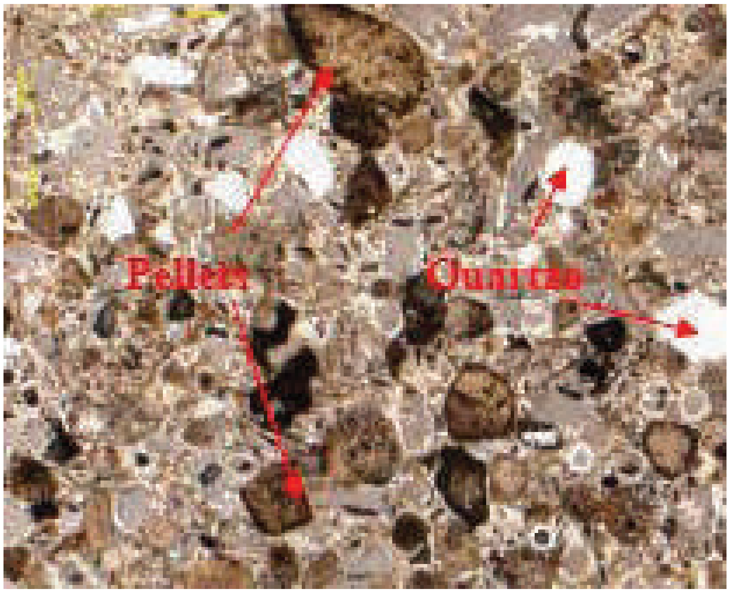
Typical Phosphate Distribution by Grain Size
Trench Samples

Particle Size (mm)	Low Grade			High Grade		
	Mass %	Grade P_2O_5%	Dist. P_2O_5%	Mass %	Grade P_2O_5%	Dist. P_2O_5%
6.35	49.0	10.7	44.8	42.2	13.1	38.4
1	19.8	11.7	19.8	18.7	14.3	18.6
0.5	7.3	14.2	8.8	7.5	18.7	9.7
0.25	7.9	20.5	13.9	10.5	25.3	18.5
0.15	4.4	17.5	6.6	5.7	21.8	8.7
0.075	3.1	10.8	2.8	3.3	10.9	2.5
0.045	1.6	5.1	0.7	1.6	4.9	0.6
0.038	0.6	4.7	0.2	0.7	4.2	0.2
<0.038	6.3	4.2	2.3	9.7	4.3	2.9
Total	100.0	11.7	100.0	100.0	14.4	100.0

Source: Vale, 2006

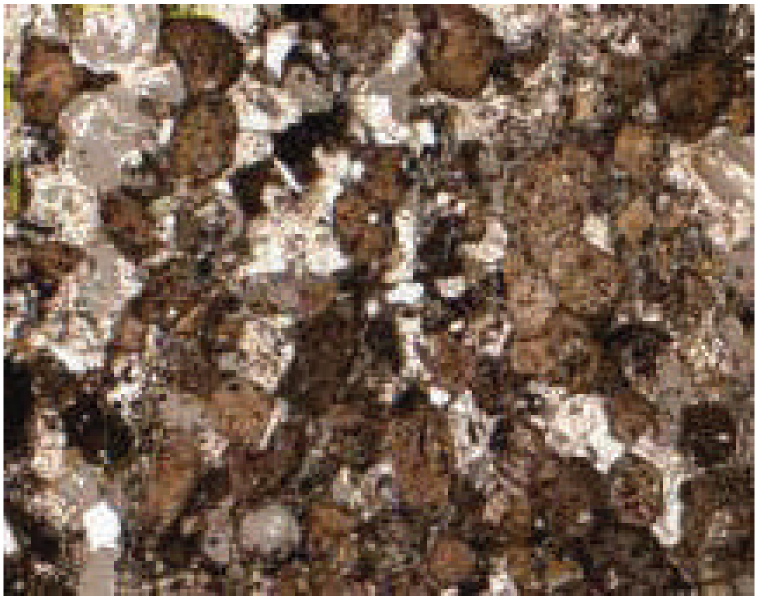
Figures 9-1 through 9-4 illustrate various aspects of the mineralization of trench samples.

FIGURE 9-1
Low grade phosphate (apatite) pellets with quartz



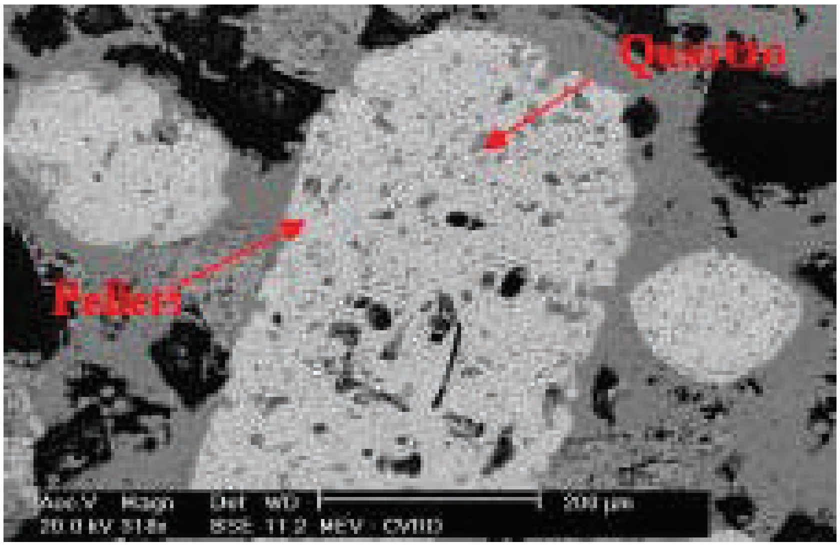
Source: Vale, 2006

FIGURE 9-2
High grade phosphate (apatite)



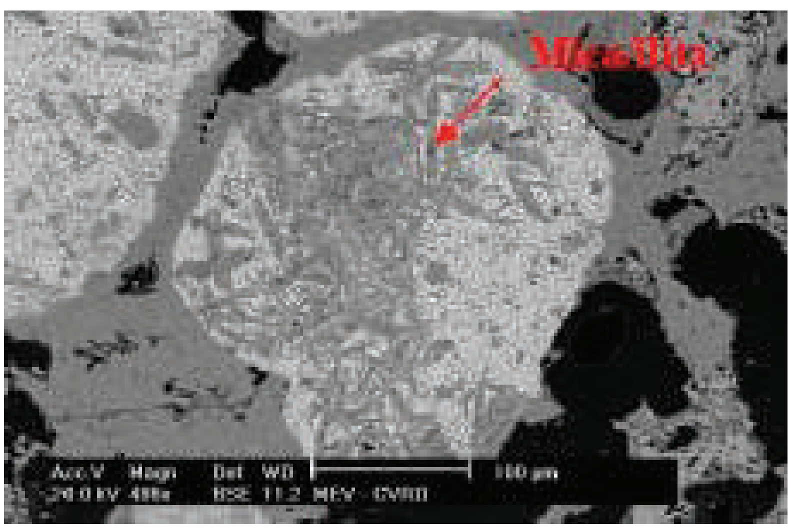
Source: Vale, 2006

FIGURE 9-3
Apatite with Quartz Inclusions and Illite



Source: Vale, 2006

FIGURE 9-4
Apatite with Biotite Inclusion and Illite



Source: Vale, 2006

Drill Core Samples

XRD mineralogical examination by SGS Mineral Services of drill core from Holes PM-DDH-02B, 08, 08A and 12 shows the following (Table 9-4):

Table 9-4

XRD Results
Summary of Qualitative X-ray Diffraction Results

Crystalline Mineral Assemblage (relative proportions based on peak height)

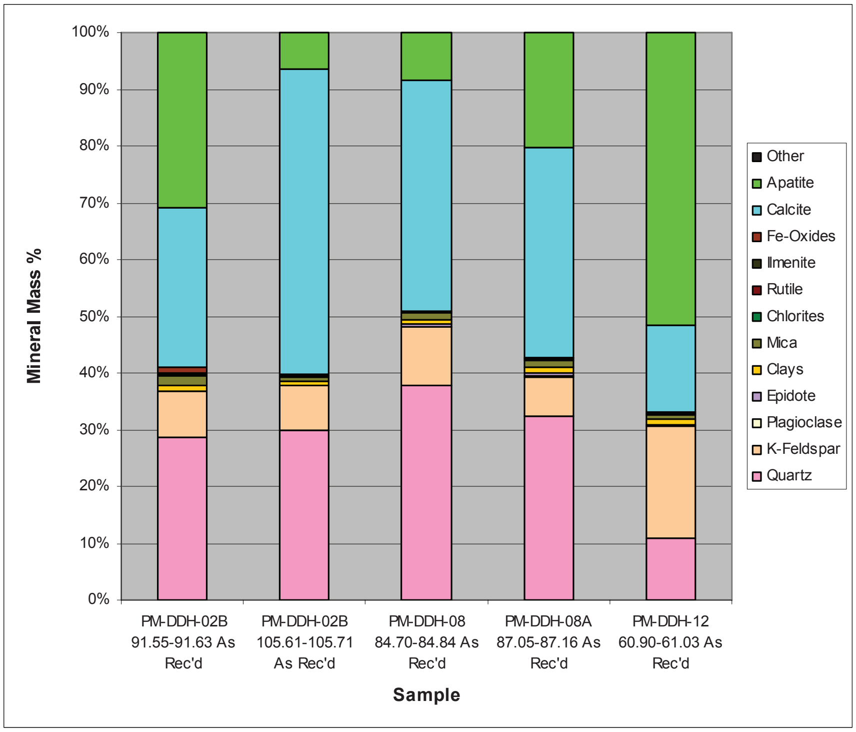
Sample	Major	Moderate	Minor	Trace
PM-DDH-02B 91.55-91.63 K80 1/4 Inch	quartz, calcite	fluorapatite	potassium feldspar	*dolomite
PM-DDH-02B 105.61-105.71 K80 1/4 Inch	quartz, calcite	potassium feldspar, fluorapatite	mica	*dolomite
PM-DDH-08 84.70-84.84 K80 1/4 Inch	quartz, calcite	fluorapatite	mica	*dolomite
PM-DDH-08A 87.05-87.16 K80 1/4 Inch	quartz	calcite, fluorapatite	potassium feldspar, mica	-
PM-DDH-12 60.90-61.03 K80 1/4 Inch	fluorapatite	calcite, quartz	potassium feldspar, mica	*dolomite

Crystalline Mineral Assemblage (relative proportions based on peak height)

Qemscan analysis to determine modal abundance shows an increase in carbonate content with depth (Figure 9-5):

Figure 9-5

Modal Abundance of Drill Core Samples



The phosphate content of the samples ranged from a low of 2.36% to a high of 15.0%. Apatite content ranged from approximately 7% to approximately 52%. Apatite was generally rimmed by iron hydroxides and calcite coatings and often included quartz inclusions. Overall, the general conclusions arising from the mineralogical examination of the drill core samples were as follows:

- XRD analyses indicate that the samples consist mainly quartz, calcite, fluorapatite, K-feldspar, and minor to trace amounts of mica and dolomite.

- Apatite ranges from 6.5 to 51.7%, quartz from 11.0 to 37.9%, K-feldspar from 6.9% to 19.6% and calcite from 15.3 to 53.8%. Trace amounts (<1-3%) of plagioclase, epidote, clays, mica, chlorites, rutile, barite, zircon and Fe-oxides are also present.

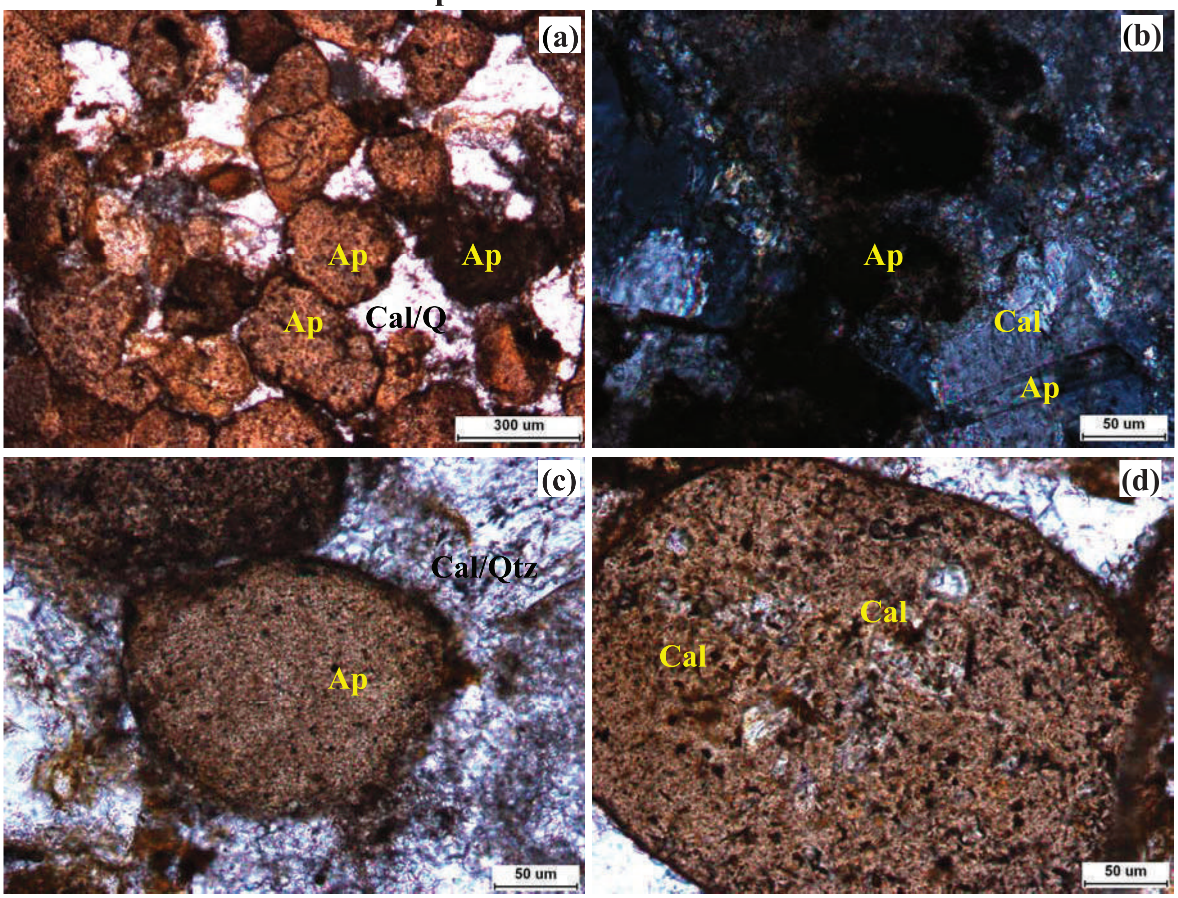
- Apatite in all samples hosts primarily quartz inclusions.

- Apatite in the phosphate rocks are both grain-supported, and in a blocky calcitic - quartz cement. Apatite is ovoidal, spherical, and elliptical in shape (ranging from sub-rounded to well rounded). Apatite is pale brown to dark brown to yellow depending on their organic content (?) and silicate inclusions.

- The samples consist mainly of P_2O_5 (2.36 to 15.0%), SiO_2 from 23.6 to 41.7%, Al_2O_3 from 3.22 to 5.22%, Fe_2O_3 from 1.12 to 4.04%, CaO (27.9% to 36.6%), K_2O from 1.59 to 2.87%, while other elements occur in minor amounts (<1%).

Figures 9-6 and 9-7 illustrate typical features of the drill core mineralogy.

Figure 9-6
Drill Core Sample DDH PM-12 60.90 □61.03



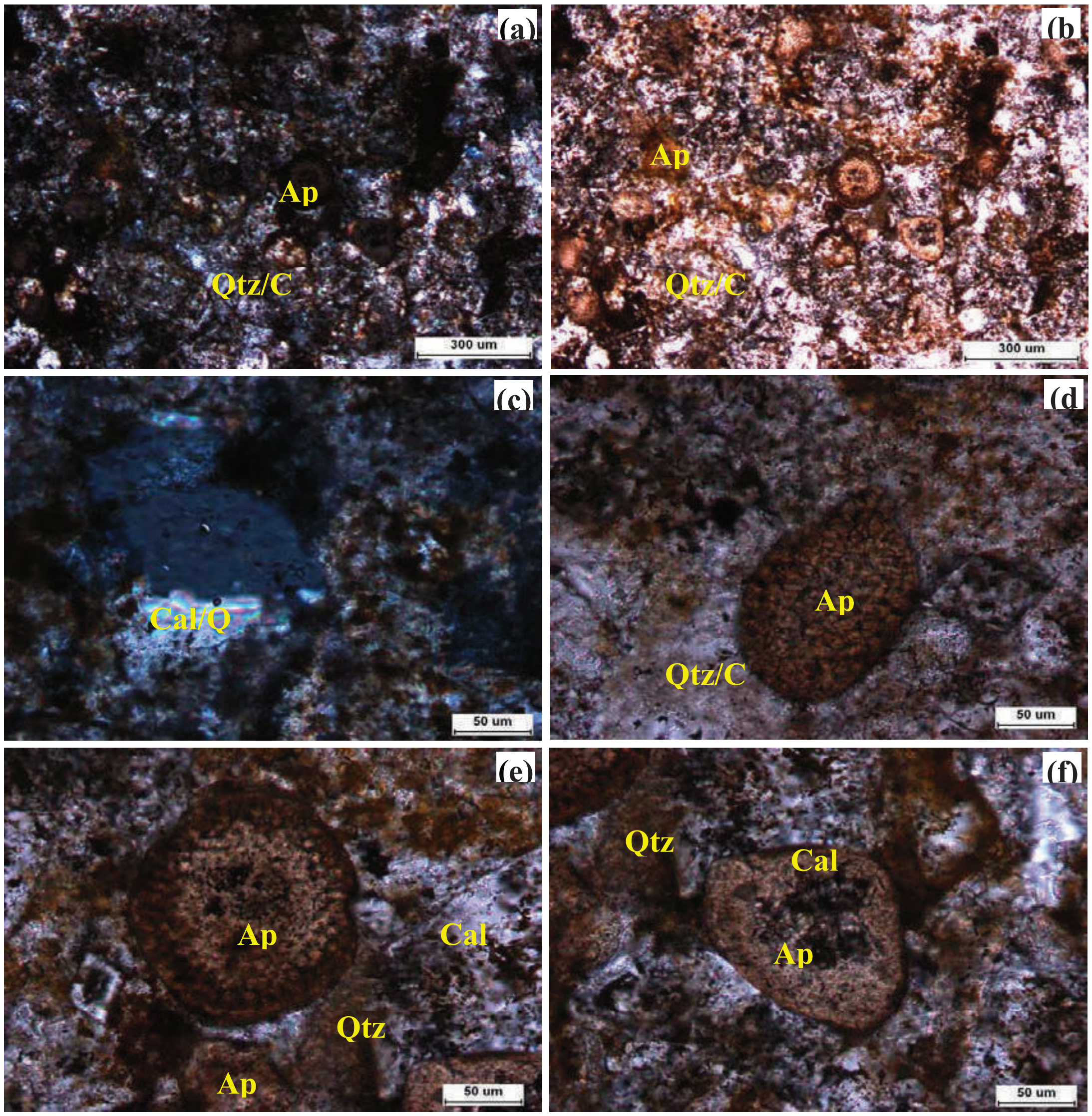
(a) Image displays an overall view of apatite (Ap) in a calcite (Cal) - quartz (Qtz) matrix (PPTL). Apatite is typically pale to dark brown in colour. Rims are typically darker than the rest of the crystals.

(b) Image displays apatite, a rare acicular apatite in calcite (CPTL).

(c) Sub-rounded apatite surrounded by calcite and less fine-grained quartz (PPTL).

(d) Image displays sub-rounded apatite with abundant silicate and calcite inclusions (PPTL).

Figure 9-7
Drill Core Sample DDH PM02B 105.61 105.71



(a) Image displays an overall view of apatite (Ap) in a calcite (Cal) - quartz (Qtz) matrix (CPTL). Apatite displays variation in colour from pale brown to dark brown (especially the rim). Apatite is finer-grained than that in other samples.

(b) Image displays an overall view of apatite in a calcite-quartz matrix (PPTL)

(c) Image displays quartz and calcite (CPTL).

(d) to (f): Images display apatite grains with abundant silicate mineral inclusions, quartz and calcite.

10 EXPLORATION

The 2009 exploration program conducted by Stonegate consisted of the following:

- Geological surface mapping of the Property, primarily in the region south of the Sincosa concession;
- Development of a digital terrain model based on ortho-rectified aerial photos;
- Cleaning and sampling of the old Quicha Chico (Aco or Trench A-A') and Quicha Grande (Trench B-B') trenches totaling 133 m,
- Development of 7 new trenches and sampling of the trenches totaling 333 metres in length and an average depth of approximately 2 m,
- Drilling of 23 HQ core size diamond drill holes from 8 drill pads totaling 3,414.5 m. Two holes were drilled down dip to test the depth of oxidation,
- Completion of an archaeological survey within the Philip concession (Palomino, 2009),
- Development and execution of an extensive program of community consultations,
- Preliminary geological mapping and chip sampling on the Puerta de Piedras 9-16 claims on the east side of the Mantaro River.

Geological mapping was conducted using a series of traverses to map outcrops. Twenty-six sections spaced approximately 500 m apart covering a total strike length of approximately 14 km extending from the northern boundary of the Philip concession southeast to the Loma Antoya concession and extending across the full width of the Property from the western side of the Philip concession to the Puerta de Piedras concessions were prepared. Phosphate mineralization was identified from surface chip samples and from exposures in transverse faults and eroded gullies. Coordinates for all mapping activity were collected on a Garmin GPSMap60csx handheld GPS unit. Data from the GPS were downloaded and then input to ArcGIS for generation of the geological maps, using the digital topographic map as a base. Excellent correlation (±1 – 2 m) was found between elevations recorded in the GPS and those reported on the topographic map.

Trenching and drilling work was conducted within the limits of the DIA (permitted exploration work area) under a Category 1 environmental permit. This permit provides for a maximum of 20 drill pads and total land disturbance of no more than 10 ha. The DIA area is within the confines of the Philip concession from just south of Quicha Chico to just north of Quicha Grande. Trenches were designed to test surface mineralization between drill holes. All trenches were geologically mapped in detail at 1 m intervals. Trench coordinates were recorded using a Garmin GPSMap60csx hand-held GPS unit.

New trenches were dug between the existing trenches at Quicha Chico (Aco trench, or A-A' trench) and Quicha Grande (Quicha Grande trench, or B-B' trench). The new trenches were designed to test mineralization along strike to confirm widths, grade and dip seen in the historic trenches. All trenches were mapped in detail, sampled orthogonal to the dip at 1 m intervals or as defined by lithological unit, and sections prepared. Table 10-1 provides details on the trenching program conducted during the 2009 exploration program.

Core drilling was designed to test mineralization at depth in the two historic trenches, plus the new trenches and several outcrops between trenches (Table 10-2). Drilling was conducted using either a Longyear 38 or a UDR-650 drill rig using HQ size core. Hole locations were determined using a Garmin GPSMap60csx hand-held GPS. All trenching, drilling and sampling was conducted under the supervision of a Mantaro Peru geologist. The drilling contractor was RamPeru SAC. In total, twenty-three holes were drilled for a total of 3,414.5 m, of which 254.85 m was accounted for by two down-dip holes.

Drill set-ups were designed to permit three holes from the same drill pad to test mineralization at various depths between the new trenches, as well as to test mineralization at depth at the Aco (Quicha Chico) and Quicha Grande trenches. Drill holes PM-DDH-03 and PM-DDH-03A were drilled down dip from Trench 3 to test down dip mineralization and intersect with PM-DDH-08. Drill core samples were taken within zones of phosphate mineralization at 2 metre intervals, except for holes PM-DDH-03 and PM-DDH-03A, which were sampled at 1 m intervals. All drill holes were successful in passing through the full extent of the phosphatic zones within the Upper Aramachay formation and in most cases penetrated the underlying lower blanket zone.

Table 10-1

Exploration Work Summary - Trenches

Trench No.	Start Coordinates[1]		End Coordinates[1]		Azimuth	Width (m)	Depth (m)	Length (m)	Dip	Major P_2O_5 Interval[2] (m)	True Width[2] (m)	Average grade P_2O_5 (%)
	Easting	Northing	Easting	Northing								
1	457575	8678203	457540	8678182	S60^{0}W	1.5	2	41	40^0	16	12.3	14.43
2	456774	8679234	456729	8679208	S60^{0}W	1.5	2	52	60^0	15	7.5	13.6
3	455930	8680131	455894	8680109	S60^{0}W	1.5	2	42	43^0	28	20.5	16.0
8	456640	8679427	456605	8678395	S60^{0}W	1.5	2	47	56^0	13	7.3	9.38
9	457345	8678569	457290	8678538	S60^{0}W	1.5	2	63	60^0	16	8.0	17.98
10	455755	8680217	455728	8680190	S45^{0}W	1.5	2	38	52^0	10	6.2	13.32
14	456904	8679068	456852	8679038	S60^{0}W	1.5	2	60	34^0	14	12.8	13.19
Quicha Grande (B-B')	455502	8680510	455447	8680438	S60^{0}W	1.5	2	90	50^0	19	12.2	15.13
Aco (A-A')	457205	8678742	457250	8678712	S60^{0}W	1.5	2	61	55.5^0	29	16.4	17.54

1) PSAD '56 datum; 2) major interval only, total width of mineralized zone is greater

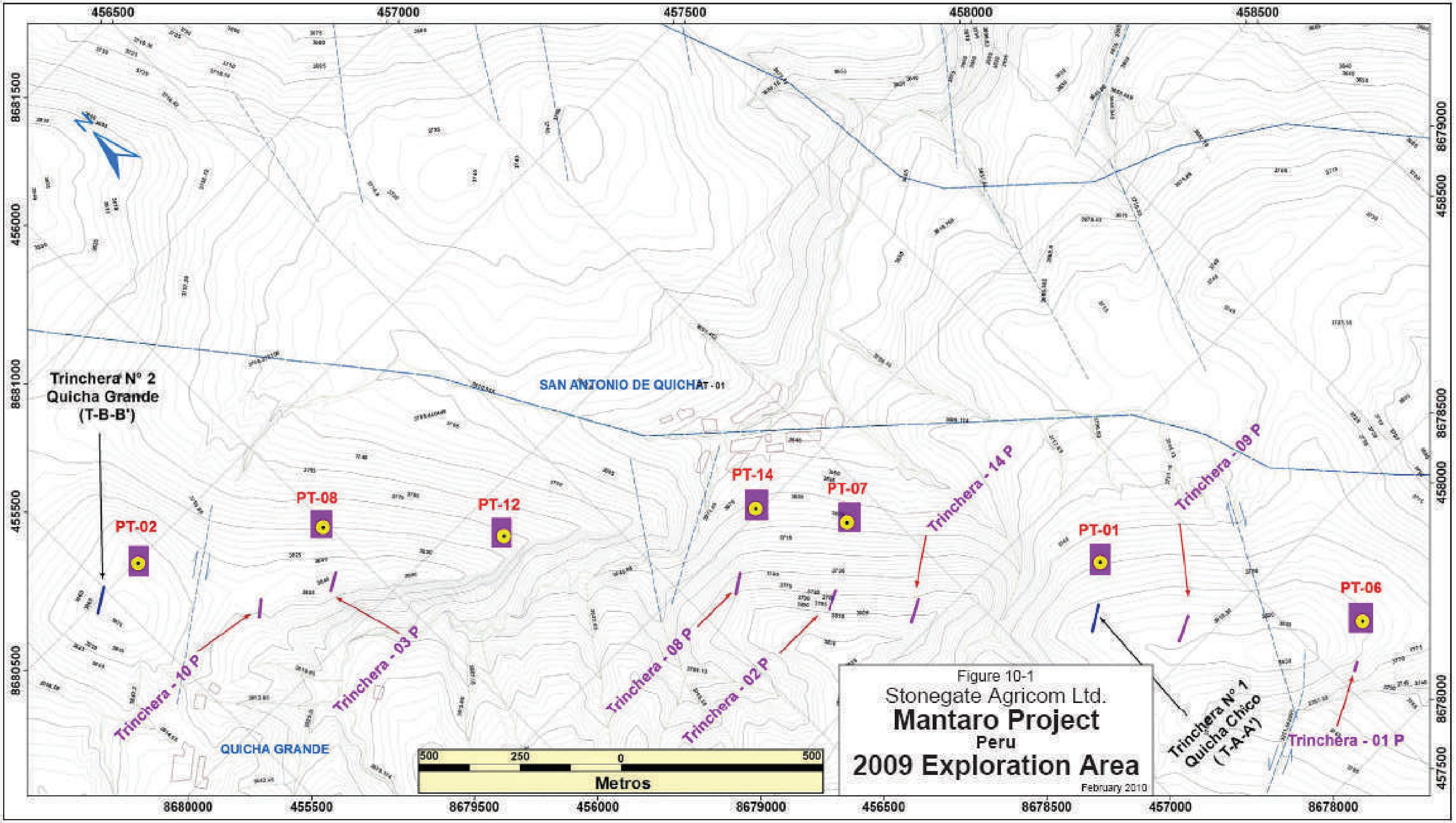


Figure 10-1
Stonegate Agricom Ltd.
Mantaro Project
Peru
2009 Exploration Area
February 2010

Table 10-2

2009 Exploration Program □Drilling

Drill Platform	Hole Numbers	Inclination	Length (m)	Structure Tested At Depth
01	PM-DDH-01, 01A, 01B	-45,-70,-90	137.50,150.70,220.00	Quicha Chico (Aco, A-A') Trench
02	PM-DDH-02,02A,02B	-45,-70,-90	109.40,131.00,144.25	Quicha Grande (B-B') Trench
06	PM-DDH-06,06A,06B	-40,-80,-90	125.40,150.00,167.80	Trench 1
07	PM-DDH-07,07□,07B	-45,-70,-90	135.55,161.50,208.55	Trench 2
08	PM-DDH-08,08□,08B	-45,-70,-90	124.65,134.60,161.60	Trench 3
12	PM-DDH-12,12A,12B	-45,-70,-90	113.50,130.50,149.35	Outcrop
14	PM-DDH-14,14□,14B	-45,-70,-90	145.25,151.70,207.30	Trench 8
03	PM-DDH-03,03A	-43,-49	130.35,124.50	Down dip Trench 3, Intersected DDH-08

Figure 10-1 illustrates the locations of the 2009 trenching and drilling programs. The trenching and drilling work confirmed the following with respect to the geology and mineralization:

- Mineralization is present as three roughly parallel seams extending for over 30 km in a NW direction along both arms and the central portion of the Mancaspico syncline. Two major parallel faults, one reverse and one normal, have been responsible for development of the three exposures along strike;
- Strike-slip faults have resulted in lateral displacement of the mineralized zones along strike. Most displacements are relatively minor;
- The typical dip of the phosphate manto on the western arm of the syncline (Philip concession) is approximately 48^0, with an azimuth of approximately 45^0;
- The dip of the manto in the Quicha Chico concession area is approximately 46^0, with an azimuth of 225^0;
- The typical dip of the manto in the Puerta de Piedras concessions is approximately 36^0, with an azimuth of 225^0;
- The general topography, width, dip and azimuth of the mineralized zones is conducive to potential open pit operations with less than 3:1 waste:ore strip ratios;
- Drilling intersected all of the phosphatic zones within the Aramachay formation;
- The deposit exhibits near surface phosphate enrichment due to oxidation and depletion of carbonates. Near surface grade enrichment of 3% - 4% P_2O_5 is noted;
- The average true width of the higher grade mineralized zones in the trenches is approximately 9.8 m, with a range from 6.2 m to 20.1 m;

- Grade variations occur along strike and with depth;
- Here is increasing lithification and carbonate content with depth. The phosphatic zones show increased intercalation with limestone at depth;
- Phosphate mineralization extends to depths in excess of 200 m below surface;
- The 2009 exploration program demonstrates results consistent with previous work in terms of mineralization along strike and across the strike of the deposit;
- There is considerable exploration potential within the overall Property.

Appendix 2 provides cross sections for the trenches and drill holes.

11 DRILLING

Diamond drilling on the Property was designed to test mineralization at depth in two historic trenches and in surface exposures between trenches along the mineralized trend in the Philip concession between Quicha Chico and Quicha Grande. Three holes were drilled from each drill pad. All holes except those from Platform 6 were drilled at -45^0, -70^0 and -90^0. The holes from Platform 6 were drilled at -40^0, -80^0 and -90^0. All holes were drilled to obtain data at various elevations from surface. Diamond drilling was also conducted to test mineralization down dip from one of the trenches to evaluate the depth of oxidation down dip. These holes (Platform 3) were drilled at -43^0 and -46^0. In total, 23 holes were drilled for 3,414.5 m, of which 21 holes for 3,159.65 m were drilled across dip and 2 holes for 254.85 m were drilled down dip (Table 10-1).

Holes were spotted using a Garmin GPSMap60scx hand-held GPS. This had an accuracy of ±3 m for the x and y position. Elevation was also recorded using the GPS. Elevations closely approximated the reported elevations from the digital terrain model developed from aerial photos. In the opinion of the author, the accuracy of the collar locations is sufficient for resource estimation purposes. Down hole surveys using FlexIt were used to check drill azimuth, inclination and magnetic field strength.

All holes were drilled using HQ size core using either a Longyear 38 or UDR 650 drill rig under contract from Ram Peru SAC. All drilling was directed by the senior Mantaro Peru geologist and monitored by a Mantaro Peru geologist. Core recovery was excellent, averaging over 95%. All drill core was photographed prior to sampling. Quick logs were prepared at the drill sites as drilling was underway. Detailed drill logs were subsequently completed prior to sampling.

Table 11-1 details the results of the drilling program.

Table 11-1
Exploration Program □Drill Hole Summary Results

Platform No.	Hole Number PM-DDH-	Coordnates[1]		Azimuth	Inclination	Depth (m)	Core Recovery (%)	Phosphate Interval (m)		Average P_2O_5 %
		Easting	Northing					Core	True	
01	01	457284	8678814	S60^{0}W	-45^0	137.05	96.50	22	21.6	13.01
	01A			S60^{0}W	-90^0	150.70	96.00	22	16.3	11.42
	01B			S60^{0}W	-70^0	220.00	95.55	20	12.5	12.57
02	02	455601	8680494	S58^{0}W	-45^0	109.40	96.38	16	15.9	8.65
	02A			S58^{0}W	-70^0	131.00	94.35	14	12.1	8.60
	02B			S58^{0}W	-90^0	144.25	94.93	20	12.9	8.07
06	06	457639	8678254	S60^{0}W	-40^0	125.40	95.69	16	16.0	10.01
	06A			S60^{0}W	-80^0	150.00	97.60	16	13.0	9.30
	06B			S60^{0}W	-90^0	167.80	95.77	20	16.2	9.73
07	07	456912	8679325	S60^{0}W	-45^0	135.55	94.80	22	21.3	10.30
	07A			S60^{0}W	-70^0	161.50	91.47	24	15.4	10.27
	07B			S60^{0}W	-90^0	208.55	92.86	18	15.6	10.33
08	08	455988	8680233	S45^{0}W	-45^0	124.65	95.99	20	19.9	10.36
	08A			S45^{0}W	-70^0	134.60	92.72	20	7.8	10.05
	08B			S45^{0}W	-90^0	161.60	97.26	20	13.6	10.35
12	12	456288	8679902	S40^{0}W	-45^0	113.50	98.75	18	18.0	9.95
	12A			S40^{0}W	-70^0	130.50	98.70	16	7.0	10.28
	12B			S40^{0}W	-90^0	149.35	94.78	18	12.9	10.18
14	14	456776	8679510	S60^{0}W	-45^0	145.25	89.81	14	13.7	9.35
	14A			S60^{0}W	-70^0	151.70	89.19	16	9.4	11.10
	14B			S60^{0}W	-90^0	207.30	97.26	24	19.9	10.90
Down Dip Holes										
03	03	455908	8680124	S30^{0}W	-43^0	130.35	89.0	32	32.0	14.90
								3	3.0	15.39
								6	6.0	16.00
								4	4.0	14.00
								12	12.0	15.40
	03A			S30^{0}W	-49^0	124.50	80.36	55	54.5	15.46
								15	14.9	15.39

1) PSAD ’56 datum

All cross dip drill holes intersected the full width of the middle phosphatic zone of the Aramachay Formation and penetrated, at least in part, the lower zone. Drill logs indicate increasing lithification of the deposit with depth, and increasing intercalation of phosphatic mineralization with carbonate. There is a general tendency to thinning of the phosphatic zone within the mid-section of the mineralized zone down-dip from surface to end-of-hole. Phosphate mineralization extends to a depth of at least 200 m below surface.

12 SAMPLING METHOD AND APPROACH

Trench and drill sampling was designed to cover the mineralized area within the exploration permit south of the historic Quicha Chico trench (Trench A-A') and the historic Quicha Grande trench (Trench B-B'), a distance of approximately 3.1 km. Trenches and drill platforms were spaced approximately 500 m apart, or as permitted by the terrain and determined by geological target. There were no drilling or recovery factors affecting sample collection, and core recovery was excellent, as detailed in Section 11.

TRENCH SAMPLES

All trenches were geologically mapped prior to sampling and sample intervals marked by the supervising geologist. All trenches were photographed. Trench samples were collected by taking channel samples at 1 metre true width intervals orthogonal to the dip of the deposit from the top of the trench to approximately 20 cm above the bottom of the trench. Samples were collected within each lithological type. Where there was a change in lithology within the 1 metre interval, a new sample was started. The 1m interval was selected to establish higher grade zones within the different lithologies and to match the historical sampling.

Channel samples were approximately 10 cm wide and 5 cm deep. Samples were collected by holding a rice sack under the area being sampled. Each sample was collected in a pre-marked bag, with sample tags attached to the bag and also placed inside the bag in a plastic pouch. All sampling was conducted under the supervision of a Mantaro Peru geologist. Duplicate and check samples were prepared from coarse rejects during the initial split of the sample material. Duplicate samples represented approximately 10% of original samples. Check samples represented approximately 5% of the number of original samples.

DRILL CORE SAMPLES

Drill core samples for all holes except PM-DDH-03 and PM-DDH-03A were collected at 2 metre intervals within the phosphate zone of the drill holes. There is a clear colour demarcation between the carbonate zones and the mineralized phosphate zones in the rock, permitting simple selection of start and end points for sampling. Within the mineralized zone, grade variation is a function of the relative abundance of phosphate pellets. Given the general tenor of the ore based on the historic trench work, it was decided a 2 m interval would be indicative of potential operational control during mining operations.

Samples were prepared by splitting logged core in half using a manual core splitter. One half of the core was retained for reference and the other half used for the sample. Where the drill intersected both the Middle and Lower sections of the Aramachay, samples were collected for both sections. There is a clear distinction in colour between phosphate and non-phosphate zones, permitting easy recognition of the start and end of sampling. Drill holes PM-DDH-03 and PM-DDH-03A were sampled at 1 metre intervals down dip from the drill collar to end of hole. Major phosphate intervals were recorded for each hole. All core was photographed prior to sampling. Core recovery was excellent, as detailed in Table 11-1. Duplicate and check samples were prepared from coarse rejects during the initial split of the sample material. Duplicate samples represented approximately 10% of original samples. Check samples represented approximately 5% of the number of original samples.

Major sample intervals and values for both trench and drill core samples are detailed in Table 12-1. As anticipated, grade variation matches the lithology of the ore, with the higher grade intervals located in the central phosphatic sandstone/mudstone and the lower grade intervals generally lying above and below in the phosphatic limestones.

Table 12-1

Significant Drill Intercepts

Hole Number	From (m)	To (m)	True Width (m)	% P_2O_5
1	74	86	12	14.90
1A	92	106	10.3	12.30
1B	124	144	12.5	12.56
6	74	84	10	10.78
6A	80	88	6.5	11.27
7	86	96	10	11.74
7A	104	114	6.4	11.76
7B	142	160	15.6	10.33
8	64	82	18	10.42
8A	78	88	3.9	10.58
12A	78	90	5.25	11.77
12B	100	112	8.6	10.75
14	86	94	8	10.96
14A	120	134	8.2	11.17
14B	152	176	19.9	10.90

In the opinion of the author, the trench and drill core samples are fully representative of the mineralization on the Property and no bias is present in the sample selection.

13 SAMPLE PREPARATION, ANALYSES AND SECURITY

SAMPLE PREPARATION

All initial sample preparation was conducted by Mantaro Peru staff under the supervision of a Mantaro Peru geologist. Subsequent sample preparation and analysis was conducted by independent laboratories.

STANDARDS AND BLANKS

Sample standards representing a low phosphate value (8%-12% P_2O_5) and a high phosphate value (18% - 25% P_2O_5) were prepared from phosphate rock obtained from the Bayovar deposit in Peru by SGS Peru, an ISO 17025 certified laboratory. This material was homogenized, crushed and pulverized and then split into lots for assay at five separate laboratories for round robin analysis, including SGS Peru. Each laboratory received 3 individual samples and each used the same assay procedure. The final certified values for the standards are as detailed in Table 13-1:

Table 13-1

Phosphate Sample Standards

Low Phosphate Standard ST900016		**High Phosphate Standard ST900015**	
Carbon , total (%)	0.23 ± 0.06	Carbon , total (%)	1.61 ± 0.20
C, organic (%)	0.09 ± 0.08	C, organic (%)	0.78 ± 0.40
C, inorganic (%)	0.13 ± 0.08	C, inorganic (%)	0.84 ± 0.30
CO_2 (%)	0.48 ± 0.28	CO_2 (%)	3.07 ± 0.83
S, total (%)	0.09 ± 0.06	S, total (%)	1.63 ± 0.20
S, sulphate (%)	0.08 ± 0.03	S, sulphate (%)	1.60 ± 0.11
S, elemental (5)	0.02 ± 0.02	S, elemental (5)	0.03 ± 0.06
Al_2O_3 (%)	8.11 ± 0.53	Al_2O_3 (%)	4.07 ± 0.20
BaO (%)	0.01 ± 0.01	BaO (%)	0.02 ± 0.01
CaO (%)	16.63 ± 1.29	CaO (%)	28.24 ± 1.82
Fe_2O3 (%)	3.02 ± 0.20	Fe_2O3 (%)	1.58 ± 0.08
MgO (%)	0.40 ± 0.06	MgO (%)	1.16 ± 0.11
MnO (%)	0.03 ± 0.03	MnO (%)	0.02 ± 0.01
K_2O (%)	1.70 ± 0.38	K_2O (%)	0.67 ± 0.11
Na_2O (%)	0.10 ± 0.06	Na_2O (%)	3.30 ± 0.64
P_2O_5 (%)	12.45 ± 0.87	P_2O_5 (%)	17.95 ± 1.48
SiO_2 (%)	52.02 ± 3.39	SiO_2 (%)	26.02 ± 1.74
TiO_2 (%)	0.46 ± 0.08	TiO_2 (%)	0.19 ± 0.06
As (ppm)	17 ± 5	As (ppm)	17 ± 6
Cd (ppm)	0.15 ± 0.08	Cd (ppm)	28.58 ± 5.35
Ni (ppm)	23.9 ± 10.4	Ni (ppm)	27.2 ± 12.2
Pb (ppm)	19.2 ± 5.3	Pb (ppm)	8.1 ± 3.4
Th (ppm)	5.87 ± 1.26	Th (ppm)	3.26 ± 0.96
U (ppm)	10.7 ± 2.0	U (ppm)	79.9 ± 16.5
LOI (%)	4.18 ± 0.64	LOI (%)	13.39 ± 3.28
Chlorides, total (%)	<0.05 ± 0.05	Chlorides, total (%)	2.84 ± 0.56
Chlorides, soluble (%)	<0.03 ± 0.03	Chlorides, soluble (%)	2.66 ± 0.67
F (%)	1.39 ± 0.32	F (%)	1.75 ± 0.26

Source: SGS Lima

In addition to the sample standard prepared from Bayovar phosphate mineralization, commercially available certified standard reference materials (Check Rock No. 22) representing a high phosphate value were purchased from the Association of Florida

Phosphate Chemists and from the U.S. National Institute for Standards (CRM 120C). In addition, CIMM Peru employed its own internal phosphate standard and other standards as a further quality control measure.

Blanks were prepared by SGS Peru using quartz grain. The quartz was crushed, homogenized and assayed using ICP. The certified blanks had the following assay values (Table 13-2):

Table 13-2

Assays for Certified Blanks

Evaluation of Homogeneity of Standard ST800087 by Multi-acid Digestion/ICP Analysis

RESULTADOS HOMOGENEIDAD		LD ICP40B	PROMEDIO	R	LÍMITES DE REPORTE ESTIMADOS	
					MÍNIMO	MÁXIMO
ICP40B	Ag(ppm)	0.2	<0.2	0.2	<0.2	0.4
ICP40B	Al(%)	0.01	0.02	0.03	<0.01	0.05
ICP40B	As(ppm)	3	<3	3	<3	6
ICP40B	Ba(ppm)	1	2	4	<1	6
ICP40B	Be(ppm)	0.5	<0.5	0.5	<0.5	1.0
ICP40B	Bi(ppm)	5	<5	5	<5	<10
ICP40B	Ca(%)	0.01	0.01	0.01	<0.01	0.02
ICP40B	Cd(ppm)	1	<1	1	<1	2
ICP40B	Co(ppm)	1	1	1	<1	2
ICP40B	Cr(ppm)	1	426	97	329	523
ICP40B	Cu(ppm)	0.5	8.6	2.6	6.0	11.2
ICP40B	Fe(%)	0.01	0.45	0.09	0.36	0.54
ICP40B	Ga(ppm)	10	<10	10	<10	20
ICP40B	K(%)	0.01	0.01	0.02	<0.01	0.03
ICP40B	La(ppm)	0.5	<0.5	0.5	<0.5	1.0
ICP40B	Mg(%)	0.01	0.01	0.01	<0.01	0.02
ICP40B	Mn(ppm)	2	61	13	48	74
ICP40B	Mo(ppm)	1	8	4	4	12
ICP40B	Na(%)	0.01	0.01	0.01	<0.01	0.02
ICP40B	Nb(ppm)	1	1	1	<1	2
ICP40B	Ni(ppm)	1	7	5	2	12
ICP40B	P(%)	0.01	<0.01	0.01	<0.01	0.02
ICP40B	Pb(ppm)	2	<2	2	<2	4
ICP40B	S(%)	0.01	0.01	0.01	<0.01	0.02
ICP40B	Sb(ppm)	5	<5	5	<5	10
ICP40B	Sc(ppm)	0.5	<0.5	0.5	<0.5	1.0
ICP40B	Sn(ppm)	10	<10	10	<10	20
ICP40B	Sr(ppm)	0.5	1.5	1.1	0.4	2.6
ICP40B	Ti(%)	0.01	<0.01	0.01	<0.01	0.02
ICP40B	Tl(ppm)	2	<2	2	<2	4
ICP40B	V(ppm)	2	<2	2	<2	4
ICP40B	W(ppm)	10	<10	10	<10	20
ICP40B	Y(ppm)	0.5	<0.5	0.5	<0.5	1.0
ICP40B	Zn(ppm)	0.5	2.6	2.4	<0.5	5.0
ICP40B	Zr(ppm)	0.5	<0.5	0.5	<0.5	1.0
FAA313	Au(ppb)	5	<5	5	<5	10

Source: SGS Lima

TRENCH SAMPLES

Trench samples were bagged in secure, labelled plastics bags at the trenches and transported to the MPS office in Huancayo each night. On receipt in Huancayo, samples were logged into the sample date base and then split into two fractions using a riffle splitter. One half of the sample was retained for reference purposes. Duplicate samples were prepared by a second split of the laboratory sample on an approximate 10% basis. Check samples were prepared by splitting the original sample rejects on an approximate 5% basis. Standards and blanks were inserted on an approximate 5% basis. All samples were recorded in the sample data base and packaged for shipment by DHL courier in lots of twenty. Up to 20 individual samples, or 5 lots, were shipped at any one time to the main assay laboratory. Check samples were collected and shipped in lots of twenty. All samples were stored in a secure, locked storage facility at the MPS Huancayo office.

Main laboratory samples and duplicates were shipped to CIMM Peru SAC in Lima for analysis. CIMM Peru is an ISO 9001/17025 certified laboratory with extensive experience in analyzing phosphate samples. CIMM Peru checked the sample shipment form against physical delivery and entered each sample into its LIMS system using a unique laboratory sample number. Trench samples were weighed, dried, reweighed, crushed and pulverized to obtain a representative laboratory sample. Sample rejects were stored for subsequent use. CIMM Peru prepared its own duplicate samples from crush rejects and inserted these into the sample batch at a rate of 5%. CIMM Peru also inserted its own phosphate and other standards at random intervals.

Check samples were sent by courier to SGS Minerals, Lima (“SGS Lima”) for analysis. SGS Lima is an ISO 9001/17025 certified laboratory. SGS Lima used similar quality control/quality control procedures as those employed at CIMM Peru and employed the same commercially available reference material as standards, in addition to using its own internal standards and blanks.

DRILL SAMPLES

Drill core was removed from the drill site each evening and stored in a secure facility in Quicha Grande prior to logging. After logging, core was removed to the MPS office in Huancayo. In Huancayo, all core received was stored in a secure facility until it could be split. Core samples were split using a manual core splitter, with samples placed in marked bags with sample tags recording the sample number. Sample numbers were also entered into the MPS sample data base with drill hole number and core interval recorded against each sample. Duplicate samples were prepared from quarter core on an approximate 10% basis.

Check samples were prepared from quarter core using the split reject core. Standards and blanks were inserted into the batches on an approximate 5% basis. Samples were prepared for shipment in lots of 20 and shipped by DHL courier to either CIMM Peru (main laboratory samples and duplicates) or the SGS Lima (check samples). Samples received by CIMM Peru and SGS Lima were entered into their LIMS systems and then processed for assay.

Table 13-3 details the total number of trench, drill core, duplicate and check samples prepared for analysis.

Table 13-3
QA/QC Control

Sample Type	Main Sample	Duplicates	Checks	Standards	Blanks
Drill Core	822	82	41	41	41
Trench	305	30	16	15	16
Total	**1127**	**112**	**57**	**56**	**57**

SPECIFIC GRAVITY (APPARENT BULK DENSITY) SAMPLES

Samples for apparent bulk density determination were selected from drill core. Each sample was cleaned of drill mud to the extent possible and wrapped in plastic. Samples were shipped by courier to SGS Lima for determination of apparent bulk density (specific gravity) using the wax coating/water immersion method. Table 13-4 lists the samples used for the test. The average value determined was 2.53 g/cm^3. This value was adjusted to 2.62 for estimation of mineral resources based on the expected type of mineralization, as detailed in Section 17 of this report.

Table 13-4
Bulk Specific Density (Specific Gravity) Samples

Sample	Specific Gravity	Wet Sample Weight	Dry Sample Weight	Interval	From	To
Units Method	g/cc GQ_GEP	g PMI_CH	g PMI_CH			
PE-001	2.74	928.7	923.9	PM - DDH - 02	78.20	78.33
PE-002	2.64	873.9	866.3	PM - DDH - 02A	81.05	81.19
PE-003	2.63	1061	1041	PM - DDH - 02B	105.61	105.71
PE-004	2.66	1235	1225	PM - DDH - 07	102.00	102.14
PE-005	2.41	591.7	574.4	PM - DDH - 07A	130.34	130.46
PE-006	2.57	837.7	828.4	PM - DDH - 07B	173.05	173.17
PE-007	2.74	1004	993.9	PM - DDH - 12	60.90	61.03
PE-008	2.65	817.3	796.8	PM - DDH - 12A	92.75	92.87
PE-009	2.58	738.8	728.6	PM - DDH - 12B	128.95	129.07
PE-010	2.65	1071	1063	PM - DDH - 08	58.90	59.03
PE-011	2.76	1061	1044	PM - DDH - 08A	87.05	87.16
PE-012	2.62	706.8	700.6	PM - DDH - 08B	119.80	119.91
PE-013	2.03	751.6	743.9	PM - DDH - 06	73.20	73.30
PE-014	1.8	516.5	497.1	PM - DDH - 06A	95.37	95.47
PE-015	2.5	843.1	817.6	PM - DDH - 06B	126.60	126.76
PE-016	2.67	961.5	946.6	PM - DDH - 01	72.55	72.65
PE-017	2.64	924.9	916.1	PM - DDH - 01A	96.30	96.43
PE-018	2.34	626.2	615.3	PM - DDH - 01B	139.85	138.94
PE-019	2.74	951.9	928.4	PM - DDH - 14	89.76	89.86
PE-020	2.32	643.4	622	PM - DDH - 14A	128.16	128.25
PE-021	2.40	615.2	595.5	PM - DDH - 14B	185.10	185.22
Average	2.53					
*DUP PE-002	2.64					
*DUP PE-012	2.62					

Source: SGS Lima, Report GQ902590

Samples processed at CIMM Peru followed the sample preparation protocol detailed in Figure 13-1.

Figure 13-1
Sample Process Flow at CIMM Peru

	Sample Preparation Process Flow Diagram for Mantaro Project	**IC –PMM-01**
Step	**Preparation Process**	**Notes**
1	Sample Receipt	Sample reception. Review samples and check against sample submittal form.
2	Supervision and Control	General check of sample shipment (quantity, sample condition, sample numbering). Generate sample processing order according to LIMS.
3	Sample weighing	Weigh samples and record weights on Sample Weight Control Form (FC-09-02-7).
4	Drying	Dry samples at 100 ± 10^0C. Record wet weight on Sample Weight Control Form (FC-09-01-4).
5	Check Moisture < 2%	If moisture > 2%, return to Step 4. If otherwise, record dry weight on Dry Sample Weight Control Form (FC-09-01-4).
6	Crush to 90% passing 10 Mesh Tyler screen	Process control as per FC-09-01-2 procedures.
7	Splitting	Split each sample to yield at least 200 gm for pulverization. Balance of sample to Reserve.
8	Pulverization to 85% passing 200 mesh Tyler sieve	Pulverize according to procedures in FC-09-01-2.
9	Package for analysis	Package for analysis. Label samples for procedure to be used.
	Supervision and control	QA/QC check (quantity, sample condition, sample numbering, coding, work order, etc.).
10	Chemical analysis	Chemical analysis as per work order.
11	Reserve Sample	Representative sample for reserve.

Source: CIMM Peru

Check samples sent to SGS Lima followed a similar sample preparation protocol.

ASSAY PROCEDURES

Samples submitted to CIMM Peru were assayed according to the following methods:

- Major oxides (incl. P_2O_5) by lithium metaborate/ICP-OES (VH-26);
- P_2O_5 by gravimetric analysis (VH-73);
- Multi-element analysis (Cd, U, Th) by multi-acid digestion/ICP-MS (VH-17);
- Multi-element analysis (35 elements) by multi-acid digestion/ICP-OES (VH-59);
- Total S by LECO (CSA24V);
- F by alkaline fusion/selective ion electrode (F-ISE01);
- Cl^- by alkaline fusion/volumetric analysis (Cl-VOL01);
- LOI by gravimetric analysis (VH-24).

All analytical protocols and procedures conformed to Peruvian national standards and ISO analytical standards. The author visited the laboratory during sample analysis and has reviewed all of the sample protocols. In the opinion of the author, all sample protocols and assay procedures are suitable for the samples and elements being assayed.

Check assays submitted to SGS Peru were processed according to the following procedures:

- Major oxides, including P_2O_5, by lithium metaborate/ICP-OES (ICP095);
- P_2O_5 by gravimetric analysis (CLA19D);
- Multi-element analysis by four acid digestion/ICP-MS and ICP-OES (ICM40B, ICP40B);
- Total S and organic C by LECO (CSA24V);
- F by alkaline fusion/selective ion electrode (CIS09L);
- CL^- by alkaline fusion/volumetric analysis (CLA00C);
- LOI by gravimetric analysis.

The assay protocols followed by SGS Lima conform to Peruvian national standards and ISO standards and are similar to those used at CIMM Peru.

LABORATORY CONTROL

Plots of main assay results for major oxides versus duplicate results show excellent correlation, as exhibited in Figures 13-2 through 13-7.

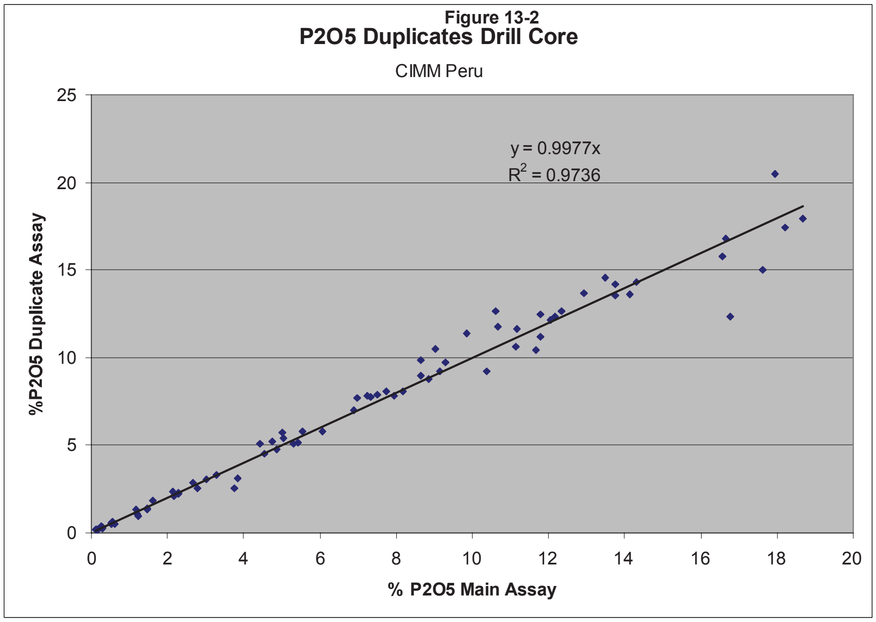


Figure 13-2
P2O5 Duplicates Drill Core
CIMM Peru
y = 0.9977x
R^2 = 0.9736
%P2O5 Duplicate Assay
% P2O5 Main Assay
0
5
10
15
20
25
0
2
4
6
8
10
12
14
16
18
20

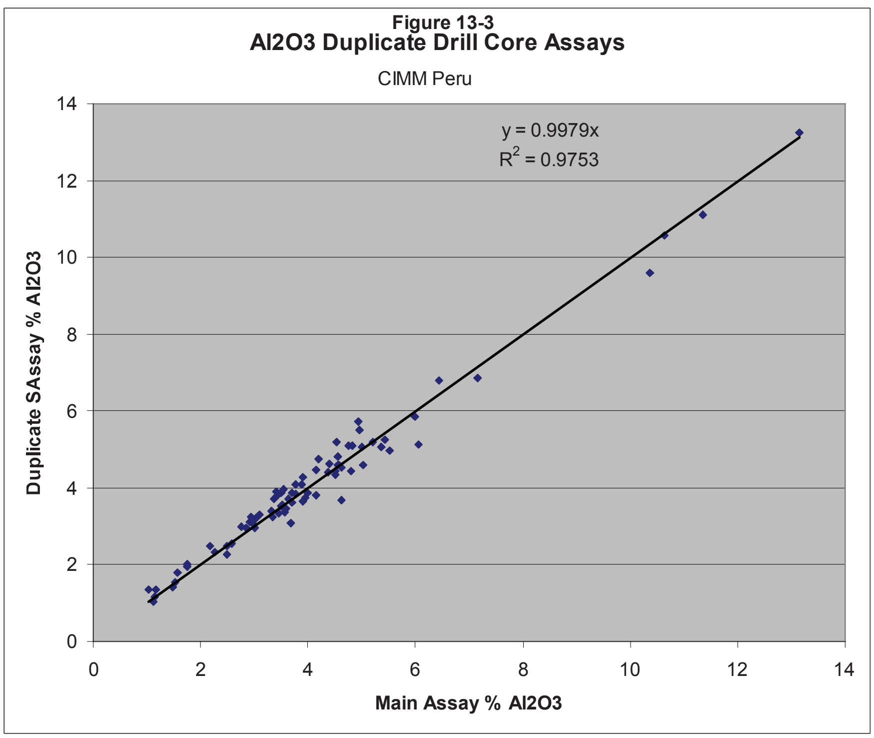


Figure 13-3
Al2O3 Duplicate Drill Core Assays
CIMM Peru
y = 0.9979x
R^2 = 0.9753
Duplicate SAssay % Al2O3
Main Assay % Al2O3
0
2
4
6
8
10
12
14

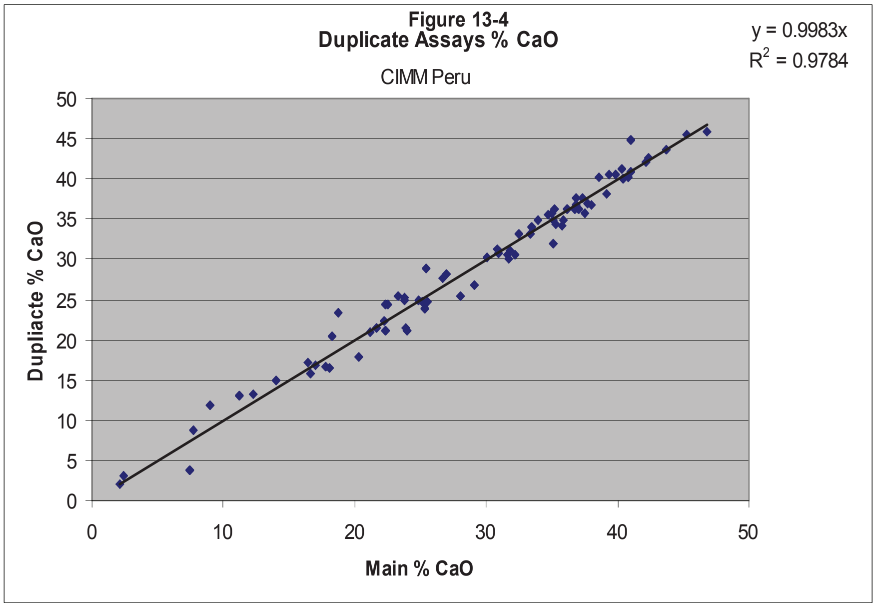


Figure 13-4
Duplicate Assays % CaO
CIMM Peru
y = 0.9983x
R^2 = 0.9784
Dupliacte % CaO
Main % CaO
0
5
10
15
20
25
30
35
40
45
50

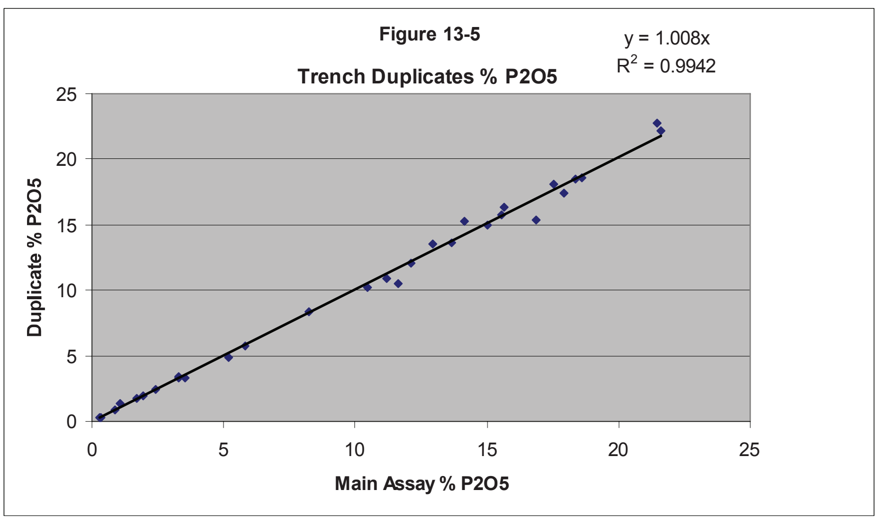


Figure 13-5
Trench Duplicates % P2O5
y = 1.008x
R^2 = 0.9942
Duplicate % P2O5
Main Assay % P2O5
0
5
10
15
20
25

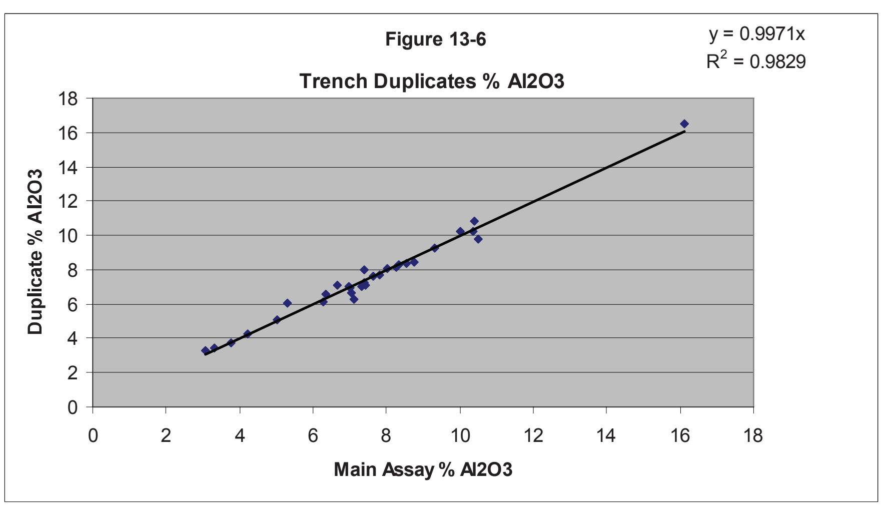
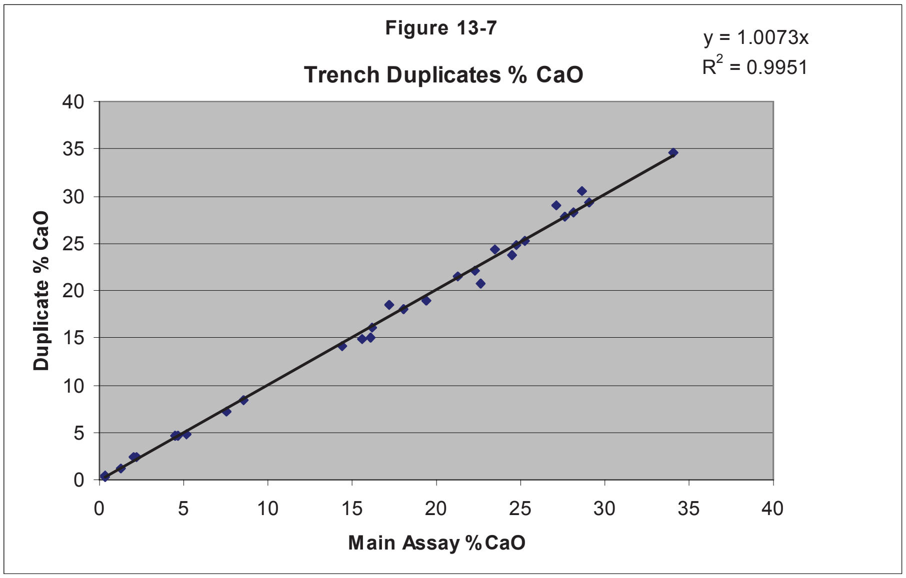
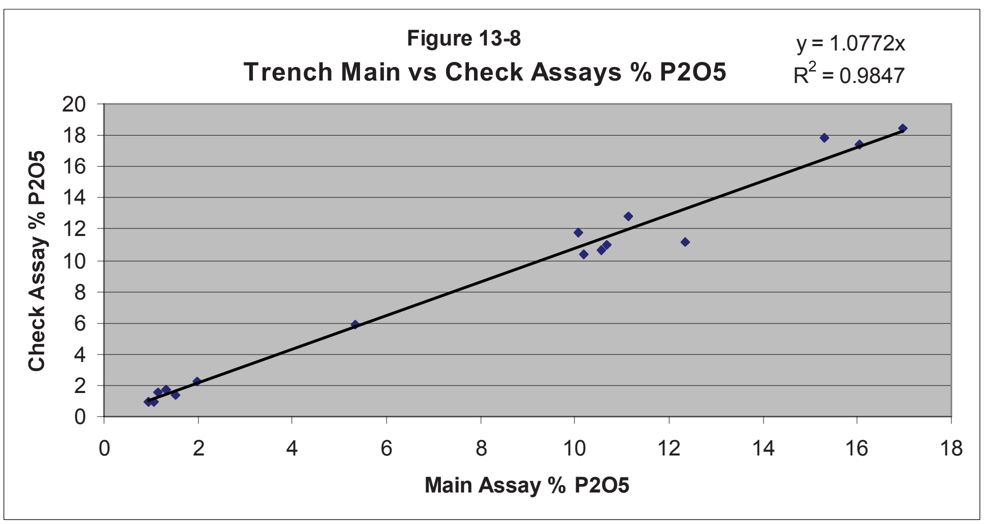


Figure 13-6
Trench Duplicates % Al2O3
y = 0.9971x
R^2 = 0.9829
Duplicate % Al2O3
Main Assay % Al2O3
0
2
4
6
8
10
12
14
16
18



CHECK ASSAYS

Comparison of results of check assays versus the main assays show that there is excellent correlation between the results obtained at CIMM Peru (main assays) and SGS Lima (check assays) as seen in Figures 13-8 trough 13-12.



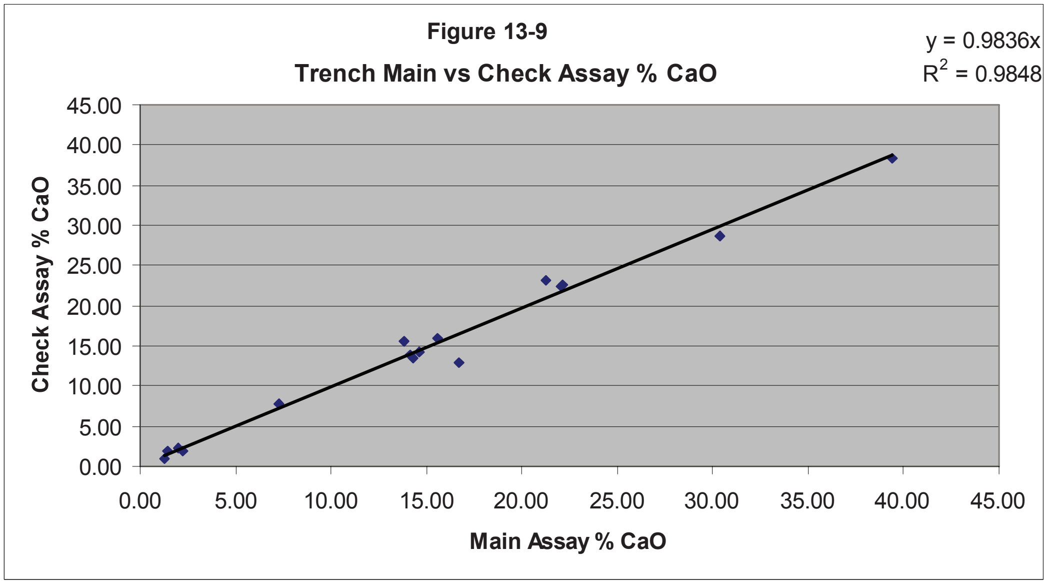


Figure 13-9
Trench Main vs Check Assay % CaO
y = 0.9836x
R^2 = 0.9848
Check Assay % CaO
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
Main Assay % CaO

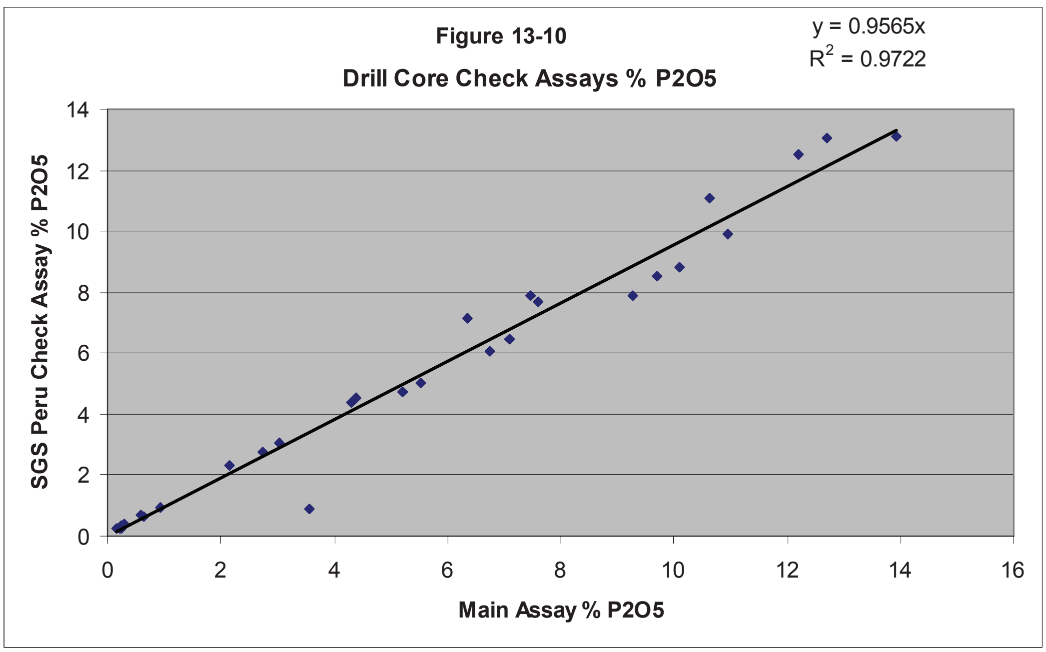
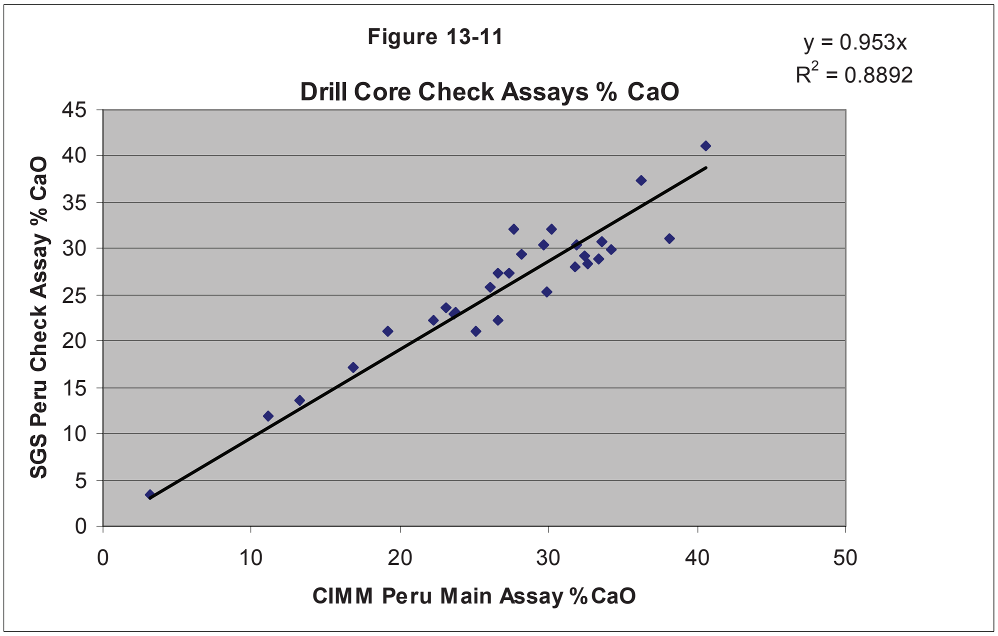


Figure 13-10
Drill Core Check Assays % P2O5
y = 0.9565x
R^2 = 0.9722
SGS Peru Check Assay % P2O5
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
Main Assay % P2O5



ASSAYS OF STANDARDS

Plots of standard assay results show assay procedures were in control (Figures 13-12 and 13-13).

Figure 13-12

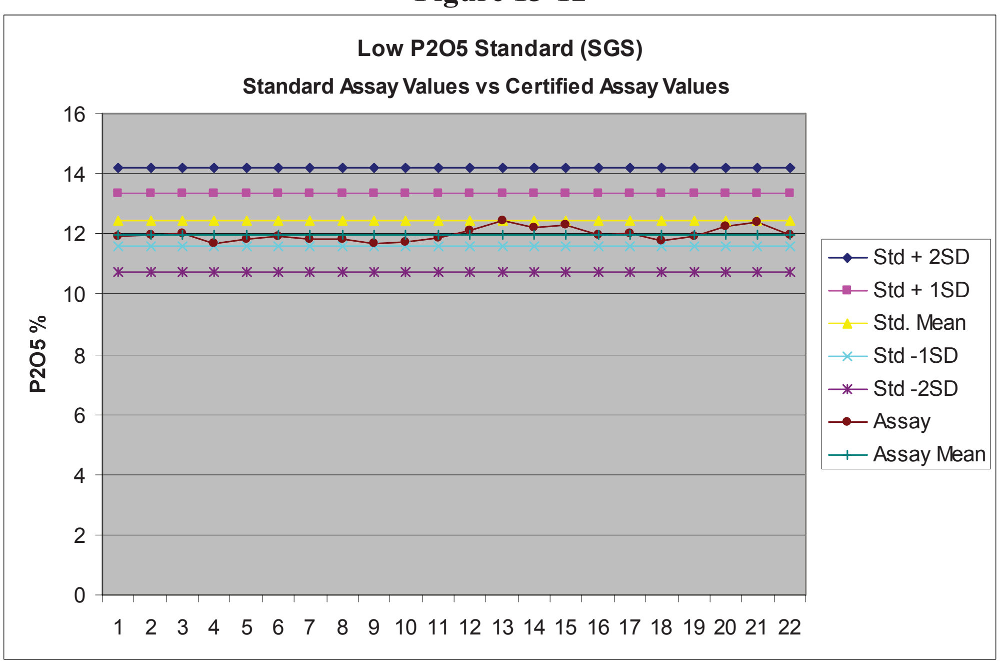
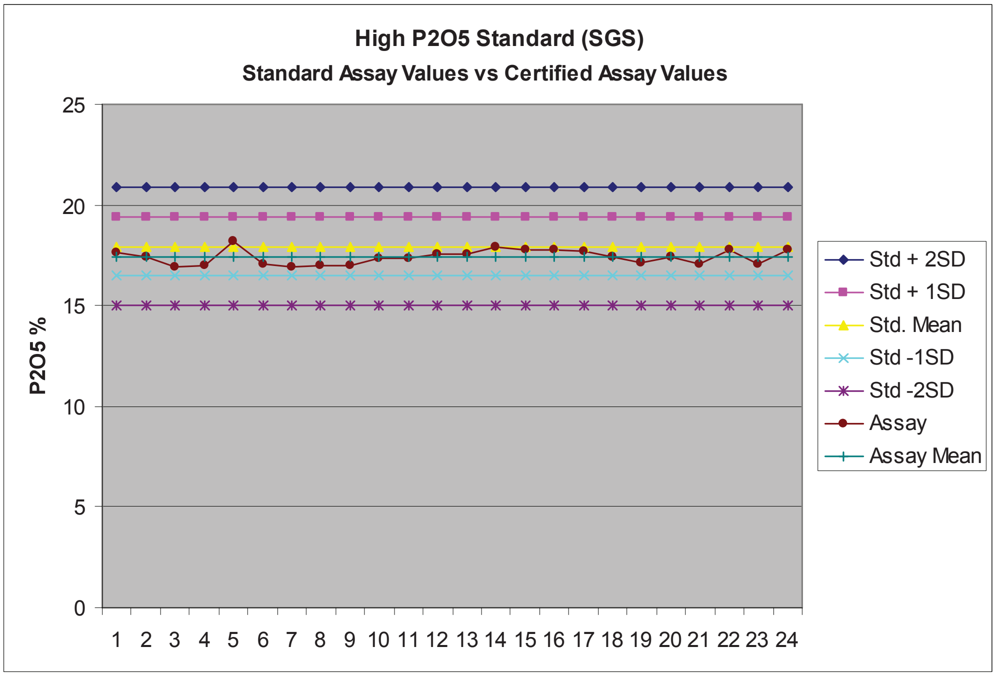


Figure 13-13



Only one instance of sample switching at the laboratory was noted. This error was rectified by re-assaying all the samples in the batch. The re-assay values have been used in the resource estimate.

SAMPLE SECURITY

As described previously, all drill core was removed from the drill site each evening and stored in a secured facility prior to detailed logging. After logging, the drill core was removed to a secure storage facility at the Mantaro Peru office in Huancayo. All core was stored in marked boxes. Drill core was split under the supervision of a geologist and all samples were placed in marked, sealed bags and subsequently bundled in shipments of 20 samples, again in marked and sealed bags. Sample delivery to the assay laboratories was by commercial courier. All sample shipments were accompanied by a manifest which was checked against delivery by the receiving laboratory.

Trench samples were bagged on site and samples secured prior to removal each evening to the Mantaro Peru office in Huancayo, where they were placed in secure storage. Splitting of trench samples was conducted under the supervision of a Mantaro Peru geologist, and all split rejects stored in labelled bags in secure storage. Trench samples were shipped by commercial courier in secure sample bags in lots of 20 to the assay laboratory. All shipments were accompanied by a sample manifest, which was checked against delivery.

In the opinion of the author, the sample preparation and assay protocols and procedures employed by Mantaro Peru, CIMM Peru and SGS Lima are suitable for the types of samples and elements being analysed and no deficiencies are noted.

14 DATA VERIFICATION

Data verification consisted of two forms: 1) checking the analytical data base against hard copies of the assay certificates by the authors, and 2) independent analysis of replicate samples from drill holes and trenches by SGS Mineral Services, Toronto. In the former case, one of the authors (M. Stone, also conducted other studies to verify the data base as being suitable for purposes of estimation of mineral resources, as detailed in Section 17 of this report. In the latter instance, 31 samples were selected by one of the authors (D. Hains) as detailed in Table 14-1. The samples were selected to represent the full range of expected values for the major oxides, and to cover all the lithologies present in the mineralized zone. The samples were split from coarse crush rejects stored at CIMM Peru, weighed and packaged for shipment to SGS Minerals in Toronto. SGS Minerals Toronto analyzed the samples using the same analytical techniques as CIMM Peru and SGS Lima. All samples were approximately 1 kg in weight.

Table 14-1

Mantaro Samples for Due Diligence Data Verification

Drill Core Samples

DDH Hole No.	Mantaro Sample No.	Interval (m) From	To
DDH-01	00503	72	74
DDH-01A	00578	96	98
DDH-01B	00603	120	122
DDH-02	00028	96	98
DDH-02A	00053	92	94
DDH-02B	00078	94	96
DDH-03	00728	13	14
DDH-03A	00903	23	24
DDH-06	00403	82	84
DDH-06A	00453	134	136
DDH-06B	00478	120	122
DDH-07	00111	74	76
DDH-07A	00153	106	108
DDH-07B	00328	138	140
DDH-08	00178	64	66
DDH-08A	00302	76	78
DDH-08B	00378	110	112
DDH-12	00203	70	72
DDH-12A	00253	108	110
DDH-12B	00278	114	116
DDH-14	00553	108	110
DDH-14A	00653	110	112
DDH-14B	00703	184	186

Trench Samples

Trench No.	Mantaro Sample No.	Interval (m) From	To

T-01	02353	17	18
T-02	02303	5	6
T-03	02153	22	23
T-9	02028	22	23
T-10	02228	18	19
T-14	02203	28	29
T-A-A'	02053	9	10
T-B-B'	02103	16	17

Analysis of the analytical results (Figures 14-1 through 14-4) shows good correlation between the original assay values and the replicate assay values, indicating the validity of the original assays and the integrity of the sampling method and analytical technique.

Figure 14-1

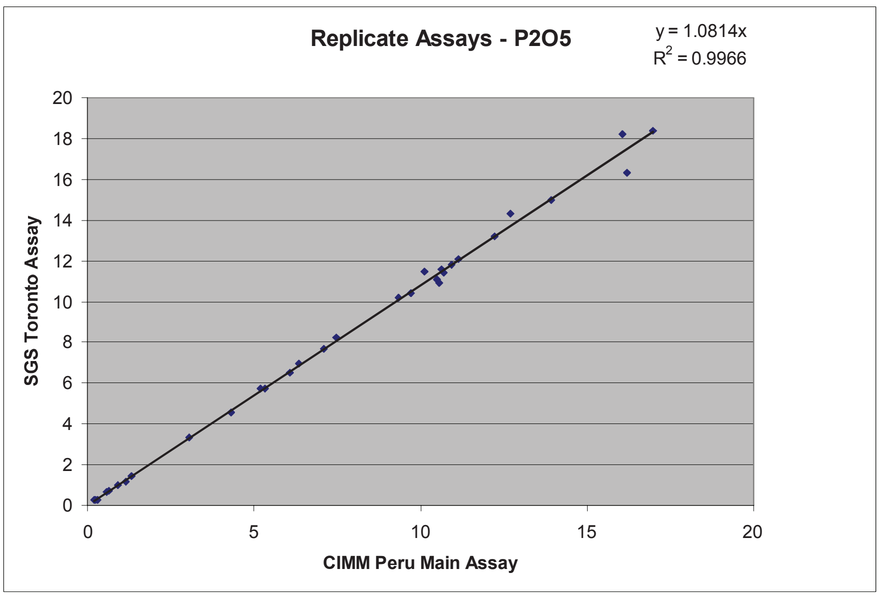


Figure 14-2

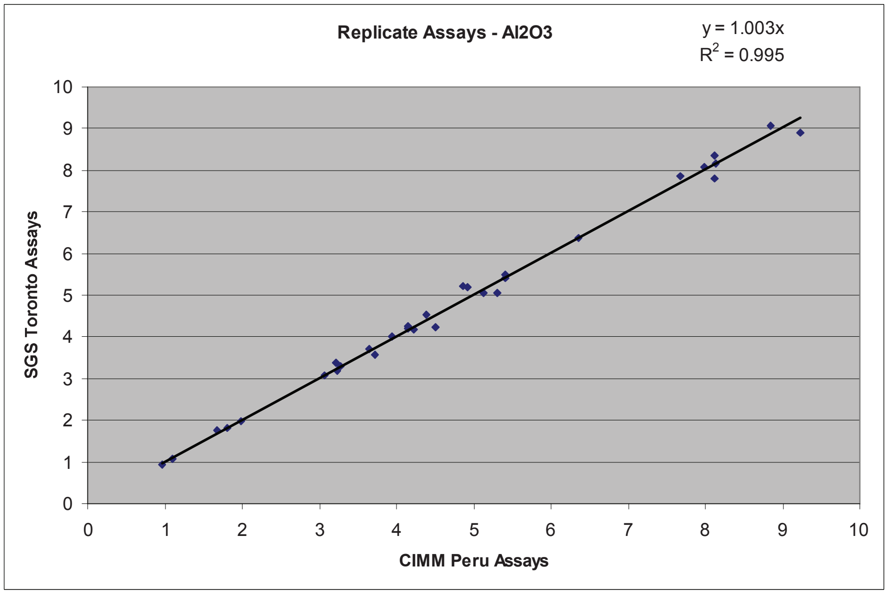


Figure 14-3

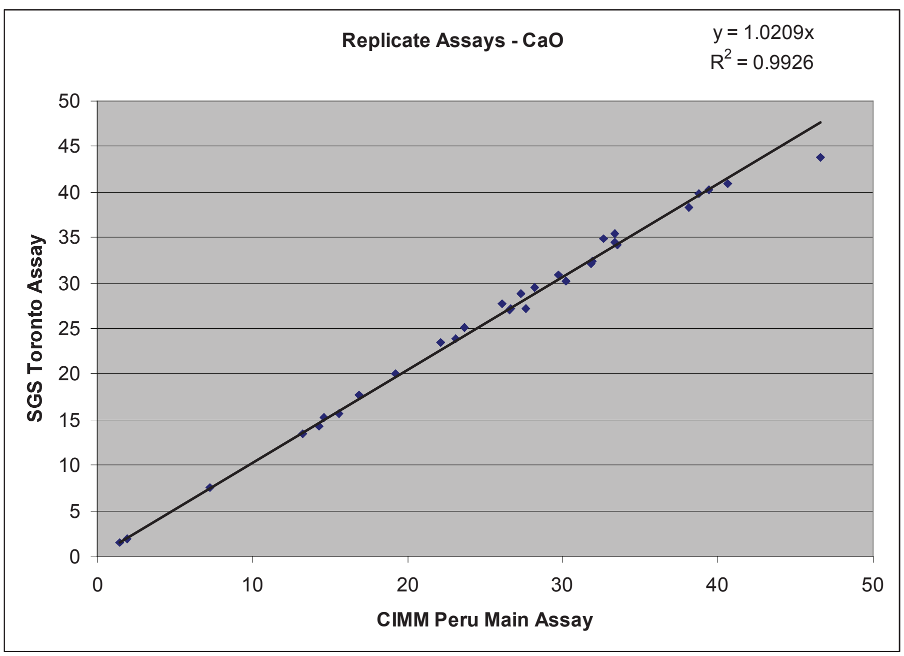
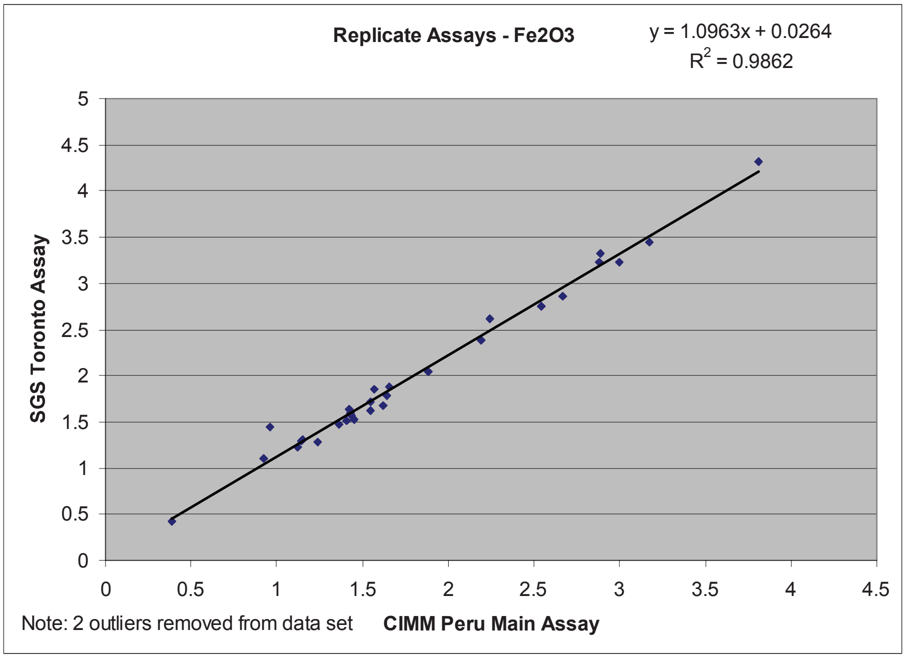


Figure 14-4



The author has verified the data relied upon and no limitations have been placed on data verification.

15 ADJACENT PROPERTIES

There are three adjoining properties to the Mantaro Property. The Sincosa mining concession lies immediately north of the Philip concession and is bounded by the Mantaro 4, Mesa Corral 2, William Primero and Mesa Corral 3 concessions. The Sincosa concession is reported in the INGEMMET registry to be held in the name of Core Minerals (Peru) S.A. and was granted June 22, 2007 under resolution No. 2618-2007-INACC/J. The concession is 500 ha in area and is designated as a metallic mining concession. The coordinates of the Sincosa mining concession are:

Vertex	North	East
1	8 685 000.00	450 000.00
2	8 685 000.00	453 000.00
3	8 683 000.00	453 000.00
4	8 683 000.00	451 000.00
5	8 684 000.00	451 000.00
6	8 684 000.00	450 000.00

The Dedito mining concession lies immediately to the north of Mantaro Peru's Mesa Corral and Mantaro 1 concessions. The Dedito concession has an area of 500 ha. It is registered by INGEMMET under Resolution No. 3233-97-RPM dated April 28, 1997 and is recorded in the Public Register in Huancayo under file number 20004752 in the name of Mario Menchelli Menchelli. It is designated as a non-metallic mining concession. The coordinates of the Dedito mining concession are:

Vertex	North	East
1	8 693 000.00	448 000.00
2	8 690 000.00	448 000.00
3	8 690 000.00	449 000.00
4	8 689 000.00	449 000.00
5	8 689 000.00	447 000.00
6	8 693 000.00	447 000.00

The Mantara 4 pediment lies to the west and south of Mantaro Peru's Puerta de Piedras 2, 3, 7 and 8 concessions is registered with INGEMMET under file number 010578208 in the name of Corporacion Misti S.A. It has an area of 1,000 ha and is classified as non-metallic. The principal coordinates of the pediment are:

Vertex	North	East
1	8 676 000.00	459 000.00
2	8 676 000.00	460 000.00
3	8 675 000.00	460 000.00
4	8 675 000.00	461 000.00
5	8 672 000.00	461 000.00
6	8 672 000.00	462 000.00
7	8 671 000.00	462 000.00
8	8 671 000.00	463 000.00
9	8 670 000.00	463 000.00
10	8 670 000.00	462 000.00
11	8 669 000.00	462 000.00
12	8 669 000.00	461 000.00
13	8 671 000.00	461 000.00
14	8 671 000.00	460 000.00
15	8 673 000.00	460 000.00
16	8 673 000.00	459 000.00

16 MINERAL PROCESSING AND METALLURGICAL TESTING

The results of mineral processing and beneficiation studies conducted by Bateman and Vale have been described in Section 6, History, and are detailed in Hains (2008).

MINERALOGY

SGS Mineral Services, Lakefield ("Lakefield") was commissioned by Stonegate to undertake additional mineralogical test work in the fall of 2009. Lakefield conducted Qemscan analysis of drill core material to better determine the mineralogy of the ore and the potential liberation characteristics of the ore by particle size. The results of the Lakefield work can be summarized as follows:

Mineral Abundance

The sample consists mainly of apatite (46.3 wt%), calcite (23.1 wt%), quartz (13.4%), feldspars (10.4%), mica/chlorite/clays (4.3 wt%), quartz-calcite (1.8 wt%), Fe-Ti-oxides (0.6 wt%) and other (0.1 wt%).

Approximately 2% of apatite (impure) may contain impurities including Si, Al and K. The "impure apatite" ranges from, for the coarse to the fine fraction, 0.5%, to 1% to 2% to 5%.

Apatite Liberation and Association

Free apatite accounts for 44.3% and liberated for 31.5%. The main association of apatite is with quaternary particles with feldspars, quartz and calcite (13.2 wt%) and complex particles (8.9%), and binary particles with calcite (1.4%). Liberation of apatite increases from, the coarse to the fine fraction, 69.2%, 79.0%, 84.5% to 72.4%.

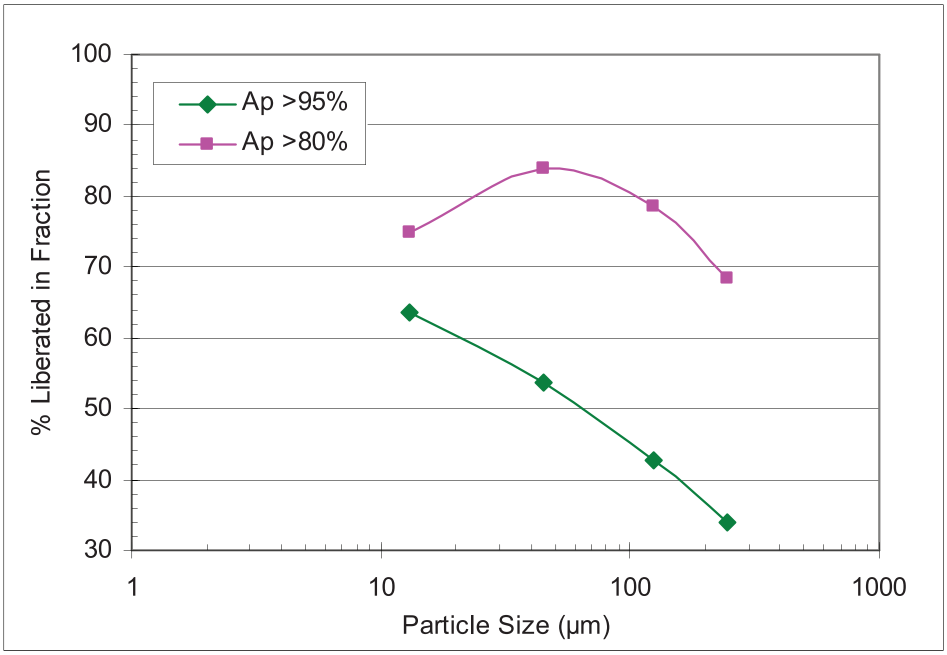
Liberation of apatite by increments (5% and 10%) also show that most of the liberated apatite (76%) in the samples (calculated) is recorded in the more than 80% liberation class.

The liberation and association of apatite per size class indicates that most of the middling particles (with feldspars, quartz and calcite, and complex) occur at different size intervals, that is between 75 and 210 µm, between 21 and 66 µm and >4 and 12 µm.

Determinative Mineralogy (Mineral release and Grade Recovery)

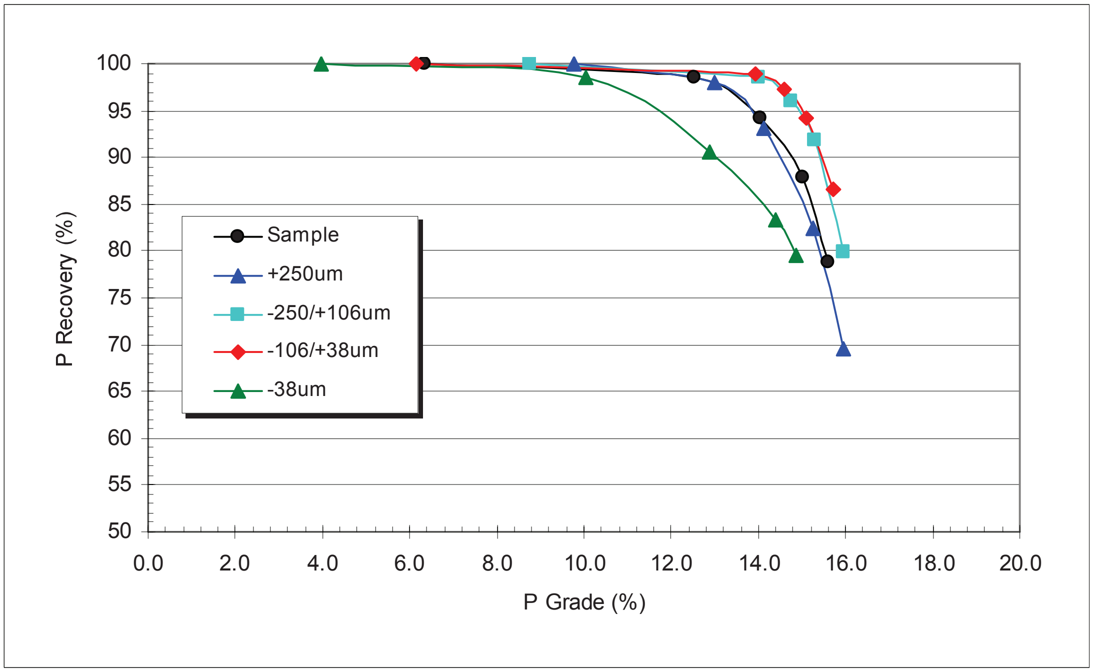
Apatite liberation is poor to moderate (for the >95% class) at 34% at 245 µm to 64% at 13 µm. It is significantly better 69% at 245 to 84% at 45 µm, but it lower by 9% in the finest fraction (for the ≥80%). Figure 16-1 provides a mineral release curve at various apatite grain sizes.

Figure 16-1
Mineral Release Curve Apatite



The grade and recovery of P are expected to be relatively good. Overall, the grade recovery curve representing the whole sample indicates that relatively grades between 12.5% and 15.6% of P (28.6% to 35.7% P_2O_5) can be achieved at recoveries between 98% and 78%, respectively. Figure 16-2 provides a grade-recovery curve for various size fractions and the calculated head.

Figure 16-2
Grade-Recovery Curve



Cumulative Grain Size Distribution

The D_{50} (mid point in the size distribution) is for apatite 82 µm, calcite 45 µm, feldspars 35 µm, quartz 27 µm, quartz-Calcite texture is 20 µm, and for the entire sample is 97 µm.

METALLURGY

Stonegate commissioned Bateman Advanced Technologies division of Bateman Litwin to undertake a new program of preliminary metallurgical test work in 2009. This program was designed to assess the mineralogical and beneficiation characteristics of both near surface material and more deeply buried unoxidized phosphate mineralization. Bateman received trench and drill core sample material for laboratory scale testing in mid-2009 and submitted its report in February, 2010. The samples had the head analysis indicated in Table 16-1.

Table 16-1
Head Assays Beneficiation Samples

	P_2O_5 (%)	Mg (%)	Na (%)	K (%)	Cl (%)	F (%)	Ca (%)	Fe (%)	Al (%)	Si (%)
Trench	15.84	0.072	0.05	0.56	ND	0.9	12.3	1.15	2.97	0.061
Drill	12.96	0.1	0.04	0.49	ND	1.33	19.6	0.87	0.89	0.065

Source: Bateman, 2010

The results of Bateman's preliminary beneficiation test work can be summarized as follows:

- Beneficiation of both types of ore can be achieved by grinding/desliming and selective flotation;
- Crushing, grinding and scrubbing did not reject any poor size fraction of the ore, thus selective size rejection is not suitable for beneficiation;
- The oxidized and unoxidized ores behave differently in the beneficiation process, but both types of ore can be beneficiated to merchantable products.

For ore ground to -0.425 micron, concentrate enrichment was as follows:

Drill Core: (-425/+38 micron fraction): enrichment from 16.7% P_2O_5 to 26% P_2O_5, with recovery of 76% of the phosphate in multiple stage flotation and mass recovery of 45%. The minor element ratio (MER) of the concentrate was 11.58.

Trench Material: (-425/+38 micron): enrichment from 21% to 32.6% P_2O_5 at a P_2O_5 recovery of 44% and mass recovery of 28.3%. The MER of the concentrate was 10.61. For material ground to **(**-150/+38 micron): enrichment from 21.5% P_2O_5 to 32.5% P_2O_5 with phosphate recovery of 73.3% and mass recovery of 48.5%. The MER of the concentrate was 9.53.

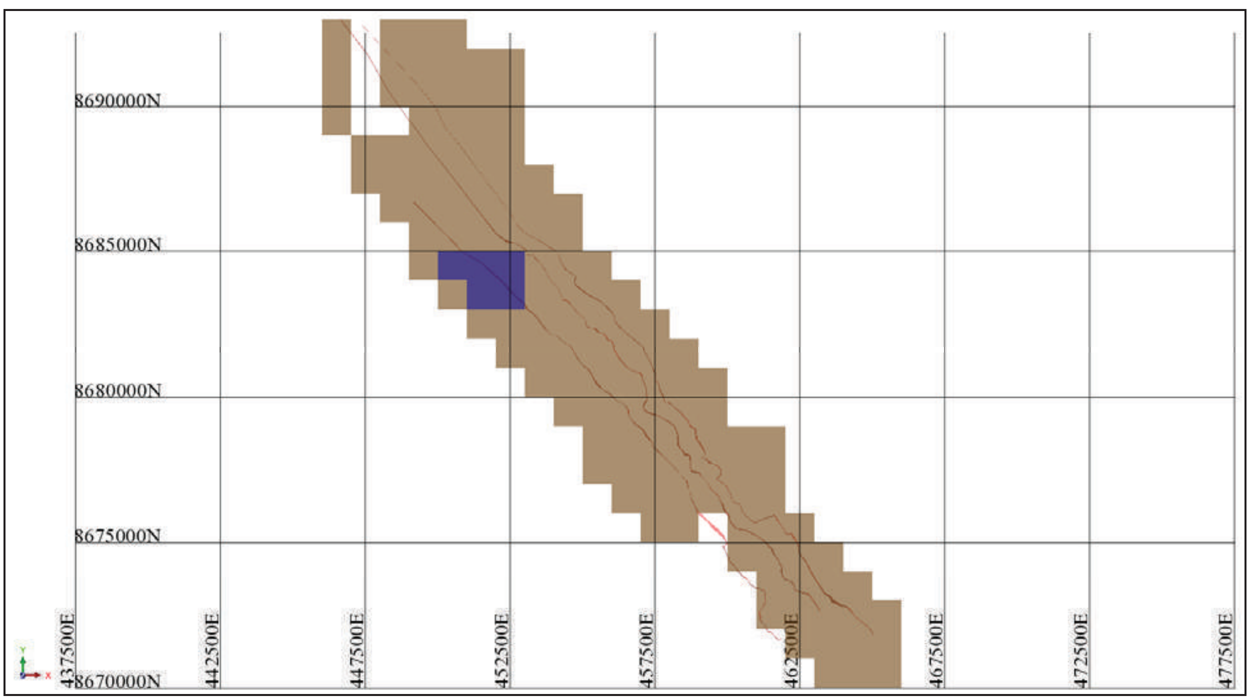
- Mineralogical analysis showed that the liberation of the apatite decreases sharply in size fractions coarser than 250 microns;
- The main gangue mineral in the drill core material is carbonate in the form of calcite. Apatite is 80% liberated in the -300+150 micron size fraction. Finer grinding increases apatite liberation at the expense of slimes generation;
- The main gangue mineral in the trench material is a fine lithic aggregation consisting of chalcedony, chert, sericite and minor carbonate. The apatite is 92% liberated in the -300+150 micron size fraction. Finer grinding increases apatite liberation at the expense of slimes generation;
- Heavy liquids separation both before and after attrition demonstrates the potential for phosphate separation from silica and calcite.

The overall conclusion of the Bateman test work was that both oxidized and unoxidized ore could be successfully beneficiated using conventional processes. Bateman made a number of recommendations for additional test work to evaluate the response of ore from different areas of the deposit, improve the selectively of the process, and improve the quality and recoveries of both oxidized and unoxidized ore.

17 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

The Mantaro Project consists of 3 known trends of phosphate mineralization. From west to east these are referred to as the West, East and Far East zones. A conceptual or potential tonnage has been estimated for the East and Far East zones, which are considered exploration targets at this stage (Figure 17-1). The West zone was the focus of Stonegate's 2009 exploration program in which trenching (9 trenches) and diamond drilling (23 holes) was completed. Data for 6 historic trenches was also available and incorporated into the geological and resource model. Michelle Stone, P.Geo., a Senior Geologist with CCIC, used GEMCOM's Surpac software V.6.1.3 ("Surpac") to generate a three-dimensional ("3D") model of the phosphate mineralization and estimate conceptual and NI 43-101 compliant tonnages and grades as appropriate for the Project.

Figure 17-1
Map showing the location of the three phosphate zones on the Stonegate claims at the Mantaro Project (West, East and Far East left to right). The Sincosa claim shown in blue is not owned by Stonegate



DATABASE, SOFTWARE AND THREE DIMENSIONAL MODEL

The resource estimate is based on the interpretation of 23 surface diamond drill holes and 14 trenches (9 recent and 6 historic). The collar position, down hole orientation and assay data for these holes and trenches are stored in an MS Access database. A digital terrain model was produced from the Shuttle Radar Topography Mission ("SRTM") data (2009 version 2.1, 90m data) for the area (Figures 17-2 through 17-4). The data for this Project as received from Stonegate and presented in this report are referenced to the Provisional South American 1956 datum ("PSAD 56"), zone 18S. The SRTM data for the Project was clipped from the larger dataset and converted from its original format (WGS84/EGM96) to PSAD56 using the data transformation function in ESRI's ArcInfo.

Figure 17-2
Plan view of 90m SRTM data. Mantaro Property shown in red. Sincosa claim shown in blue

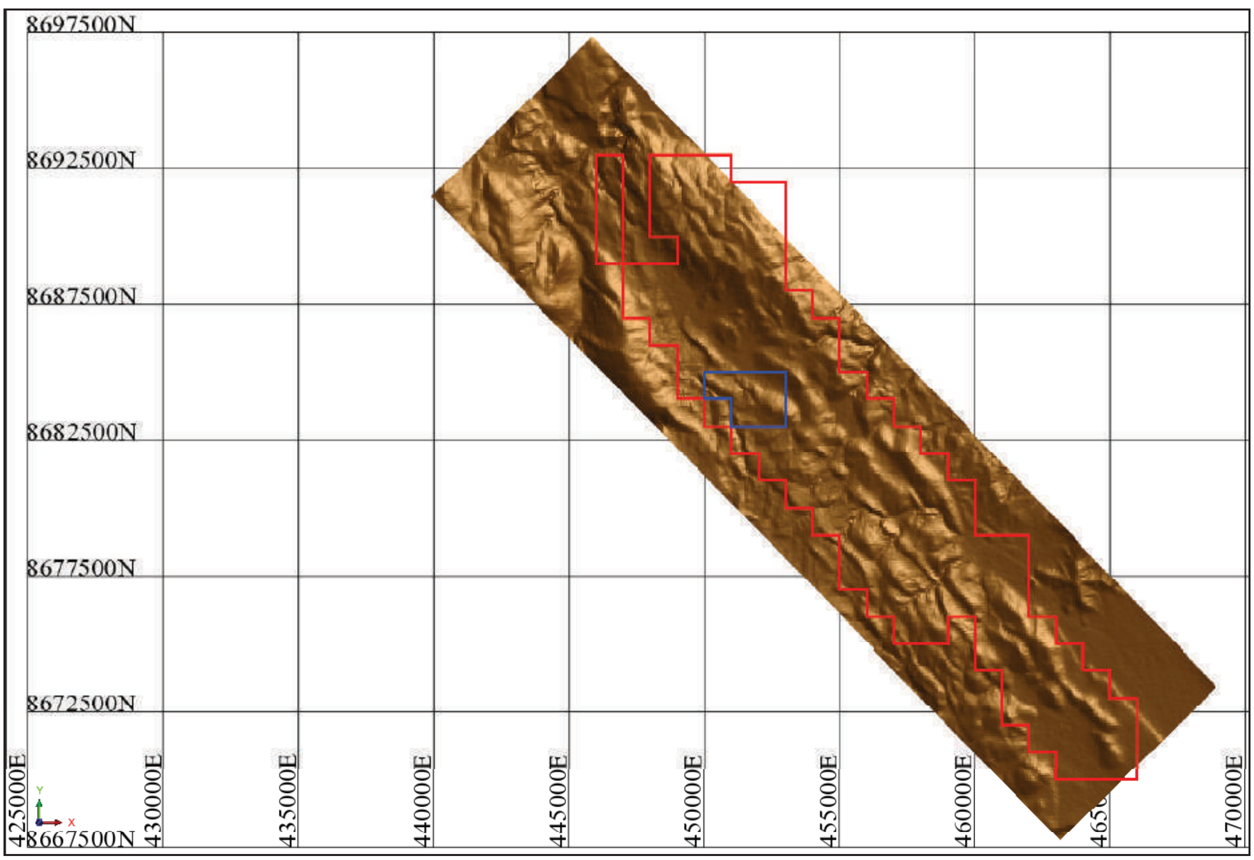


Figure 17-3
SRTM data with a vertical exaggeration of 4.5. Claims are draped over the topography. The Mantaro Property is outlines in red and the Sincosa claim in blue

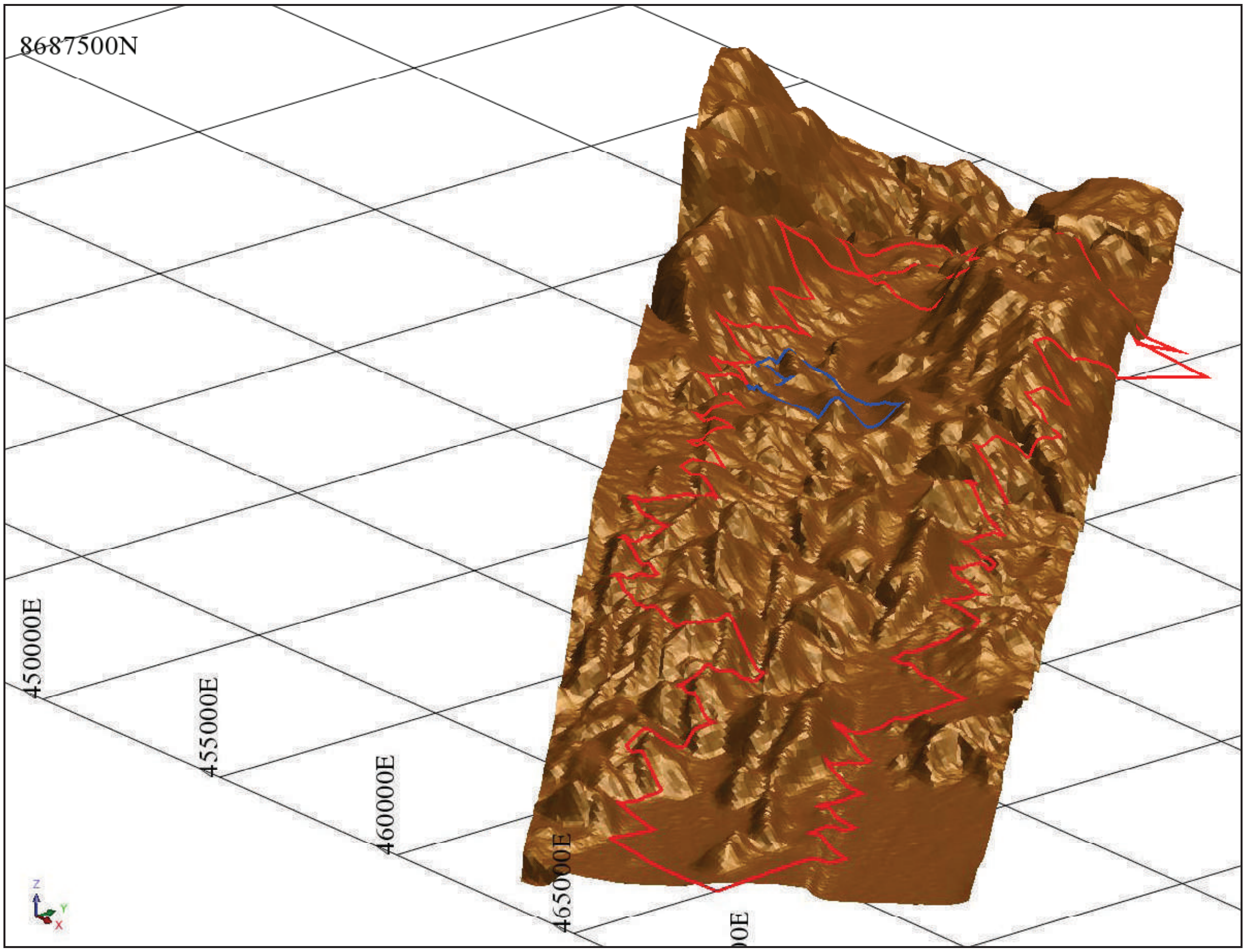
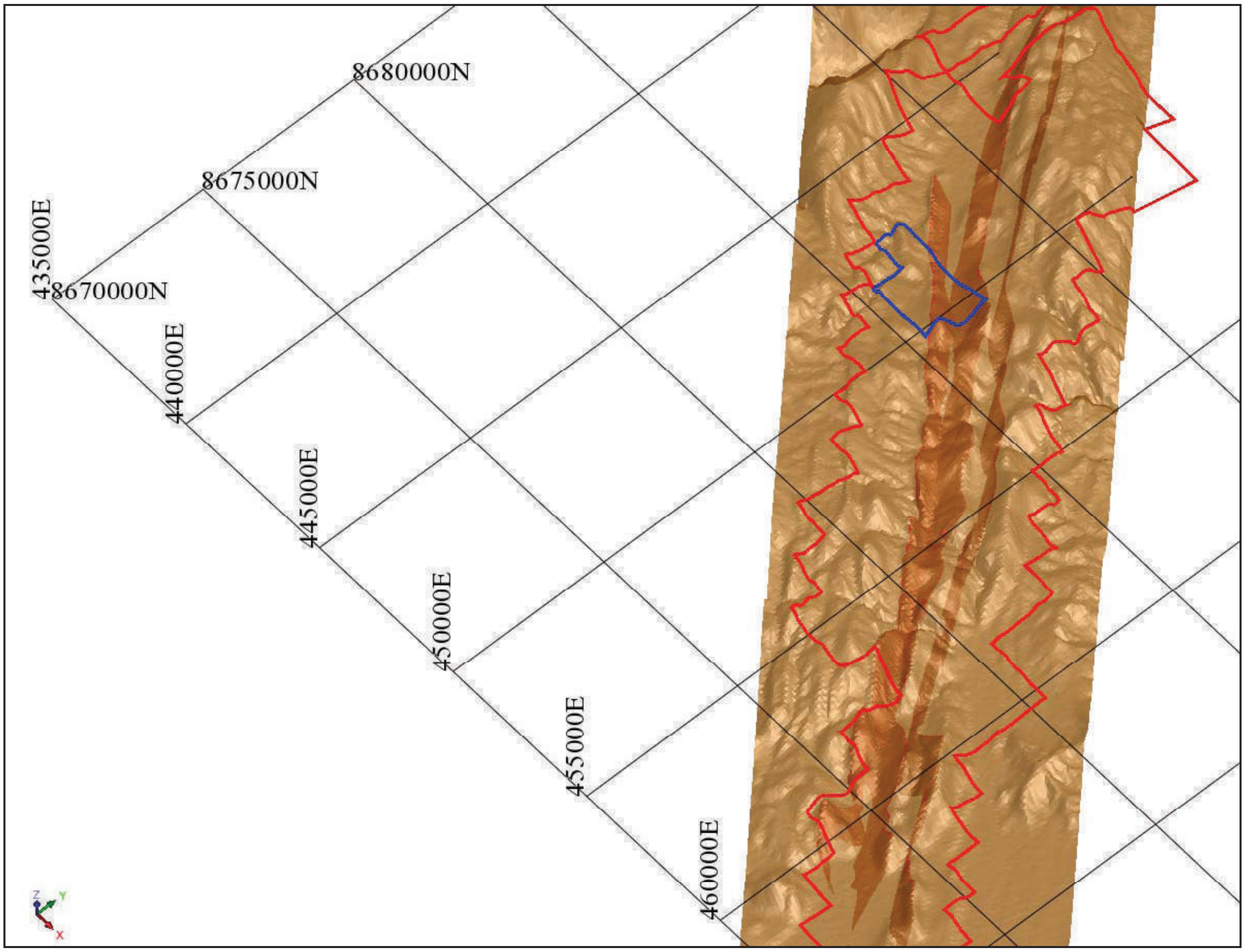
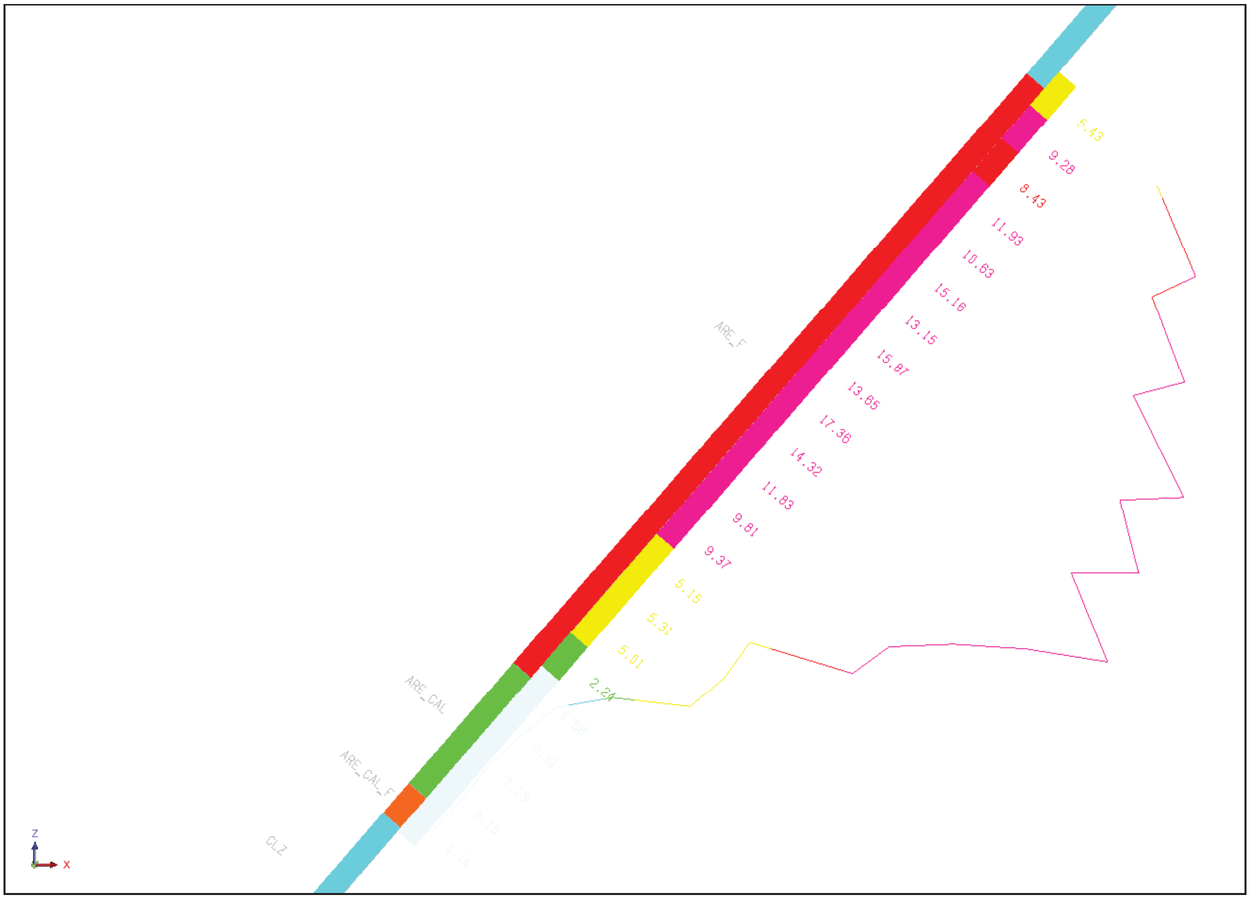


Figure 17-4
Property area showing phosphate trends (dark) seen through a slightly transparent surface topography. The Mantaro Property is outlined in red and the Sincosa claim in blue



Twenty one holes were drilled from 7 stations with planned orientations approximately perpendicular to the strike of the trend of the phosphate mineralized West zone. Holes were drilled at dips of ~ 45°, 70° and 90°. Two holes were drilled from one station along the dip of and perpendicular to the phosphate zone (holes PM-DDH-03 and 03BA). With the exception of these 2 holes, all holes completely intersected the mineralized zone. Figure 17-5 is an example of the phosphate grades from drill core across the mineralized zone. The P_2O_5 assay data was compiled into an MS Access database from digital certificates and checked against original hardcopies. All assays were reported above the minimum detection limit. Down hole surveys were completed using a FlexIT single shot instrument, approximately every 50m and at the bottom of the hole. Down hole deviation was less than 2.5% in inclined holes.

Figure 17-5
Section view of phosphate grade in drill core. Coloured by grades (hot colours = higher grade). The text on the left side of the drill trace is the lithology as compiled from the drill logs. The phosphatic zone (red) is overlain and underlain by limestone in this example



Three-dimensional solid shapes (“solids”) representing the P_2O_5 mineralization on the Mantaro Project were constructed in Surpac based on geological surface mapping (Figure 17-6) and the information obtained during drilling and trenching (current and historic). The East and Far East zones are based solely on the surface mapped and interpreted location and projected to depth. The West zone was constructed using a series of cross sections in the area of recent exploration drilling and trenching and constrained by the surface mapped and interpreted expression of the phosphate mineralization. The geological interpretation was updated locally to fit with the location of the historic trenches. The solid shapes were simplified somewhat as foldbacks were present in all 3 solids, but the overall shape of the phosphate zones was preserved. Two fault surfaces were created based on their mapped and interpreted surface expression (Figures 17-6 through 17-12). The faults are referred to as the East and Far East faults. The solids for the phosphate zones were not clipped to the fault surfaces but reported above them in the tonnage and grade estimates.

All three phosphate zones strike roughly northwest and dip approximately 48° either to the northeast (West zone) or southwest (East and Far East zones). The strike length on the Property is at least 20 km for the West zone. The East and Far East zones have been traced and interpreted to trend for at least 28 km across the Property. The width is variable, but on average is approximately 25m. The phosphate zones are locally disrupted by faults, but they appear to be simple and do not significantly disrupt the continuity of the mineralization.

Trench samples were collected approximately 2m below the surface. To account for this in the model only an approximate surface elevation was provided. The start and end points of the trenches were plotted and then draped on the surface digital terrain model ("DTM") generated in Surpac from the SRTM data. These points were then translated down 2m vertically and the dip of the line connecting the 2 points calculated and recorded in the database with the resulting elevation. Drill collars were also fit to the DTM surface. Where the measured extents of the 2009 trench were different than the actual thickness, the mapped and sampled intervals lengths were adjusted to fit.

There is limited information associated with the historic trenches. The data used in the model was sourced from Hains (2008), the most recent technical report prepared on the Mantaro Project. The trench sampling data is presented in Table 6.2 on page 35 of the technical report. This information was sourced and vetted by Hains from the 2001 Bateman pre-feasibility report. The samples collected from these trenches are reported to have been taken at 1m intervals (Hains, pers. comm.). As detailed assay information is not available, the 1m intervals in the mineralized zone are all assigned the calculated grade for the intersection.

Figure 17-6
Surface mapped and interpreted phosphate mineralized zones of the Mantaro Property

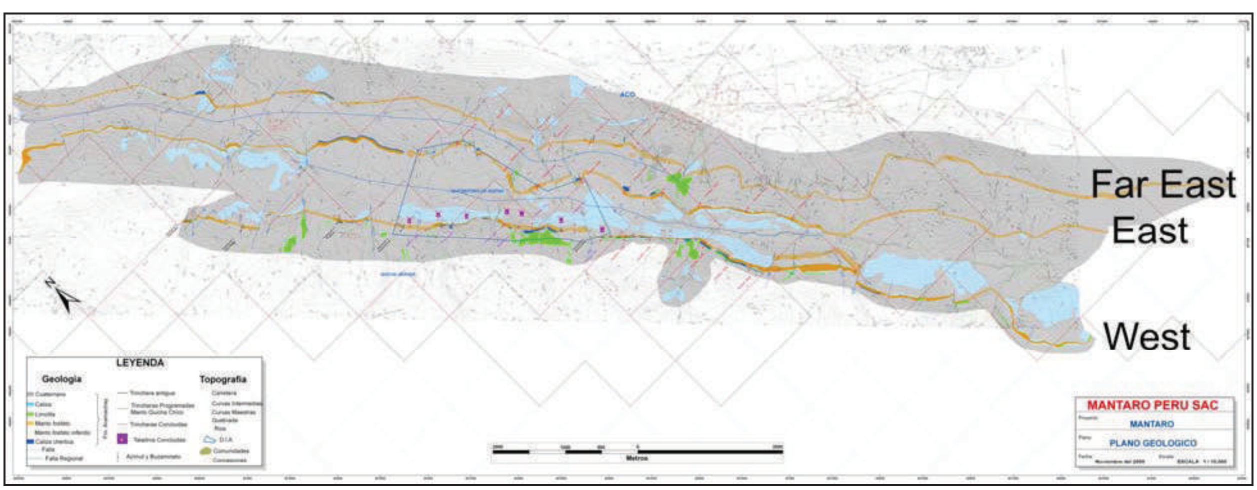


Figure 17-7
Idealized cross section mid-section of Philip concession (provided by Stonegate)

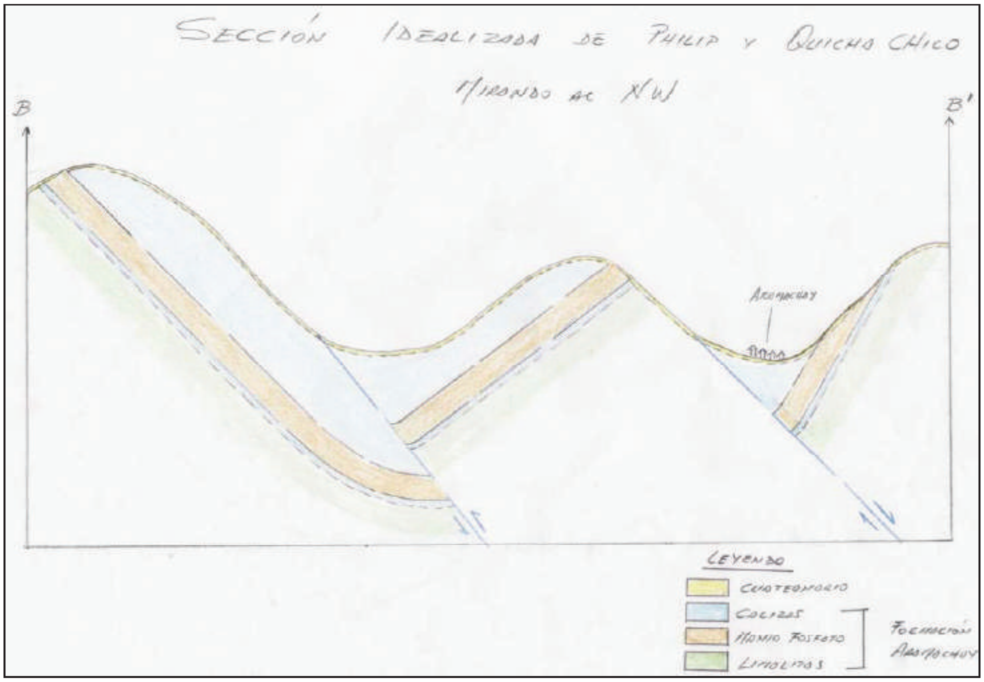


Figure 17-8
Idealized cross section south end of Philip concession (provided by Stonegate)

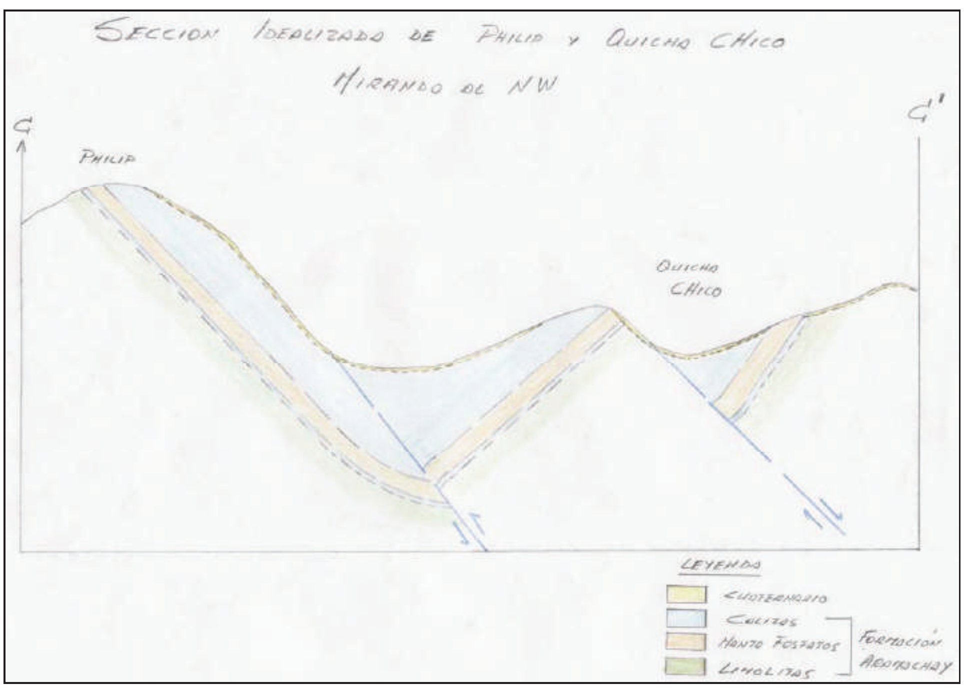


Figure 17-9
West zone (red) shown under semi transparent topography (vertical exaggeration = 3). View is roughly to the NW

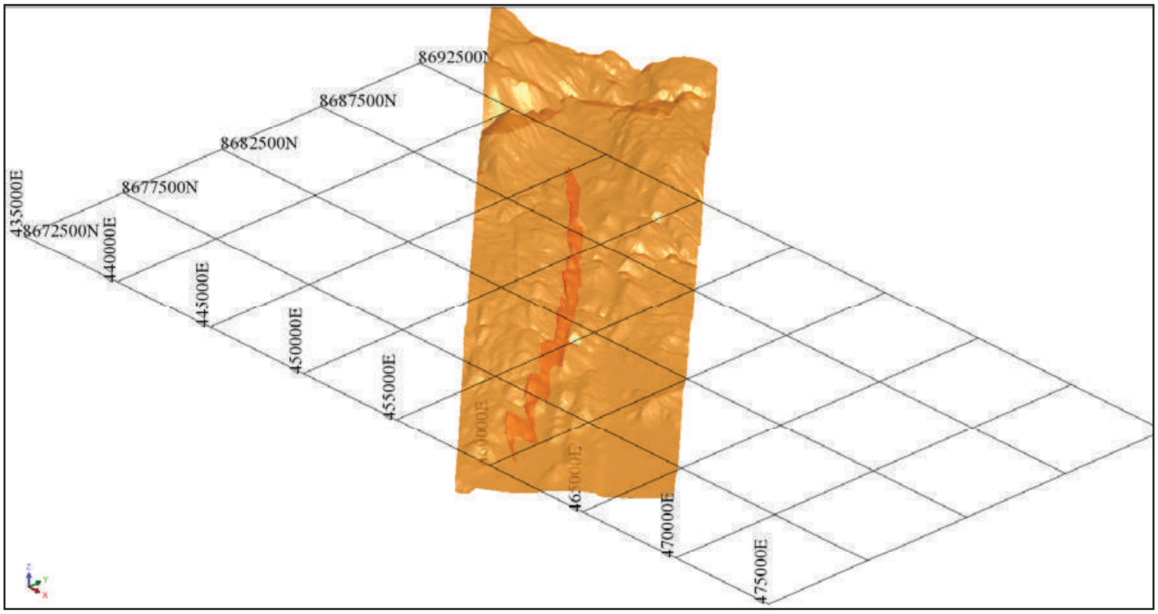


Figure 17-10
East zone (red) shown under semi transparent topography (vertical exaggeration = 3). View is roughly to the NW

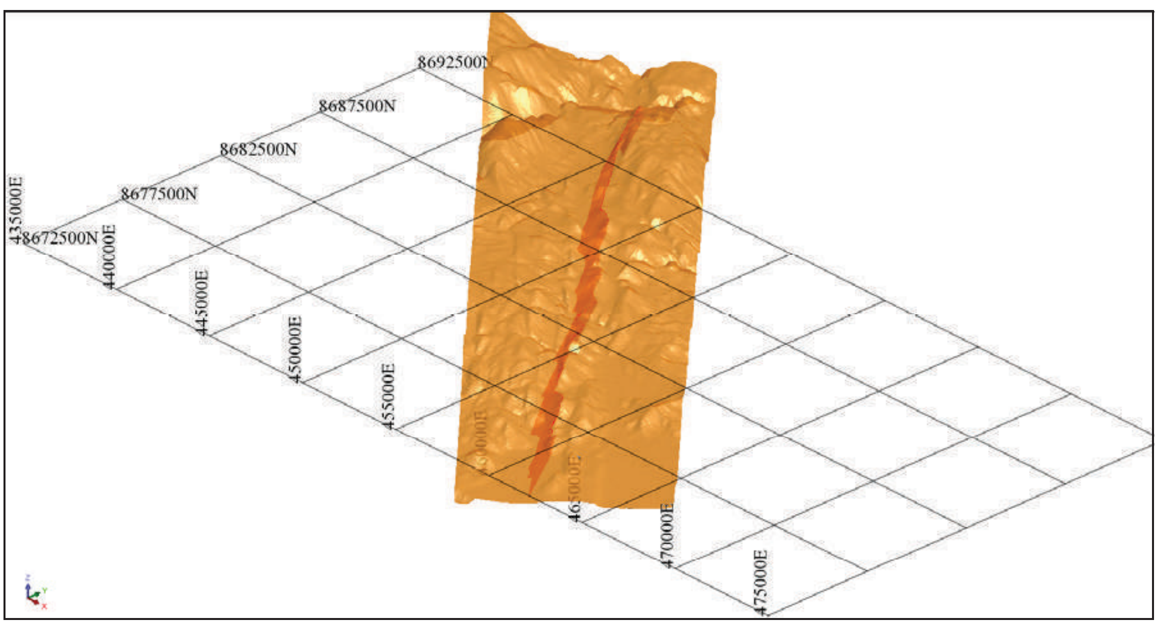


Figure 17-11

Far East zone (red) shown under semi transparent topography (vertical exaggeration = 3). View is roughly to the NW

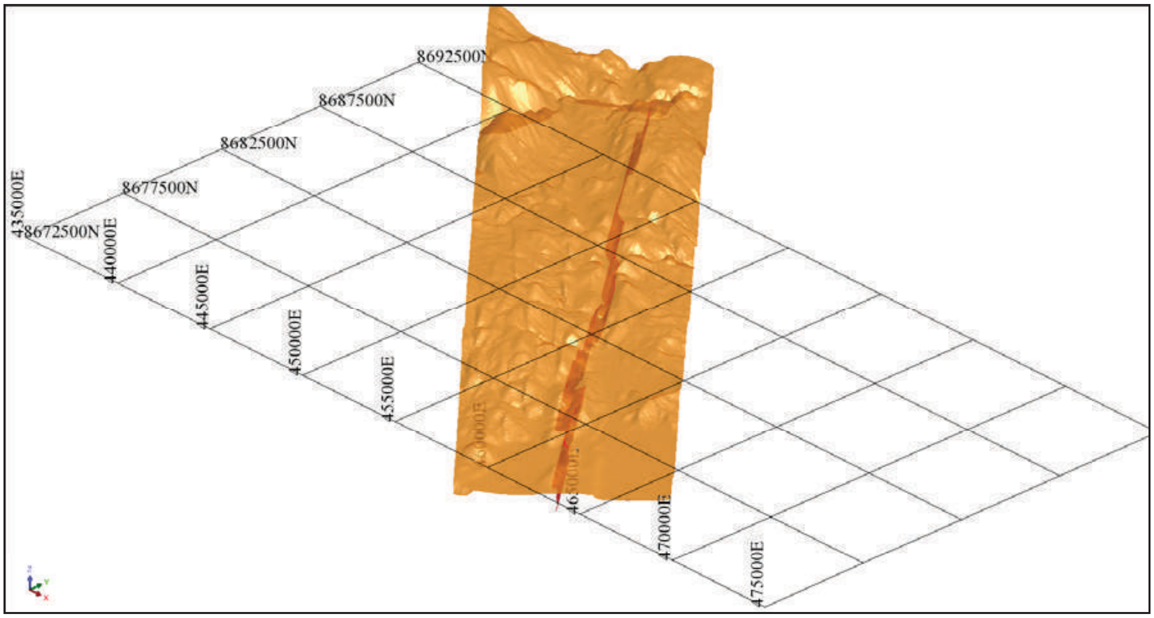


Figure 17-12
All 3 phosphate zones on the Mantaro Property (red) shown under semi transparent topography (vertical exaggeration = 3). View is roughly to the NW

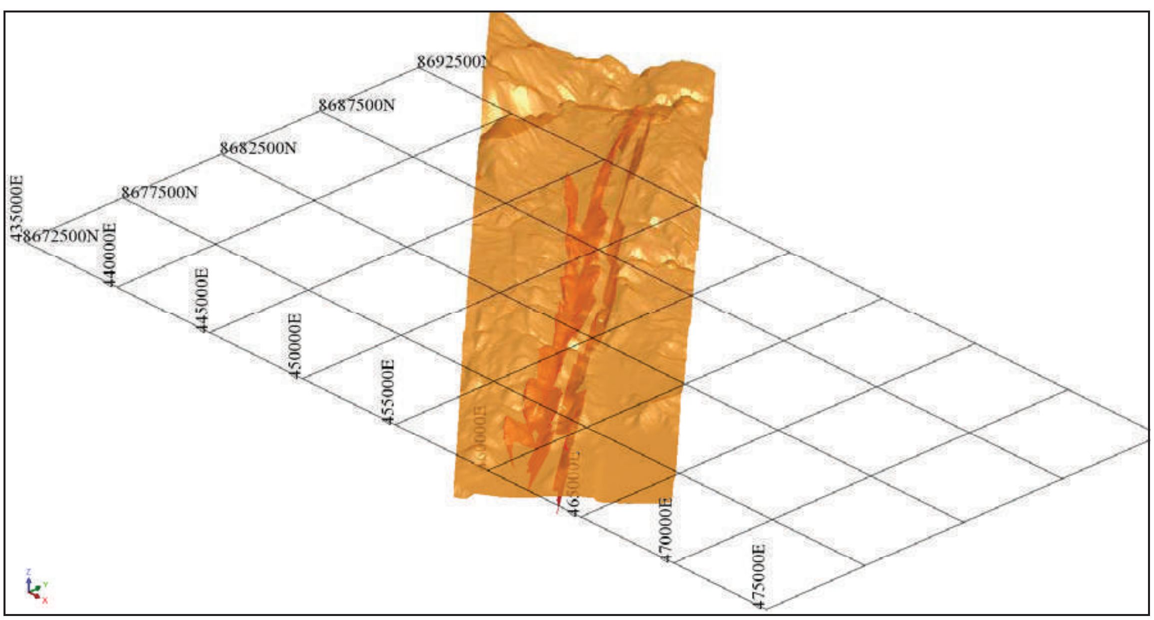


Figure 17-13.
East zone (red) and fault (blue) shown in plan view

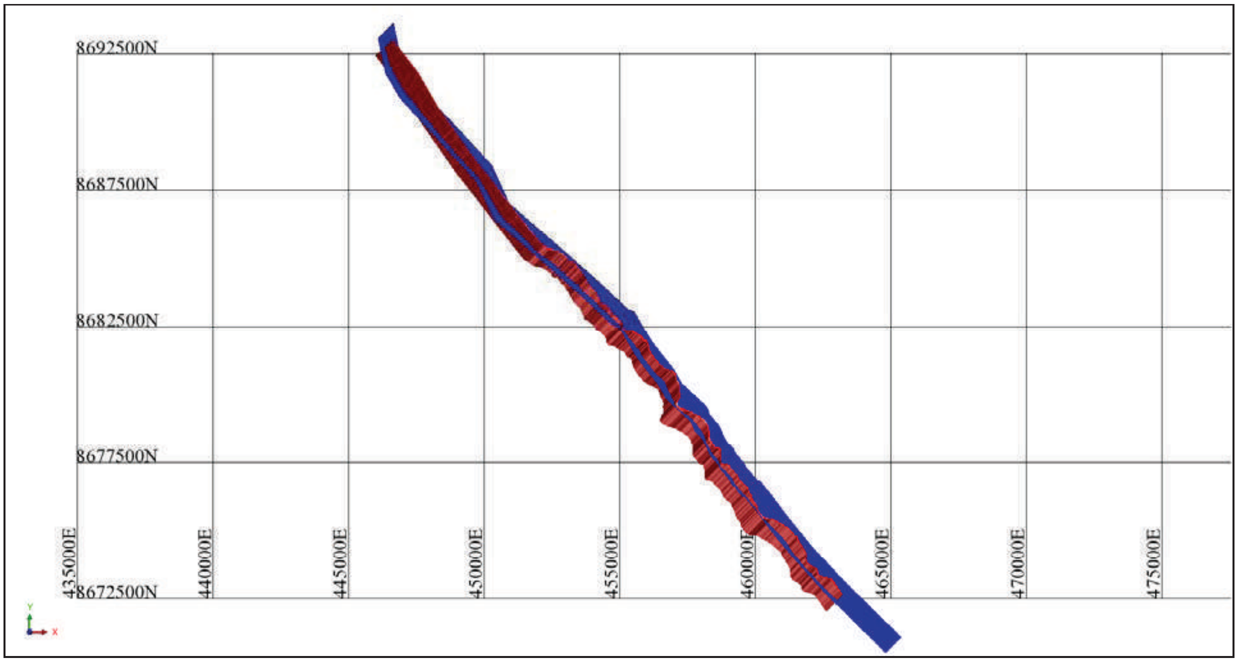
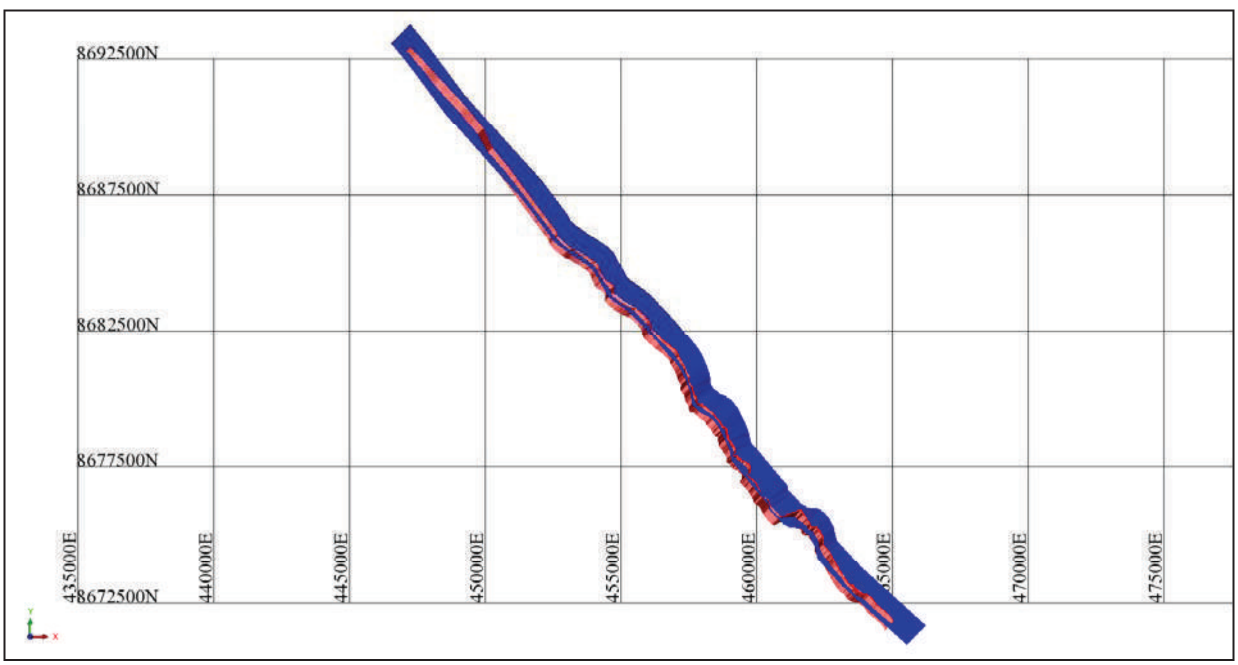


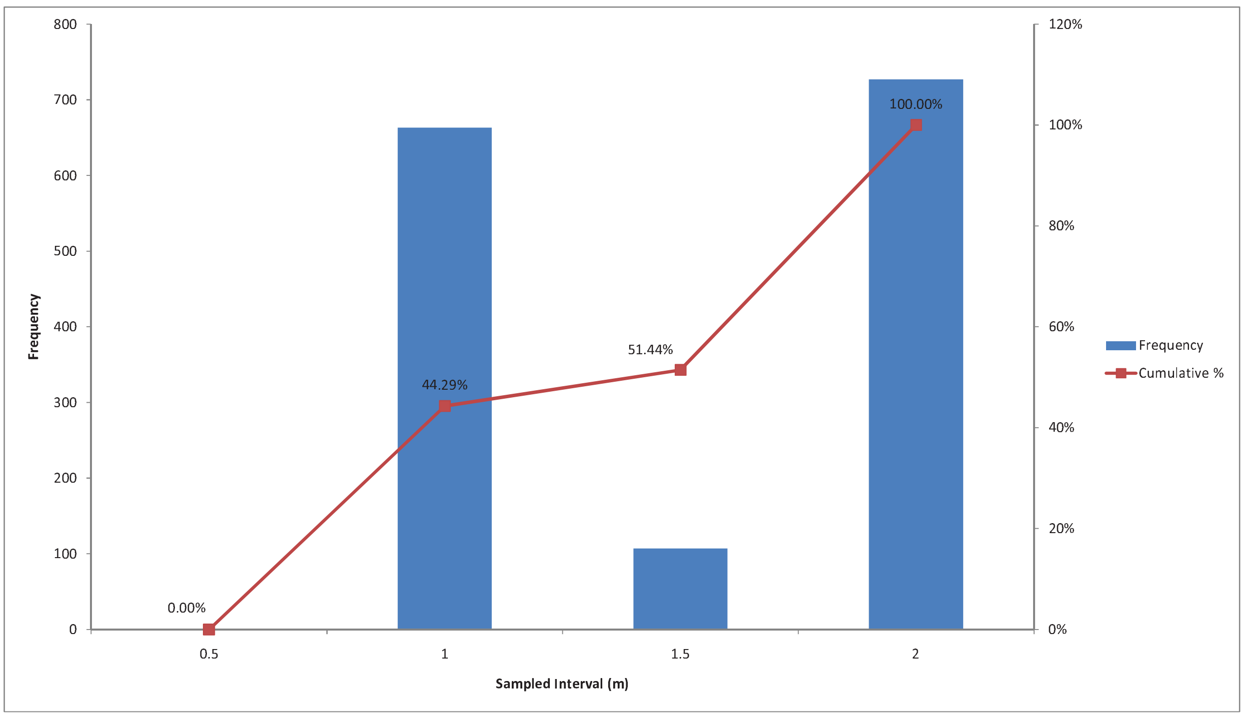
Figure 17-14
Far East zone (red) and fault (blue) shown in plan view



SAMPLES AND COMPOSITING

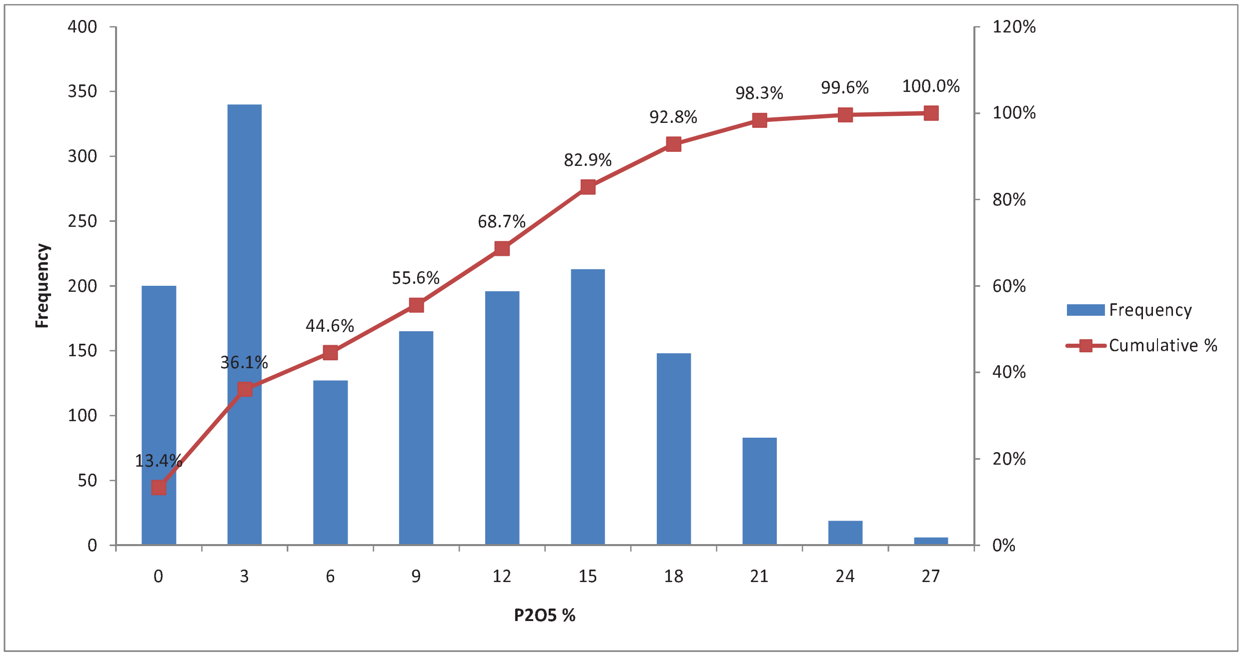
Sample statistics were calculated for the intervals intersecting the phosphate zone within the West solid. Raw sampling interval histograms and their grade ranges are presented in Figures 17-15 and 17-16. Samples were effectively 1 or 2m in length and each of these intervals represents approximately half of the data set. Two holes were sampled in 1m intervals (PM-DDH-03 and 03A). These holes were drilled across strike but down along the dip of the phosphate zone. All others were sampled in 2m intervals. Recent and historic trenches were sampled on 1m intervals.

Figure 17-15
Histogram showing sampled intervals in the West phosphate zone



The raw P_2O_5 data shows a single population that is skewed to the left with a high occurrence of very low grade assays. These low grade samples represent the zones marginal to the phosphate mineralization with gradational or diffuse contacts as well as thinly interbedded lenses of phosphate, etc. The median assay value is around 9% P_2O_5. The assay intervals are not the same as the logged intervals so it is not possible without a lot of data manipulation to analyze the phosphate grades with respect to specific rocks types. Also review of the logging shows that the higher grade mineralization is not always captured with the same logging code or description. It would be useful to take the logs with the grades and review the core to see if the higher grade zones can actually be identified with more careful logging.

Figure 17-16
Histogram cumulative frequency of sampled intervals in the West zone

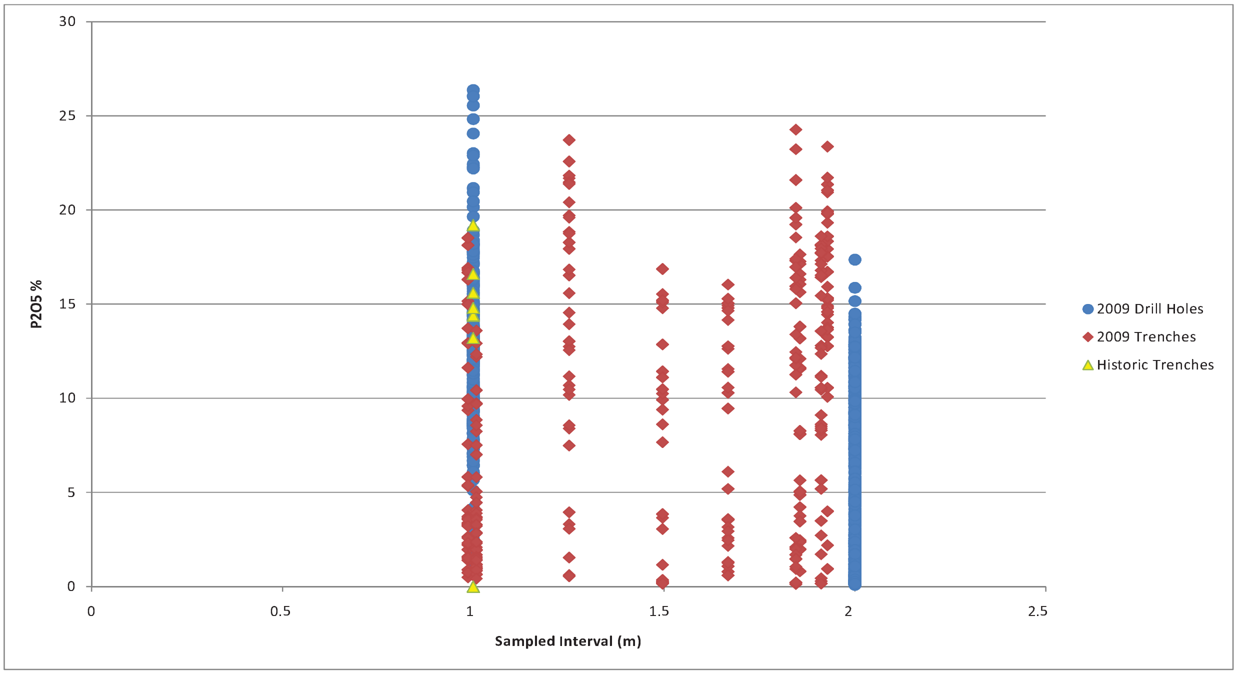


There does not appear to be any relation of sampled interval thickness to P_2O_5 grade (Table 17-1), indicating that there is no apparent sampling bias between trench and drill hole samples (Figures 17-15 and 17-17). If only the drill core assays are considered, then the higher grades appear to be dominant in the 1m samples (Figures 17-17), which are from holes drilled down, along the dip of the West zone.

Table 17- 1
Summary of basic raw sample interval statistics.

	All data		Drilling only		All trenches		2009 trenches		Historic trenches	
	Sample Interval	P_2O_5 %	Sample Interval	P_2O_5 %	Sample Interval	P_2O_5 %	Sample Interval	P_2O_5 %	Sample Interval	P_2O_5 %
Minimum	0.99	0.00	1.00	0.09	0.99	0.00	0.99	0.13	1.00	0.00
Maximum	2.00	26.37	2.00	26.37	1.93	24.27	1.93	24.27	1.00	19.20
Average	1.48	7.80	1.69	7.35	1.23	8.36	1.51	9.51	1.00	7.41
Standard Deviation	0.48	6.59	0.46	5.52	0.36	7.67	0.38	6.84	0.00	8.18

Figure 17-17
Scatter plot showing sampled interval lengths vs P_2O_5 grade - West phosphate zone



Two metre composites were produced from the assay data within the 3D ore solid. Intervals less than 2m were composited near the contacts where sample length was equal to 0.02m (1% of the maximum composite length). Consistency of high grade intercepts in drill core and across the trenches, in addition to the results of duplicate analyses (Section 13) indicate that the higher grade phosphate values are consistent and have a reasonable degree of repeatability associated with them. The coefficient of variation is also very low (~0.6 for the total dataset) and therefore no top cut was applied to the model. Table 17-2 summarizes the composited interval statistics.

Table 17- 2
Summary of assay statistics for 2m composited samples.

Composites (878 samples)	P_2O_5 (%)
Minimum Value	0.000
Maximum Value	26.205
Mean	9.130
Variance	32.543
Standard Deviation	5.705
Coefficient of Variation	0.625

BLOCK MODEL

The block model parameters are shown in Table 17-3. A 45°rotation was applied to the model. Partial percents were used as part of the volume estimation. The block volumes were adjusted based on the proportion that the block was "in" the solid shape representing the mineralization and below the topography.

Table 17-3
Block model description.

	Y (m)	X (m)	Z (m)
Minimum Coordinates (m)	8,668,750	462,950	4,400
Maximum Coordinates (m)	8,698,750	467,950	9,400
Block Size	200	20	5
Rotation	-45	-45	0

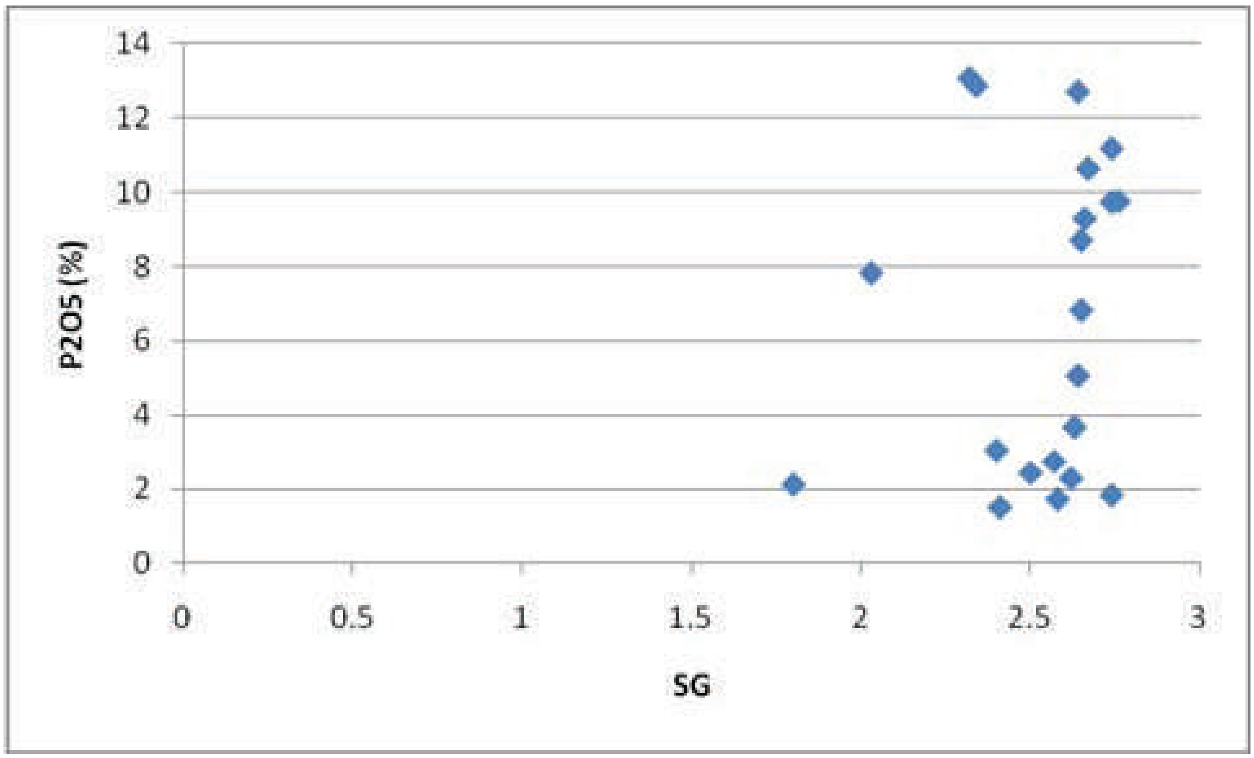
BLOCK INTERPOLATION

The grade of the West phosphate zone was estimated with the nearest neighbour method using a search ellipse oriented 320°, along the approximate strike of the zone and dipping 48°to the east. The grade estimation was done in 2 passes with an expanding search ellipse. In the first pass, a search radius of 1,000m is used with a major to semi-major axis ratio of 40:1 and a major to minor ratio of 100:1. This equates to a search distance of 2,000m along strike, 50m along dip and 20m across dip. The second pass used a search radius of 1,500m with a major to semi-major axis ratio of 15:1 and a major to minor ratio of 100:1. The second pass searched 3,000m along strike, 200m along dip and 30m across dip. The remaining material was assigned a grade of 9% P_2O_5, which is an assumed grade for the deposit based on the raw and composited assay data. The same grade was assigned to the East and Far East zones which represent exploration targets. A minimum of 4 samples and a maximum of 12 samples were used in the estimation with a maximum of 5 samples from any particular drill hole. An inverse distance squared model was also run for comparison.

In 2009, 21 bulk density (specific gravity or "SG") determinations were made on drill core from the Mantaro Project. One sample was selected from mineralized core in each drill hole with the exception of holes PM-DDH-03 and 03A, which were drilled along dip. The average specific gravity ("SG") value is 2.62 (tonnes per dry cubic metre of rock). However, this is not considered an appropriate value to use for the phosphatic mineralization for which the resource tonnage is being estimated and is likely to be mined. Instead, an SG of 2.62 was assigned to all blocks that were at least partially "within" the 3 phosphate zone solids. The following is a summary of how the value of 2.62 was determined for the SG.

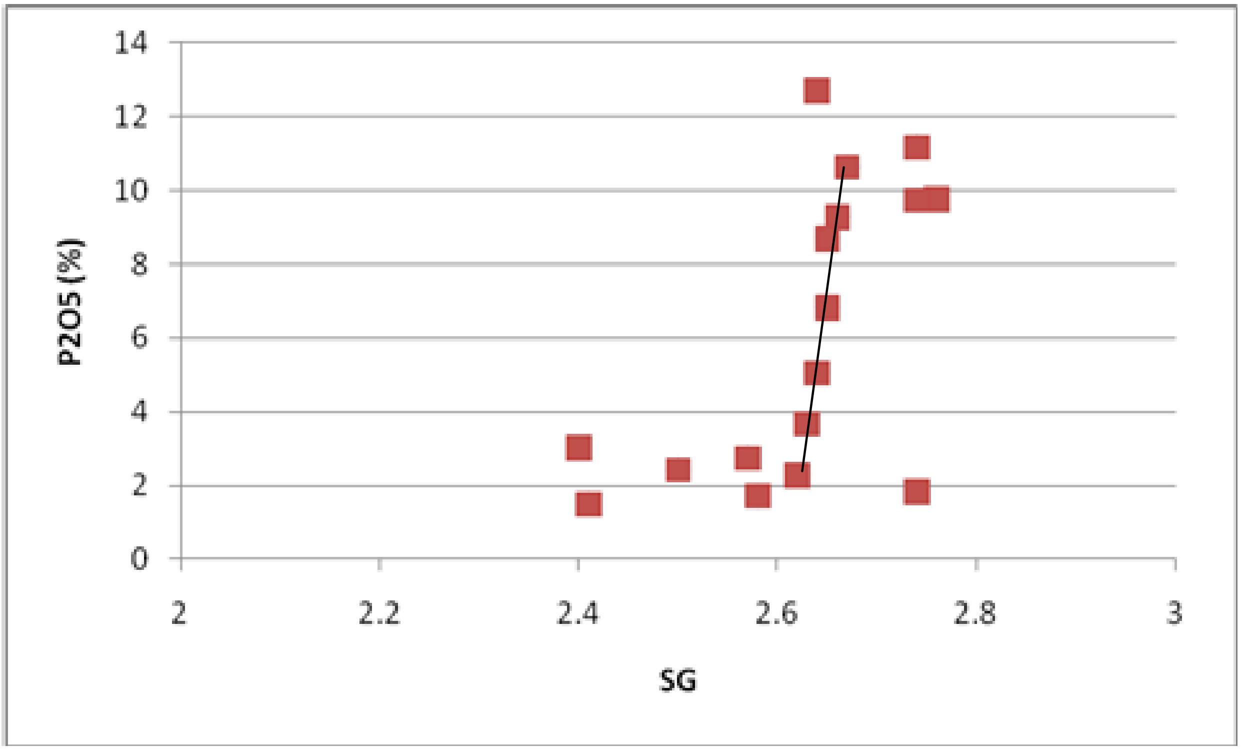
Four of the 21 SG determinations appear to be outliers in the dataset. Two of these values have an SG less than 2, and the other 2 points have very high phosphate grade and plot to the left of the main group of data (Figure 17-18).

Figure 17-18
Scatter plot showing SG vs P_2O_5 grade - West phosphate zone



When these 4 points are removed from the dataset, the resulting distribution of data points depicts an understandable and logical trend in the data (Figure 17-19). At the lower SG range (2.4-2.6), the grades are low (2-3% P_2O_5) and this material represents the rock types that are marginal to the phosphate mineralization. The SG increases steadily with grade until it peaks around an SG of ~ 2.7 and a P_2O_5 value of 10%. If a trend line is fit to the data as shown in Figure 17-18 and the SG is calculated for a grade of 9% P_2O_5, which is the average grade of both the raw and composited data, the result is an SG of 2.65. This value is slightly higher that the calculated SG for a grade of 4% P_2O_5, which is the base case reporting cut-off for the resource estimate, and is equal to 2.63. The value for the dataset with the outlier points removed is 2.62, and this was the value accepted to represent the material reported in this mineral estimate.

Figure 17-19
Scatter plot showing SG vs P_2O_5 grade reduced by the 4 outlier points in Figure 17-17 for the West phosphate zone



The tonnage for each block was calculated and reported as follows:

> Block volume (200m x 20m x 5m) * SG * the proportion of the block within the ore zone and under the surface topography.

The block volume above 3,400m elevation was reported for all phosphate zones.

CLASSIFICATION

Based on the study reported herein, delineated mineralization within the West phosphate zone of the Mantaro Property is classified as a **mineral resource** according to the following definitions from NI 43-101:

> *"In this Instrument, the terms "mineral resource", "inferred mineral resource", "indicated mineral resource" and "measured mineral resource" have the meanings ascribed to those terms by the Canadian Institute of Mining, Metallurgy and Petroleum, as the CIM Standards on Mineral Resources and Reserves Definitions and Guidelines adopted by CIM Council on December 11, 2005, as those definitions may be amended from time to time by the Canadian Institute of Mining, Metallurgy, and Petroleum.*

"*A **Mineral Resource** is a concentration or occurrence of natural solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.*"

Mineral resources are not mineral reserves as economic viability of the Mantaro Project deposit has not yet been shown.

The terms Measured, Indicated and Inferred are defined in NI 43-101 as follows:

"*A **'Measured Mineral Resource'** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.*"

"*An **'Indicated Mineral Resource'** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.*"

"*An **'Inferred Mineral Resource'** is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.*"

Phosphatic material in the West zone is classified as Measured, Indicated or Inferred as described in the following section.

The phosphatic material within the East and Far East zones of the Project does not yet meet the criteria for an Inferred Resource. There is no current sampling data associated with these zones, although their extents have at least preliminarily been designated by mapping. These zones therefore constitute exploration targets and their tonnage is conceptual in nature and described with a potential tonnage.

RESULTS

Resources and potential tonnage estimates presented in the following sections are effective as of the 21st of February, 2010. Blocks in the West phosphate zone were classified as follows:

> **Measured:** if the P_2O_5 grade was estimated in Pass 1 and the distance between samples used in the estimate was $\leq$ 250m.
>
> **Indicated:** if the P_2O_5 grade was estimated in Pass 1 and the distance between samples used in the estimate was > 250m but $\leq$ 1,000m or if P_2O_5 grade was estimated in Pass 2 and the distance between samples used in the estimate was $\leq$ 1,000m.
>
> **Inferred:** if P_2O_5 was estimated in Pass 1 or Pass 2 with a distance between samples used spaced > 1,000m apart, or if the P_2O_5 grade was not estimated in Pass 1 or 2.

The resource estimate for the West zone of the Mantaro Project is reported in Table 17-4. Tables 17-5 and 17-6 show the tonnage and grade estimation results at various P_2O_5 cut-offs and ranges. The tonnages reported below exclude the material on the Sincosa concession. Figures 17-20 through 17-24 show the block model for the various resource categories. Model cells are shown on the Sincosa concession to show continuity of the phosphate zone, however, the associated tonnage has been removed from the estimates presented in Table 17-4 through 17-6.

Table 17-4

Current Measured, Indicated and Inferred Resources reported at a 4% P_2O_5 cut-off grade (base case)

Resource Class[1]	Tonnes[2]	P_2O_5 (%)
Measured[2]	5,548,000	10.8
Indicated[2]	33,975,000	9.9
Measured + Indicated[2]	39,523,000	10.0
Inferred[3]	376,265,000	9.0

[1]Measured and Indicated are reported using a 4% P_2O_5 cut-off. Inferred is reported with no cut-off with a grade of 9% assumed based on the average drilling grade (rounded down from ~9.5% P_2O_5.
[2]Tonnes have been rounded to the nearest 1,000 and the phosphate grade to 1 decimal place.

Table 17-5
Current Measured and Indicated resources reported at various P_2O_5 cut-offs[1]

P_2O_5 Range (%)	Resource Class	Volume (m^3)[2]	Tonnes[2]	P_2O_5 (%)
≥ 2	Measured	2,499,000	6,547,000	9.6
	Indicated	16,066,000	44,092,000	8.5
≥ 4	Measured	2,118,000	5,548,000	10.8
	Indicated	12,968,000	33,975,000	9.9
≥ 6	Measured	1,887,000	4,943,000	11.5
	Indicated	10,507,000	27,529,000	11.0
≥ 8	Measured	1,590,000	4,165,000	12.3
	Indicated	8,699,000	22,791,000	11.8

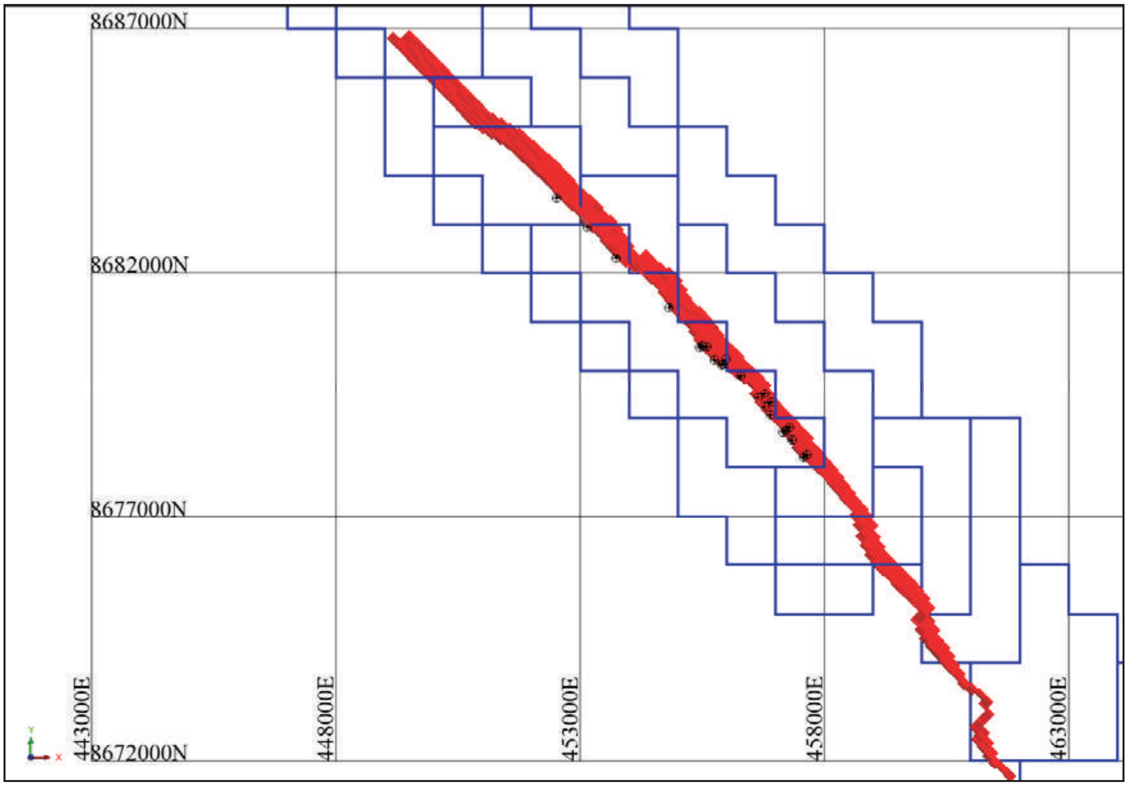
[1]The 4% cut-off base case is highlighted.
[2]Volume and tonnes have been rounded to the nearest 1,000 and the phosphate grade to 1 decimal place.

Table 17-6
Current Measured and Indicated Resources reported in 1% intervals from 4% P_2O_5

P_2O_5 Range (%)	Classification	Volume (m3)[1]	Tonnes[1]	P_2O_5 (%)
4.0 -> 5.0	Measured	138,000	362,000	4.6
	Indicated	1,180,000	3,092,000	4.5
5.0 -> 6.0	Measured	93,000	243,000	5.5
	Indicated	1,280,000	3,355,000	5.4
6.0 -> 7.0	Measured	154,000	403,000	6.4
	Indicated	600,000	1,571,000	6.4
7.0 -> 8.0	Measured	143,000	374,000	7.6
	Indicated	1,209,000	3,166,000	7.6
8.0 -> 9.0	Measured	193,000	507,000	8.6
	Indicated	1,030,000	2,700,000	8.6
9.0 -> 10.0	Measured	241,000	630,000	9.5
	Indicated	1,337,000	3,503,000	9.6
10.0 -> 11.0	Measured	208,000	545,000	10.5
	Indicated	1,049,000	2,748,000	10.6
11.0 -> 12.0	Measured	206,000	539,000	11.7
	Indicated	1,570,000	4,113,000	11.5
12.0 -> 13.0	Measured	209,000	548,000	12.4
	Indicated	1,479,000	3,875,000	12.5
13.0 -> 14.0	Measured	107,000	281,000	13.7
	Indicated	935,000	2,450,000	13.6
14.0 -> 15.0	Measured	140,000	367,000	14.4
	Indicated	481,000	1,260,000	14.5
15.0 -> 16.0	Measured	84,000	220,000	15.5
	Indicated	294,000	771,000	15.6
16.0 -> 17.0	Measured	63,000	166,000	16.4
	Indicated	183,000	479,000	16.3
17.0 -> 18.0	Measured	45,000	117,000	17.4
	Indicated	207,000	541,000	17.3
18.0 -> 19.0	Measured	38,000	100,000	18.5
	Indicated	36,000	94,000	18.3
19.0 -> 20.0	Measured	36,000	94,000	19.2
	Indicated	42,000	110,000	19.2
20.0 -> 9999.0	Measured	20,000	53,000	22.7
	Indicated	55,000	145,000	22.8

[1]Volume and tonnes have been rounded to the nearest 1,000 and the phosphate grade to 1 decimal place.

Figure 17-20
Measured, Indicated and Inferred Resources in the West phosphate zone (red) shown in plan (top) and long section view). Drill collars and trench locations marked with black circle. Claim boundaries shown in blue



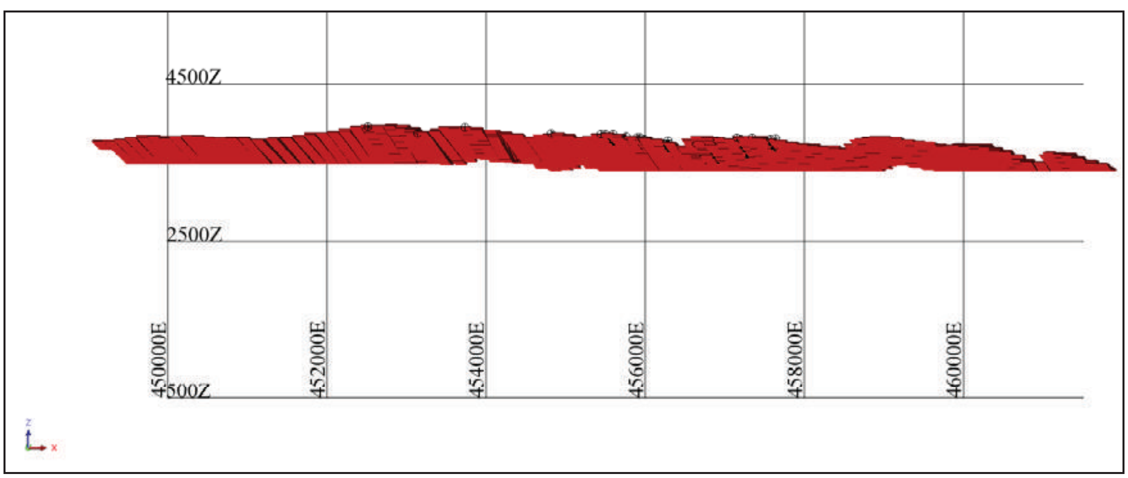


Figure 17-21
Measured and Indicated Resources in the West phosphate zone (red). Drill collars and trench locations marked with black circle. Claim boundaries shown in blue

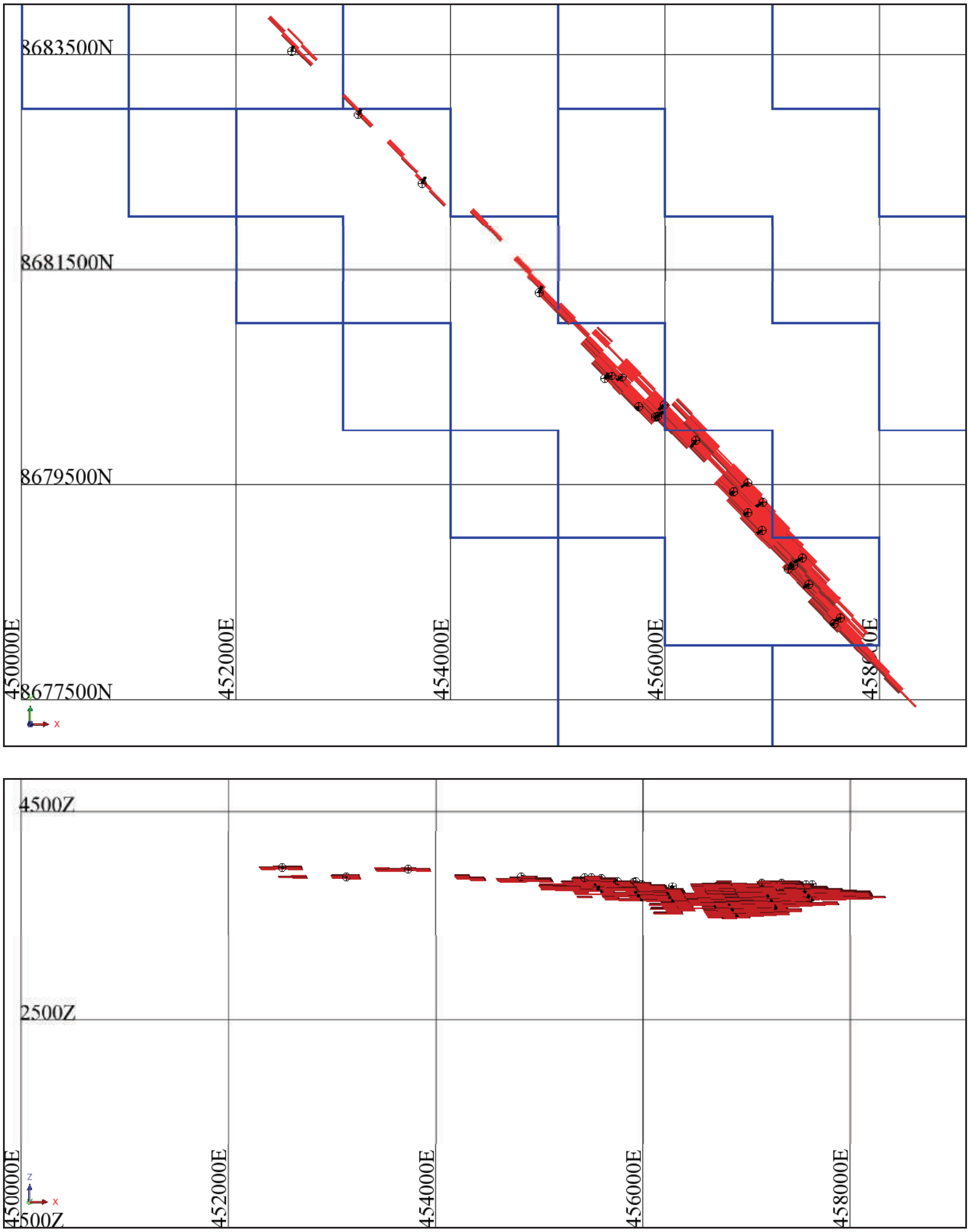


Figure 17-22
Measured Resources in the West phosphate zone (red) shown in plan view (top) and long section view (bottom). Drill collars and trench locations marked with black circle. Claim boundaries shown in blue

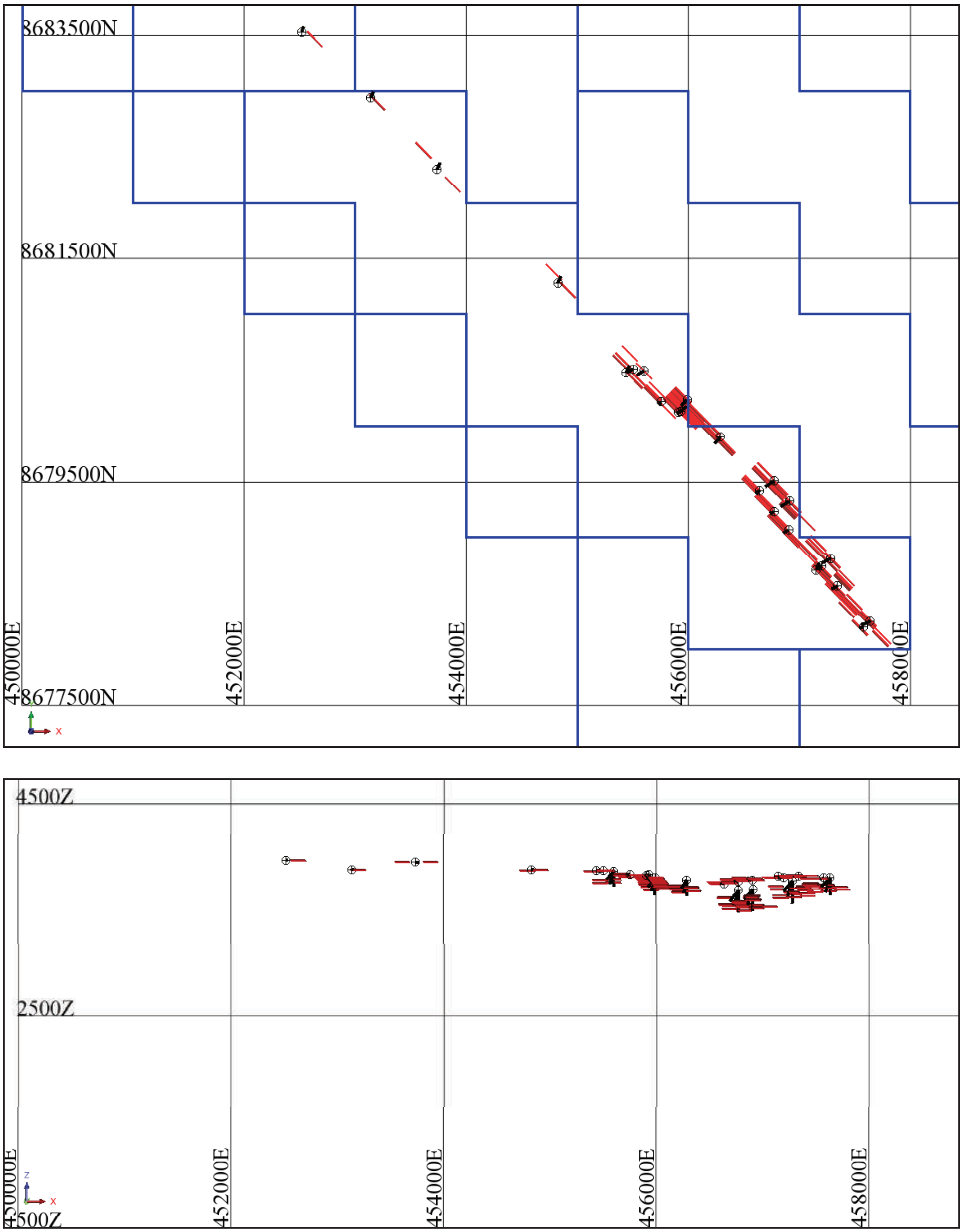


Figure 17-23
Long section view of current Measured and Indicated Resources ≥ 4% P_2O_5

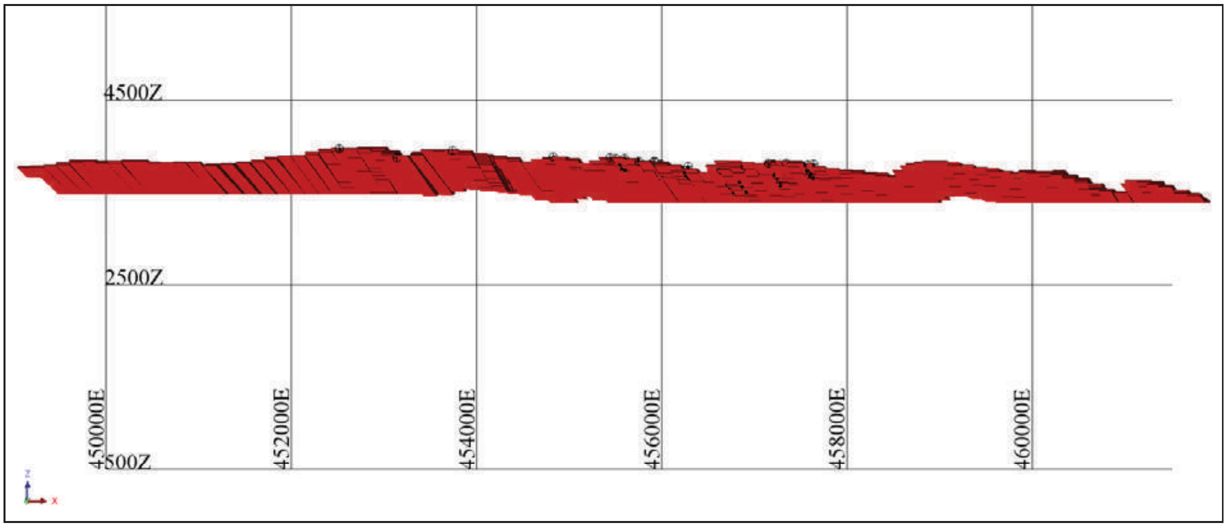
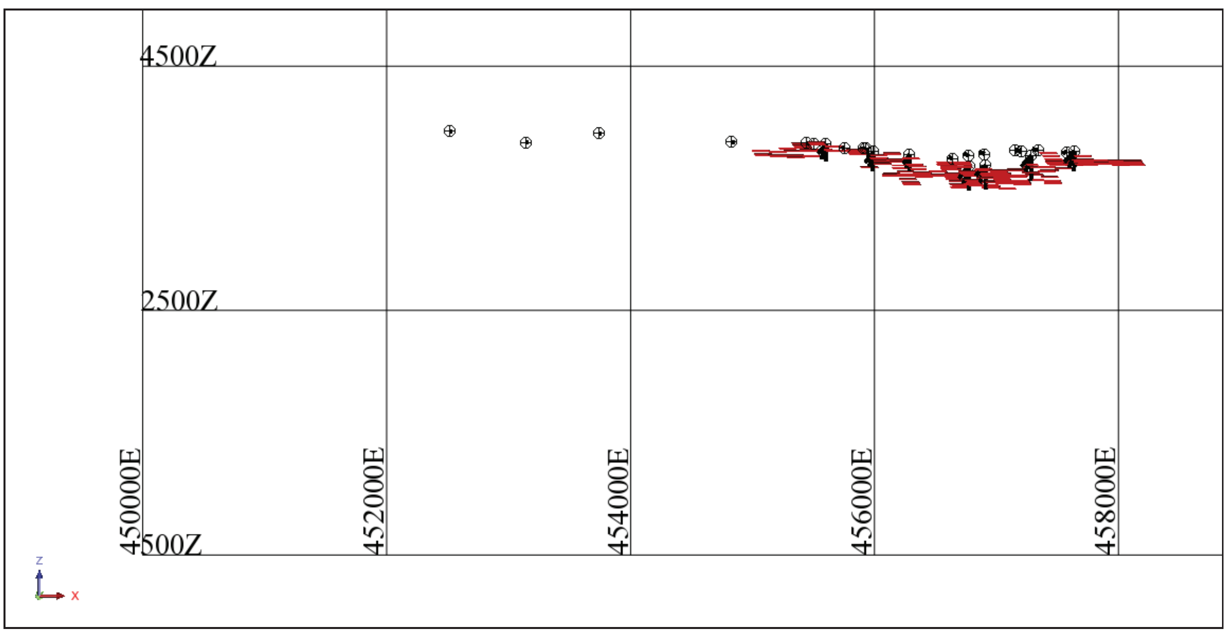
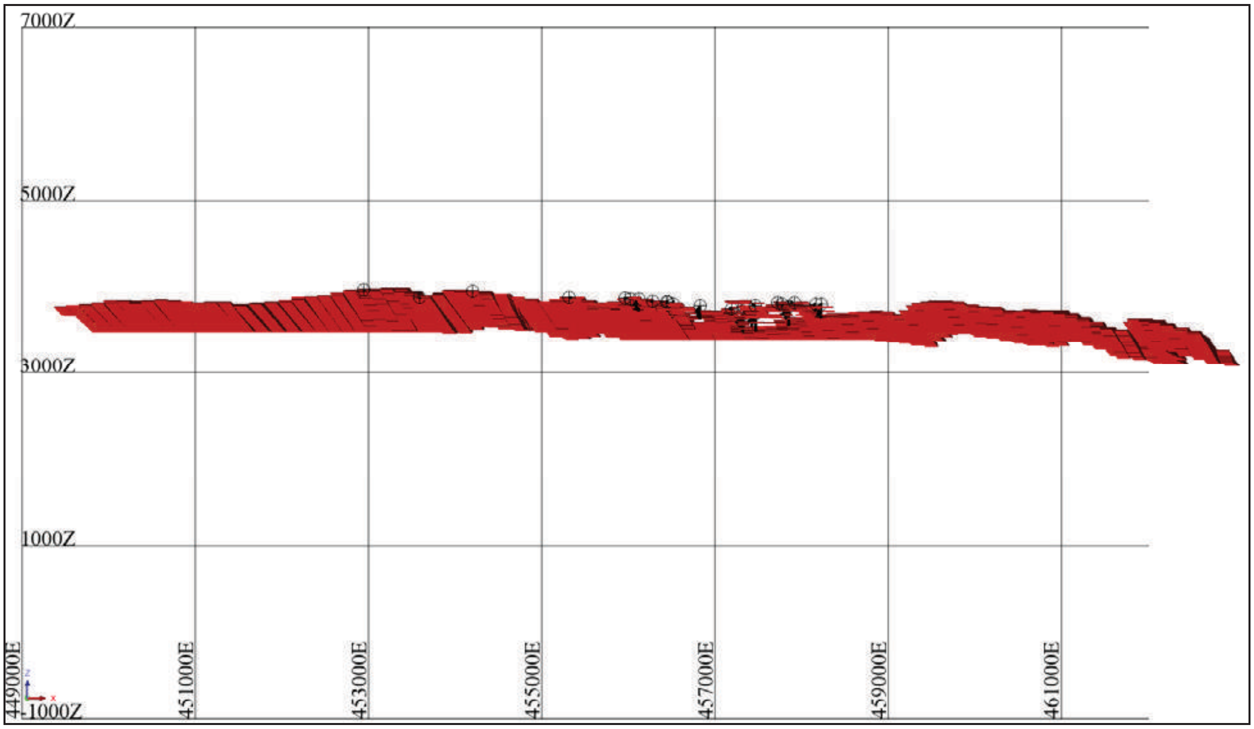


Figure 17-24
Long section view of current Measured and Indicated Resources ≥ 8% P_2O_5



The distribution of Inferred mineral resources in the current estimate for the West zone is shown in Figure 17-25. This resource occurs as a fairly continuous zone extending north and south of the recent and historic drilling and trenching for approximately 20 km across the Property. This suggests that it is favorable with respect to selectivity and other factors when considering mining options. As a result, the stated Inferred Resource is considered to exhibit reasonable prospects for economic extraction.

Figure 17-25
Long section view of current Inferred Resource for the West zone. Drill hole and trench locations shown in black



The potential tonnage estimates for the East and Far East phosphate zones are shown in Table 17-7 and Figures 17-26 through 17-29. These figures show the exploration target crossing the Sincosa concession (central) and the Dedito concession in the north ("L"-shaped concession located adjacent to the Mantaro1 claim in the NW corner of the Property). However, in Table 17-9, the reported potential tonnage has been reduced by the amount on those concessions.

Table 17-7
Potential (conceptual) tonnages for the East and Far East exploration targets.

Target	Tonnes (M t)	P_2O_5 (%)
East	425 – 435	9-9.5
Far East	280 – 290	9-9.5

These potential quantities and grade are conceptual in nature, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in these targets being delineated as a mineral resource.

Figure 17-26
Plan view of the East zone exploration target above 3,400m elevation and cross-cutting fault. The Mantaro Property boundary is shown with a red outline. The Sincosa concession is outlined with blue

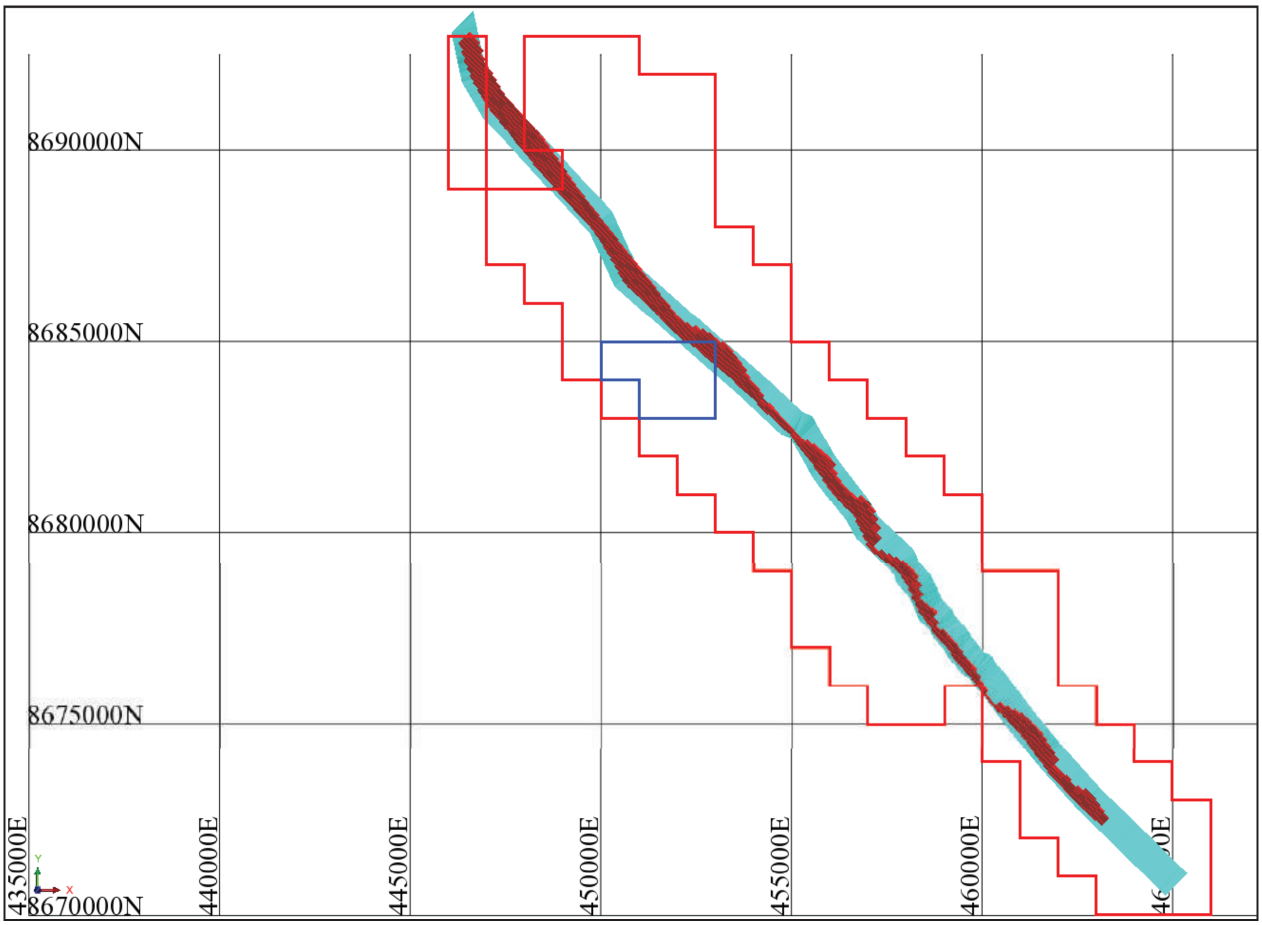


Figure 17-27
View of current East zone exploration target to the southwest. The fault truncating the Far East zone mineralization is shown in light blue

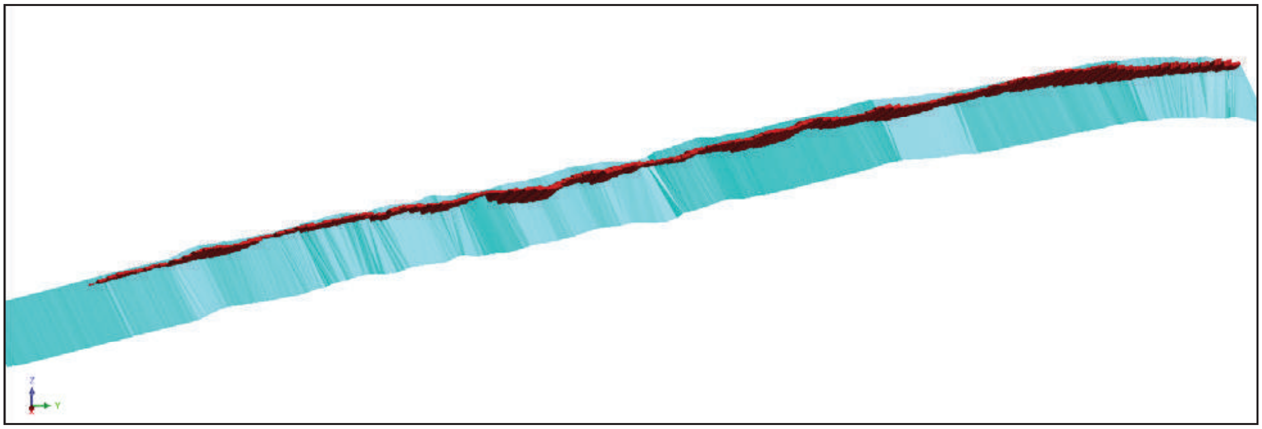


Figure 17-28
Plan view of the Far East zone exploration target above 3,400m elevation and cross-cutting fault. The Mantaro Property boundary is shown with a red outline. The Sincosa concession is outlined with blue

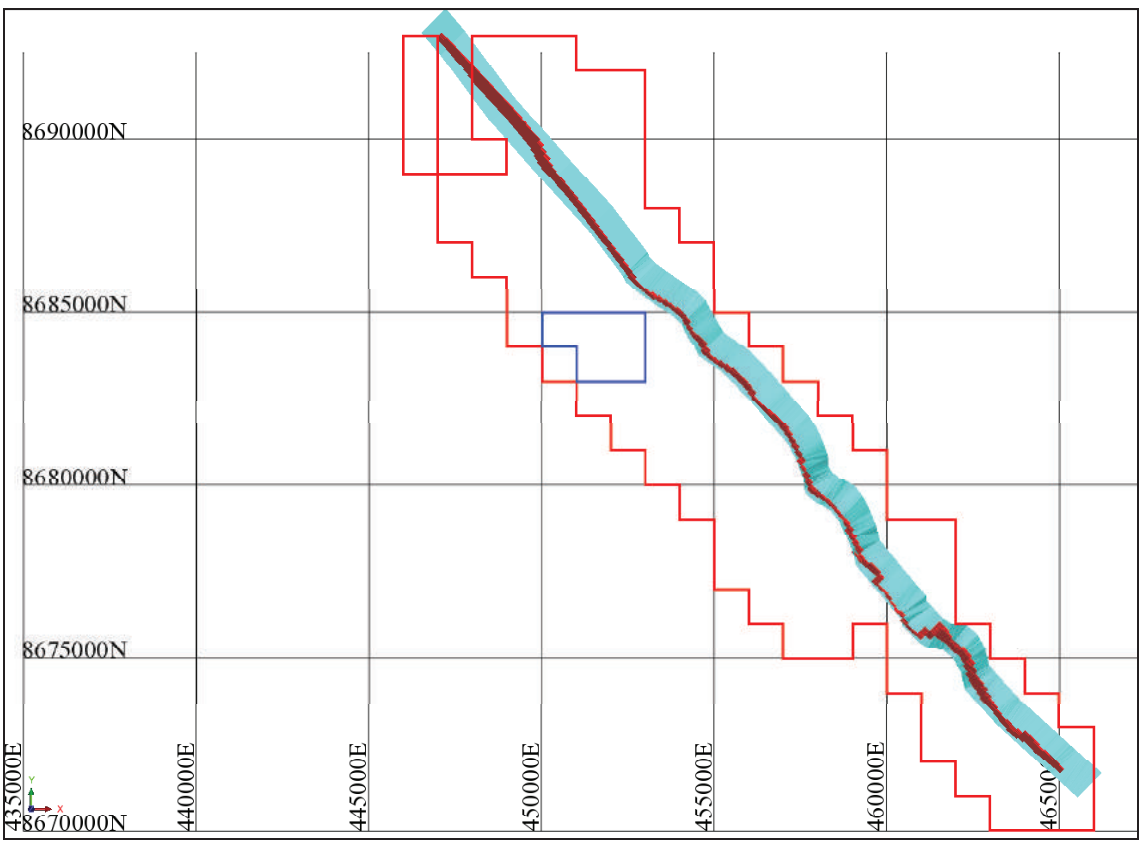
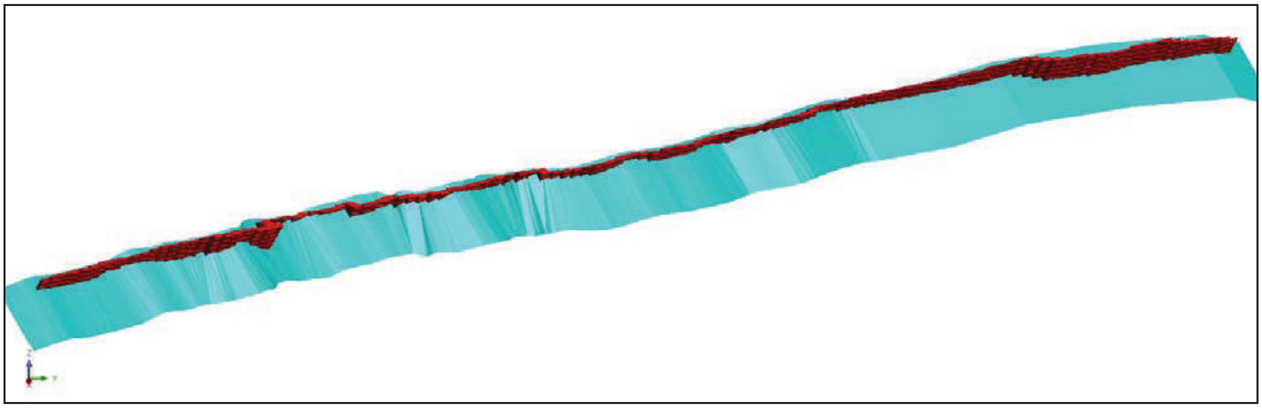


Figure 17-29
View of current Far East zone exploration target to the southwest. The fault truncating the Far East zone mineralization is shown in light blue



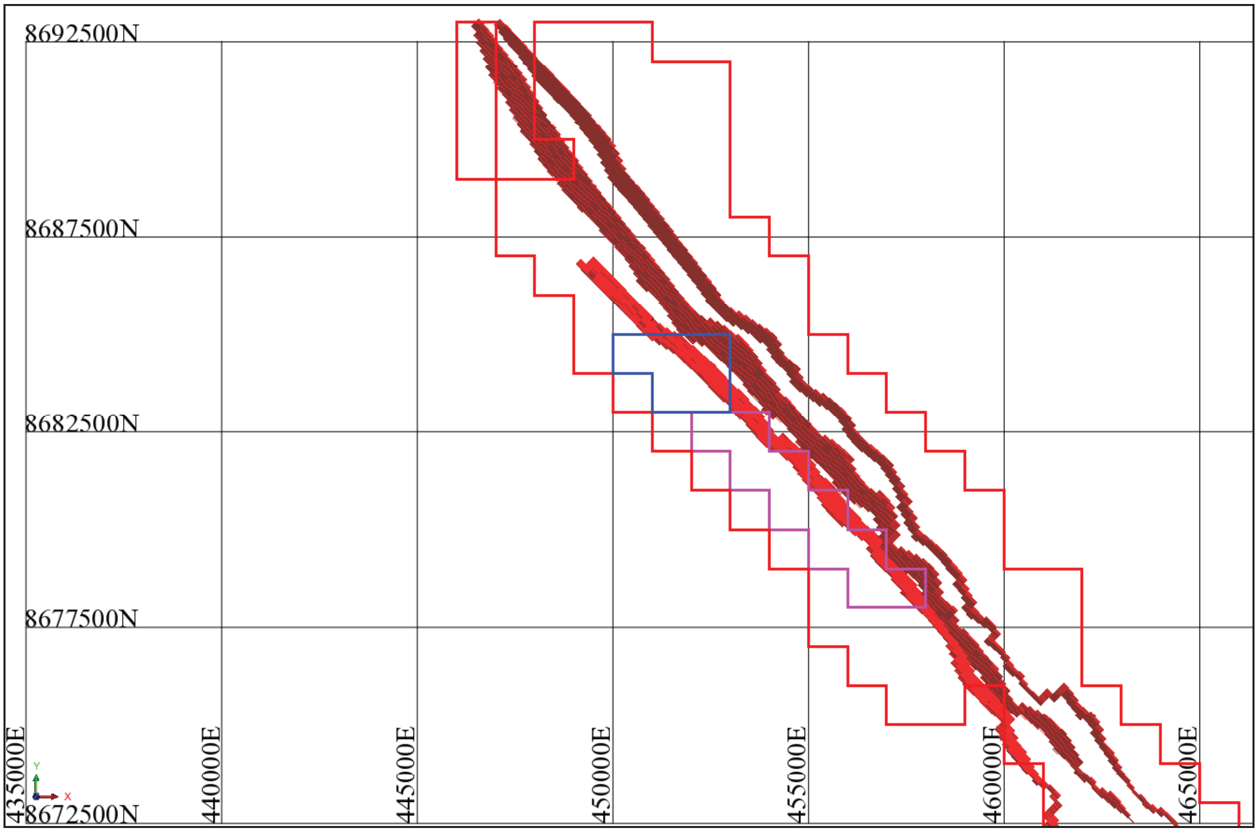
VALIDATION

Detailed visual inspection of the block model has been conducted in both section and plan to ensure the desired results of the estimation. This checking includes partial percentage estimates and grades. The estimated grades were checked in relation to the underlying drill hole sample grades. The P_2O_5 grades in the model appear to be a valid representation of the underlying drill hole and trench sample data.

COMPARISON WITH PREVIOUS RESOURCE ESTIMATES

Hains (2008) estimated Inferred Resources on the portion of the Property covered by the Philip concession (Figure 17-30) and extending 4 km to the southeast to be 45.17 Mt tonnes grading 15.4% P_2O_5. This estimate was based on a true width of 22.1m, assumed pit depth of 65m, strike length of 10 km and deposit dip of 47□and a specific gravity of 2.3 t/m3.

Figure 17-30
Location of the Philip concession (magenta) with respect to the current West zone resource, and East and Far East zone exploration target. The Sincosa concession is outlined in blue



The current estimate extends the phosphate mineralization almost to the Property extents and to a greater depth than used in Hains estimate. So it is difficult to directly compare the results. However, the Measured and Indicated Resources are more or less constrained to the area of the Philip concession because of the proximity to the drilling and trench data. The combined Measured and Indicated Resources total approximately 40 Mt at 10%, which is a bit less but within roughly 10%.

ISSUES THAT COULD AFFECT THE MINERAL RESOURCE

There are no known factors related to permitting, legal, title, taxation, and marketing or political issues which could materially affect the mineral resource. The only known socio-economic issue that could affect the development of the resource would be the intensive subsistence farming in the area. The claims currently classed as non-metallic need to be converted to metallic with regards to the mining rights before any significant amount of exploration and/or development takes place. Availability of sufficient water for mineral processing may be a significant issue.

Additional data should be collected to confirm the SG of the phosphate mineralization. There is likely to be a different SG in the shallow, surface oxidized material and there is, as shown in the Block Interpolation section above, a variation in SG with grade. As tonnage is calculated as a product of the in-situ volume and the SG, the tonnage could vary.

Additional metallurgical and engineering studies need to be completed to better constrain the portion of the reported resource that have reasonable prospect for economic extraction as described in Section 18.

MINERAL RESERVES ESTIMATION

Mineral reserves have not been calculated from the current mineral resource or potential tonnage estimates for the Mantaro Project.

SUMMARY AND RECOMMENDATIONS

The Mantaro Property contains 3 mapped phosphate zones. All three phosphate zones strike roughly northwest and dip approximately 48° either to the northeast (West zone) or southwest (East and Far East zones). The strike length on the Property is at least 20 km for the West zone. The East and Far East zones have been traced and interpreted to trend for at least 28 km across the Property. The width is variable, but on average approximately 25m. The phosphate zones are locally disrupted by faults, but they appear to be simple and do not significantly disrupt the continuity of the mineralization.

Exploration drilling and trenching was completed in 2009 on the West zone by Stonegate. Six historic trenches with high grade phosphate intersections occur in the same area and to the north of the 2009 exploration area indicating that the mineralization is continuous over very large distances and supporting the Stonegate geological interpretation of the phosphate zones.

The drilling database compiled by CCIC is considered reliable for the purposes of the estimation of mineral resources. The approach to the development of the resource block model follows accepted industry standards. Surface exploration, including surface mapping, drilling and trenching completed in 2009 has expanded on the previous resource estimate (Hains 2008).

In the current resource estimate Measured, Indicated and Inferred resources were defined and reported down to 3,400m in elevation. Measured and Indicated Resources are reported at a 4% P_2O_5 cut-off as: 5,548,000 tonnes at 10.8% P_2O_5 Measured and 33,975,000 tonnes at 9.9% P_2O_5 Indicated. An Inferred Resource of 376,265,000 tonnes was estimated with a grade of 9.0% P_2O_5 (assumed from averaged assay data).

Potential tonnages were estimated from surface mapping data for the East and Far East zone exploration targets (each approximately 28 km long). The same grade used for the Inferred Resource of the West zone was assumed for the exploration targets. The East zone is estimated to contain 425-435 MM tonnes at 9-9.5% P_2O_5 down to 3,400m in elevation. The Far East zone is estimated to contain 280-290 MM tonnes at 9-9.5% P_2O_5 down to 3,400m in elevation. These potential quantities and grade are conceptual in nature, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in these targets being delineated as a mineral resource.

The geology of the northern extent of the West phosphate zone needs to be mapped and interpreted to the Property boundary and drill/trench tested. Drilling and trenching in the area north of the Sincosa concession would at least increase the Inferred tonnage. Additional drilling and trenching similar to what was completed in 2009 to bring the overall exploration section spacing to regular 1 km spacing is recommended for the rest of the West zone. This would have the effect of confirming and upgrading resources classified as Indicated and Measured.

It is recommended that additional SG data be collected to better constrain the tonnage estimates. Instead of measuring the SG of random, individual core samples, a more thorough and systematic program of SG determination should be implemented. Ideally, a sample spaced every metre across all mineralized intersections should be measured. Or at the very least, a sample every metre from the mineralized intersection on one drill hole per fence drilled.

To upgrade the potential tonnage for the exploration targets to an NI 43-101 compliant Inferred Resource chip sampling as a minimum would need to be completed across the East and Far East zones. Ideally this could be completed on a 1 km scale and subsequently be followed up by a phased program of drilling and trenching.

18 OTHER RELEVANT DATA AND INFORMATION

MARKETS

Phosphate is essential to all plant and animal life and phosphate rock is the only available source of phosphate for the manufacture of phosphate based fertilizers and animal feeds. Phosphates are also used in a variety of industrial chemicals and foodstuffs. World production of phosphate rock is projected to be approximately 167 million tonnes in 2010, of which about 82% is upgraded locally into phosphoric acid and derivatives such as DAP (diammonium phosphate) and MAP (monoammonium phosphate). The balance of production is traded on the international market. Demand for phosphate rock is anticipated by British Sulphur Consultants ("BSC"), a major fertilizer market research firm, to increase at an annual compound growth rate of 2.9% in the 2010 – 2020 period to reach 222 MM tonnes.

Stonegate commissioned BSC to undertake an analysis of the supply and demand for phosphate rock, phosphoric acid and phosphate fertilizers, with a focus on the particular regional opportunities represented by the Mantaro Project and the anticipated characteristics of phosphate concentrate potentially available from the Mantaro deposit. This report was received in February, 2010. The results of the analysis by BSC can be summarized as follows:

- The anticipated quality of the concentrate from the Mantaro Project is projected to be acceptable in the market. Small improvements in beneficiation to reduce iron and alumina levels would enable the concentrate to command premium prices comparable to current major producers, such as the 72/73 BPL rock produced by OCP in Morocco;
- The international market for traded phosphate rock is projected to be approximately 23 million tonnes in 2010. Market growth in demand, combined with mine closures and opening of new mines, is projected to result in a market for approximately 30 million tonnes in 2020;
- Long run prices for phosphate rock (concentrate) are projected to exceed $100/tonne, ex works during the forecast period;
- Based on the 2001 Bateman prefeasibility study updated to current costs, BCS projects the Mantaro Project should be cost and price competitive;
- The Mantaro Project is strategically placed to supply the regional and international markets with concentrate;
- Production of upgraded products such as single superphosphate (SSP) and phosphoric acid based on local supply of low cost sulphuric acid represents a compelling opportunity;

- Concentrate from Mantaro is anticipated to be superior to that produced by Vale at the Bayovar project in northern Peru. However, the larger size of the Vale project does pose a competitive threat;
- A market size of 1.0 – 1.5 million tonnes per annum concentrate is reasonable and achievable.

BSC recommended more detailed market analyses be undertaken following a prefeasibility study which would better define the quality of the concentrate and the projected capital and operating costs.

MINING POTENTIAL

Stonegate commissioned Gijima Ast, a firm of consulting mining engineers, to prepare a conceptual mining plan based on limiting the stripping ratio to less than 2:1, waste:ore. The work was completed prior to finalization of the drilling program and development of the resource block model and is therefore only conceptual in nature. Gijima reviewed the available geological data and prepared conceptual models for development of various pits. Gijima identified the potential for 10 pits covering the Philip, Quicha Chico and Puerta de Piedras concessions which would meet the general criteria. By relaxing the constraint of a maximum strip ratio to 3:1, Gijima estimated an available ore volume of approximately 91.2 MM m^2, or approximately 239 MM tonnes using a specific gravity of 2.62.

Revised estimates of the mining potential of the Project are required based on enhancements to the current block model following additional drilling and trenching work. This will permit development of mine capital and operating costs.

ENVIRONMENTAL AND PERMITTING

Additional exploration work on the Property is subject to Mantaro Peru obtaining the required permits to conduct trenching and drilling. These permits include the following:

- Filing of an exploration plan and environmental plan detailing the scope of work and any environmental rehabilitation requirements and plans.
- Development of a community consultation plan and signing of community agreements.
- Filing of a Certificate of Inexistence of Archaeological Remains.

All of these processes are in progress and/or have been completed. Obtaining additional agreements from the numerous local communities in the area to permit more extensive exploration work is the most significant issue. Stonegate has committed to an extensive program of community consultations and has been successful in securing agreement from most of the affected communities. This process is on-going and is meeting with good success. Strengthening of the community relations work and success in gaining approval for further exploration and development work will be key to advancing the Project to a production decision.

19 INTERPRETATION AND CONCLUSIONS

The Mantaro Property is a marine sedimentary deposit of syngenetic origin. The deposit lies within the Mancaspico syncline and is exposed in surface outcroppings, trenches and drill holes. The Property comprises 12,800 ha and is known as the Mantaro deposit. Stonegate also owns additional properties, not discussed in this Technical Report, located to the east of the Mantaro River (Mantaro East deposit) and to the north (Alora deposit).

The exploration work completed to date has identified the potential for a commercially significant phosphate deposit. The deposit is observed in three roughly parallel seams (mantos) extending over an approximate 30 km strike length and 5 km width. These are defined as the West, East and Far East zones of the Mantaro deposit. Geological mapping, trenching and drilling shows the deposit exhibits excellent stratigraphic correlation within the phosphatic sandstone and mudstone member of the Aramachay Formation. The thickness of the deposit is variable but averages approximately 25 m. Surface enrichment in phosphate due to oxidation is noted. Available drilling data indicate surface oxidation may extend to depths of up to approximately 35 m, depending on topography. No structural complications or faulted-out portions of the member are observed. The mineralization remains open to both the NW and SE, along the strike of the phosphatic members.

In the current resource estimate Measured, Indicated and Inferred Resources were defined and reported down to 3,400 m in elevation. Measured and Indicated Resources are reported at a 4% P_2O_5 cut-off as: 5,548,000t at 10.8% P_2O_5 Measured and 33,975,000t at 9.9% P_2O_5 Indicated. An Inferred Resource of 376,265,000t was estimated with a grade of 9.0% P_2O_5 (assumed from averaged assay data). The resource estimate is current as of February 21st, 2010.

Potential tonnages were estimated from surface mapping data for the East and Far East zone exploration targets (each approximately 28 km long). The same grade used for the Inferred Resource of the West zone was assumed for the exploration targets. The East zone is estimated to contain 425-435 MM tonnes at 9-9.5% P_2O_5 down to 3,400m in elevation. The Far East zone is estimated to contain 280-290 MM tonnes at 9-9.5% P_2O_5 down to 3,400m in elevation. These potential quantities and grade are conceptual in nature, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in these targets being delineated as a mineral resource.

Additional trench sampling and drilling is warranted to more fully establish the extent and quality of mineralization and develop a more definitive resource estimate. Additional sampling for more definitive determination of specific gravity is also warranted.

Beneficiation test work indicates a marketable phosphate concentrate grading from 28.8% to 32.5% P_2O_5 can be produced with acceptable product recovery. Additional beneficiation tests incorporating both oxidized and unoxidized phosphate rock are required to optimize grade and recovery parameters.

Preliminary market research analysis indicates the Mantaro Project is favourably located with respect to major regional and international markets; the estimated grade and quality of the concentrate will be acceptable in the marketplace; and that the product should be price and quality competitive. Additional market research is warranted subsequent to development of preliminary capital and operating costs for production of phosphate concentrate and additional metallurgical test work.

The Property is located in an area of intensive subsistence agriculture. Extensive community consultations are required prior to and during exploration work.

Availability of sufficient water for mineral processing may be a significant issue. This aspect should be explored in detail as the Project advances.

20 RECOMMENDATIONS

The recommendations follow a phased approach to exploration, metallurgical, market research and social science work necessary to advance the Project through to the prefeasibility stage.

Exploration efforts should focus on upgrading the classification of the resource base within the West zone, and enabling classification of the mineral potential in the East and Far East zones to at least the Inferred Resource category. This will require a program of surface mapping, trenching and drilling.

Metallurgical work should focus on enhancements to the beneficiation process to improve phosphate concentrate grade and recovery and develop preliminary engineering data for design and costing of a process flow sheet to ±30%.

The geological block model should be enhanced to permit development of preliminary mine plans and estimation of mining costs to ±30%.

Market research work should focus on better establishing the potential for sale of phosphate rock concentrate in the regional market (Peru, Brazil, Chile, Argentina, Ecuador, Colombia, Mexico) and the international market (Asia/Pacific region, especially New Zealand). Market research work should also examine the potential for production of SSP and potentially other value added products such as phosphoric acid, DAP and MAP. Market research work must include an analysis of available transportation options, including shipments to Brazil using the Amazon river system.

An expanded program of community consultations, archaeological research and community development designed to cover those areas not covered by the current program, and deepening of social development activity within the current area of focus should be implemented.
Assuming positive results from this work in the form of a prefeasibility study, efforts should then be directed to completing a bankable feasibility study leading to a production decision.

The following recommendations are made:

PHASE 1

1. Conduct detailed topographic and outcrop surveying of the area north of the Sincosa concession in the West zone of the deposit. Mapping should be at 1:10 000 scale or better.
2. Relog/resample the existing drill core at 1 m intervals to better define high grade intersections within lower grade intervals and the nature of the mineralization.

3. Undertake an enhanced program of community consultations and execute community agreements prior to initiating any new exploration and development work.
4. Conduct trenching and drilling at a minimum of 1 km spacing (or closer) on the West zone between the Sincosa concession and Quicha Grande and southeast from Quicha Chico to the limits of the Property to upgrade the resource category.
5. Complete an enhanced program for collection of specific gravity samples to better categorize the mineralization.
6. Conduct a surface sampling program (and as possible, complemented by trenching) on the Quicha Chico and Puerta de Piedras concessions (East and Far East zones) to permit categorization of resources in these areas to at least the Inferred Resource level. Sampling/trenching work should be on section with corresponding work in the West zone and spaced at 1 km intervals.
7. Undertake a more extensive program of metallurgical research to enhance recovery and grade of phosphate concentrate. The focus of the work should be on improvements to recovery and grade of unoxidized material. Metallurgical test work should also include test work to determine the reactivity of the concentrates and the potential for production of SSP, phosphoric acid, DAP and MAP.
8. Conduct product and market specific analysis of the regional and international markets for phosphate concentrates, phosphoric acid and phosphate fertilizers.
9. Prepare a NI 43-101 report based on the results of the exploration program.
10. Initiate the process to convert claims to non-metallic claims.
11. Complete a prefeasibility study for the Project.

Assuming a successful conclusion to the Prefeasibility Study, proceed to Phase 2.

PHASE 2

Phase 2 is designed as a bankable feasibility study. The work to be conducted in Phase 2 consists of:

1. Complete an EIA for the Property south of the Sincosa concession. This must include extensive community consultations and securing agreements from the affected communities for the detailed exploration program.

2. Conduct a program of diamond drilling, sampling and assaying on 250 m spacing in the West, East and Far East zones south of the Sincosa concession to the south end of Puerta de Piedras 7. Drilling should be HQ size. Sampling should be at 1 m intervals within the mineralized zones. Drilling should target resources down to the 3,400m elevation level. The indicated drilling is approximately 26,000m, assuming 2 holes per station and average hole depth of 150m.

3. Construct additional trenches to provide bulk sample material sufficient for a minimum of 60 tonnes of concentrate. This work to include necessary sampling and assaying.

4. Collect and process a representative bulk sample from drill core and trenches sufficient to yield a minimum of 40 tonnes of concentrate.

5. Process trench and drill material to produce representative phosphate concentrates based on the calculated run-of-mine ore grade. The bulk sample to be used for market testing and evaluation of the suitability of the concentrate for SSP, phosphoric acid and DP/MAP production

6. Undertake necessary mine and process plant engineering, transport logistics and market analyses to develop capital and operating costs to ±10 %.

7. Complete as necessary land purchase agreements for proposed plant site and mine.

8. Complete a bankable feasibility study for the Project, including full environmental impact study and agreed community benefits agreement.

BUDGET

The estimated budget for the work outlined above is detailed below:

PHASE 1

Item		**Cost (US$ 000)**
1.	Geological mapping, north of Sincosa	10
2.	Relog/resample drill core	5
3.	Community consultations program	500
4.	West zone trenching/drilling (6,000 m)	1,500
5.	Specific gravity sample analysis	5
6a.	Surface sampling, QC & PP concessions	40
6b.	Trenching/drilling, QC/PP concessions	750
7.	Large scale beneficiation studies	300
8.	Market analysis	150
9.	NI 43-101 report	150
10.	Claim conversion/property payments	200
11.	Prefeasibility study	1,750
Sub-total		**5,360**
Contingency		1,00
TOTAL to Completion of Phase 1		**6,360**

PHASE 2
The estimated budget for the work outlined for Phase 2 is detailed below:

Item		**Cost (US$ '000)**
1.	EIA and community consultation	400
2.	Drilling (26,000m @ $175/m) (incl. assays)	4,550
3.	Trenching and bulk sampling (incl. assays)	200
4.	Bulk sample process test work (to concentrate)	1,500
5.	Bulk sample process test work (acid, DAP/ MAP, SSP)	750
6.	Mine and Process Engineering Design Work, Logistics Analysis, Market Analysis	2,500
7.	Land Purchase (1,000 ha @$1,000/ha)	1,000
8.	Bankable feasibility study	450
Sub-Total Phase 2		**11,350**
20 % Contingency		**$2,250**
Total Phase 2		**$13,600**

TOTAL BUDGET, PHASE 1 AND PHASE 2 $19,960
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Miscellaneous reports from R.P. Shaw, various dates: Powerpoint presentation, various maps, data tables, correspondence

22 SIGNATURE PAGE

This report titled "Technical Report on Mantaro Phosphate Deposit, Junin District, Peru", and dated March 16th, 2010 was prepared by and signed by the following authors:

Donald H Hains, P. Geo.

Consulting geologist

Dated at Toronto, Ontario
March 16th, 2010

"Michelle Stone"
____
Michelle Stone, Senior Geologist, Ph.D., P.Geo.
March 16th, 2010
Toronto, Ontario

23 CERTIFICATES OF QUALIFICATIONS

I, Donald H. Hains, as the author of this report entitled "Technical Report on Mantaro Phosphate Deposit, Junin District, Peru", dated March 16th, 2010 and prepared for Stonegate Agricom Ltd., do certify that:

1. I am Principal of Hains Technology Associates with offices at 605 Royal York Rd., Suite 206, Toronto, Ont. M8Y 4G5.

2. I am a registered professional geoscientist in Ontario, Canada. License number 0494

3. I hold an undergraduate degree in chemistry from Queen's University, Kingston, Ontario (1974) and an MBA from Dalhousie University, Halifax, N.S. (1976).

4. I have practiced in the field of industrial minerals geology and industrial minerals processing since graduation. My relevant experience for the purpose of this Technical Report is:

    - Geological review and scoping study for phosphate project in Brazil.
    - Technical advisor on Martison phosphate deposit, Ontario.
    - Geological review of phosphate property in Uganda.
    - Geological review of Al Jalamid phosphate deposit, Saudi Arabia.
    - Technical review of Cargill phosphate deposit, Ontario.
    - Market and economic analyses of various phosphate projects in North America and Africa.
    - Work on the Mantaro phosphate Project since 2007.
    - Geological review and preparation of qualifying report on phosphate project in China.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

6. I have visited the Mantaro Property on a periodic basis since October, 2007. My last visit to the Property was in September, 2009

7. I am responsible for overall preparation of the Technical Report and wrote all sections of this Technical Report except for Section 17.

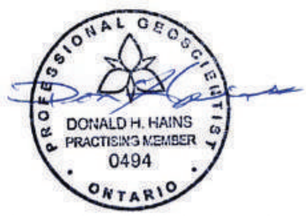
8. I am independent of the Issuer applying the test set out in Section 1.4 of National Instrument 43-101.

9. I have had prior involvement with the Property that is the subject of the Technical Report as disclosed in the Technical Report and in Item 4, above.

10. I have read National Instrument 43-101, and the Technical Report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1.

11. To the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated this 16th day of March, 2010



Signed and sealed

Donald H. Hains, P. Geo.

CERTIFICATE OF AUTHOR

I, Michelle Stone, of 4361 Latimer Crescent, Burlington, Ontario, do hereby certify that:

The report to which this certificate relates is entitled "Technical Report on Mantaro Phosphate Deposit, Junin District, Peru" prepared for Stonegate Agricom Ltd. and dated the 16th of March, 2010 (the "Technical Report") and is based on a study of the data and literature available on the Mantaro Project. I am responsible for Section 17 of the Technical Report.

I am a Senior Geologist with Caracle Creek International Consulting Inc., 34 King Street East, 9th Floor, Toronto, Ontario.

I hold a B.Sc. (1994) from McMaster University (Ontario), an M.S. (1996) from the University of Alabama (Alabama), and a Ph.D. (2005) from the University of Western Australia (Australia).

I am a Professional Geoscientist and a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia since 2006 (registered #30601). I have practiced my profession continuously since 1994 and have worked on metallic and non-metallic, exploration and mining stage projects including Ni-Cu-PGE, Cu-Pb-Zn, Ag, Au, Ta-Nb, iron ore, lithium and potash and phosphate.

I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by reason of education, experience, and affiliation with a professional association, I meet the requirements of a Qualified Person as defined in National Instrument 43-101. I am independent of the issuer applying the test in section 1.4 of National Instrument 43-101.

I did not complete a site visit and I have had no prior involvement with the Property that is the subject of this Technical Report.

As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

I consent to the filing of the Technical Report by Stonegate Agricom Ltd. with any stock exchange or regulatory authority, and any publication of the Technical Report by them for regulatory purposes, including electronic publication in the public company files on their websites accessible to the public.

Signed and sealed this 16th day of March, 2010, at Burlington, Ontario.

"Michelle Stone"

____

Michelle Stone, P.Geo., Ph.D.

24 APPENDIX 1

PERUVIAN MINING TITLE AND REGULATIONS

This Appendix provides a brief summary of Peruvian mining title and regulations. Information in the appendix has been provided by Mantaro Peru's Peruvian legal counsel and HTA assumes no responsibility for its accuracy or completeness.

Peruvian Mining Titles

The following information on Peruvian mining law and Peruvian mining titles was provided by Mantaro Peru's Peruvian legal counsel.

1.1 <u>Mining Properties</u>:

A mining concession allows its holder to carry out exploration and exploitation activities within the area established in the respective concession title, provided that prior to the beginning of any mining activity, such concession title is granted by INGEMMET[1] (although some other authorizations may be required to actually perform the corresponding mining activities). Mining titles should be registered with the Public Registry[2] in which the property resides to ensure enforceability of rights and obligations.

On the other hand, it is important to mention that the system of concessions in Peru includes the following ones:

- <u>Mining concessions</u>[3], which grant their holders the right to explore and exploit the mineral resources, whether metallic or non-metallic, within the area conferred by the concession title;

- <u>Processing concessions</u>, which grant the right to process, purify, melt or refine minerals, whether by means of physical, chemical, or physical-chemical processes;

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[1] INGEMMET is the Peruvian governmental agency before which mining properties are requested in Peru. The Official Mining Ledger is prepared each year by INGEMMET and includes all valid mining properties as of December 31 of the previous year.

[2] According to Peruvian law, in order for any acts or contracts related to mining properties to have enforceability before the State and third parties, they should be formalized in a public deed and <u>recorded with the Public Registry</u>. In this sense, in order to determine who the current holder of a mining property is, and which liens, encumbrances or contracts may have been granted or executed in connection with said mining properties, its file at the Public Registry should be reviewed. If the concession is not registered, then any agreement executed with respect thereof shall not be formally enforceable before the State and third parties.

[3] Under Peruvian law, a mining pediment is a specific area staked for the development of mining activities (exploration and exploitation), provided that the Peruvian mining authorities (i.e. INGEMMET) previously grant a mining concession title with respect to such area. Only after the issuance of said title, the pediment will become what Peruvian law calls to be a "mining concession", the same that allows its holder to carry out exploration and exploitation activities within the area established in the respective concession title.

- General service concessions, which grant the right to render auxiliary services (i.e. ventilation, sewage, hoisting or underground access, to one or more mining concessions); and,

- Mining transportation concessions, which grant the holders the right to operate a continuous massive transportation system of mineral products between one or more mining units, and one harbor or processing plant or refinery, using conveyor belts, pipelines and/or track cables.

1.2 Mining obligations:

Holders of mining concessions must comply with several obligations established in the Peruvian Mining Act (which single uniform text was enacted by Supreme Decree N°014-92-EM on June 4, 1992) and its regulations. However, most of these obligations are applicable when the activities involve a mine's development and/or exploitation. Nevertheless, under the Peruvian Mining Act there are two main obligations that shall also be fulfilled by the holders of exploration activities, which non-compliance may result in the extinction of the mining property:

1.2.1 Payment of the validity fee:

The validity fee is a US$ 3.00 per hectare payment that holders of mining pediments and concessions are obliged to make before June 30 of each year. Non-compliance with this obligation for two consecutive years results in the cancellation of the respective mining pediment or concession. However, any payment made for the year following the one in which said obligation has not been complied with, applies to said year. Thus, unless paying twice, future annual payments will apply to the immediate previous year.

1.2.2 Minimum production levels:

Holders of mining concessions are obliged to achieve a minimum production equivalent to US$ 100.00 per hectare per year, within the six (6) years following the year in which the respective mining concession title is granted. If this minimum production is not reached, as of the first semester of the seventh year after the concession title has been granted, the holder of the concession should pay a US$ 6.00 penalty per hectare per year. If such minimum production is not obtained until the end of the eleventh year after obtaining the concession title, the penalty to be paid as of the twelfth year increases to US$ 20.00 per hectare per year.

Despite the above and although not achieving the minimum production within the established term, it is possible to avoid payment of the penalty if evidence is provided to the mining authorities that an amount equivalent to not less than ten (10) times the applicable penalty has been invested. Therefore, if it is proven that an investment of US$ 60.00 per hectare per year (or

US$ 200.00 as of the twelfth year) has been made in the concession, there will be no obligation to pay the penalty.

Following the same principle established in connection with the validity fee, evidence of compliance with the requested minimum production or investment or, in its defect, payment of the corresponding penalty can only be missed for one year. Non-compliance with any of these obligations for two consecutive years, <u>determines the cancellation of the mining concession</u>.

2.2.3 <u>Other obligations</u>

It is worth mentioning that holders of mining properties shall file before the Ministry of Energy and Mines (MEM) the following documentation:

(a) The Annual Consolidated Declaration (DAC), which is a document in which information on the activities performed in the mining property during the previous year, is provided to the mining authorities. This document shall be filed before June 30 of each year.

(b) The documentation regarding statistical information on the mining activities performed every month. This shall be filed on a monthly basis.

(c) A Sustainable Development Affidavit (SDA), by means of which information regarding the completion of activities related to sustainable development is provided to the MEM. The SDA shall be filed before September 30 of each year.

The non-completion of the two first obligations may result in the imposition of a fine equivalent to 6 Tax Units[4] (each obligation).

The obligation related to the filing of the SDA does not carry the imposition of any fine by the MEM.

3. <u>Conversion from “metallic” to “non-metallic” designation</u>

According to Peruvian Mining Law, a mining right cannot hold both classifications as metallic and non-metallic at the same time. However, it is legally possible to convert the classification granted to a mining concession[5] following a proceeding before the Mining Concession Bureau of

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[4] As of year 2008, the Tax Unit amounts to S/. 3,500 (approximately, US$ 1,166.64).

[5] Peruvian Mining Law. “Article 13.- The mining concessions that are granted as from December 15, 1991, will be classified into metallic and non-metallic, according to the type of its substance, without overlapping or priority among them. The mining concession may be converted into a different substance other than the originally granted, for which purpose a statement of the titleholders is required.”

the INGEMMET. Pursuant to INGEMMET’s Unique Text of Administrative Proceedings (“UTAP”), the following requirements shall be fulfilled in order to achieve the aforesaid conversion:

(i) The petitioner/titleholder of the mining concession must submit a writ requesting the substance conversion of its mining right.

(ii) The petitioner/titleholder of the mining concession must pay an amount equivalent to 10% of a Tax Unit, this is, S/. 350.00 (approximately US$ 116.66).

According to the UTAP, the Head of the Mining Concession Bureau has thirty (30) working days, as from the date in which the final favorable technical and legal reports are granted by the Mining Concession Bureau, to approve or deny the request of substance conversion of mining rights. If the thirty (30) days period elapses without the Head resolving the request, it must be understood that such request was denied.

It should be noted that there is no legal term set forth by law for the Mining Concession Bureau to prepare and approve the abovementioned technical and legal reports. Notwithstanding, we consider that a period of thirty (30) to forty-five (45) working days may be reasonable for this purpose.

4. Exploration Rights and Obligations

Under Peruvian law, a mining concession allows its holder to carry out exploration and exploitation activities within the area established in the respective concession title, provided that prior to the beginning of any mining activity, such concession title is granted by INGEMMET.

In addition to the mining concession, the concession holder shall obtain other authorizations in order to conduct mining exploration and exploitation activities in Peru. Depending on the specific characteristics and magnitude of the exploration project the concession holder is planning to conduct, additional authorizations may be required.

4.1 Use of surface lands

Title over a mining concession does not grant to its holder ownership or a possession title over the surface land under which it is located, since, according to Peruvian Law, mining concessions and surface lands are separated and independent goods from each other.

Accordingly, the mining concession owner has three options that will enable him/her to develop exploration or exploitation works: (i) purchase the corresponding surface land, (ii) reach an agreement with their owners for its temporary use, or (iii) obtain the imposition of a legal easement by the MEM:

4.1.1 Acquisition of definitive title over the surface land

The acquisition of lands provides the purchaser with, in principle, a definitive and permanent legal title over the acquired properties. Upon registration of this title in the Public Registry, the former owner of the lands would be legally impeded to formalize and register a new transfer on the same lands.

In our experience, the purchase of the surface land required for mining projects is the best alternative since it reduces the exposure of the holder of the mining project to potential conflicts with the owners of such areas during the construction, development or operation of the project, if it goes ahead.

Since, during exploration it could be unnecessary to incur in this cost, typically at some point within said exploration stage it is convenient to enter into purchase option agreements with the local communities or titleholders of the land.

4.1.2 Right for the use of the surface land (usufruct, assignment for its use, surface right or conventional easement)

Alternatively, the holder of the project may execute agreements with the owners of the surface land by means of which the former may be granted the temporary use of the same in order to develop its mining activities.

In the specific case of surface lands owned by Peasant Communities, the following should be considered when negotiating any agreement:

(a) As set forth by article 11 of Law 26505 (law approving the provisions governing private investment at surface lands owned by Peasant Communities), in order to dispose, encumber, lease or otherwise exercise any other act related to surface lands owned by Peasant Communities at the Peruvian Sierra, the approval of the respective Communities' General Assembly is required. Such approval should be adopted with the favourable vote of, at least, two thirds of the Communities' members.

(b) The General Assembly is conformed by all the members of the Community duly registered in its Members' Recording Ledger. As detailed below, rules governing how the General Assembly should be held, are established by law and by the respective Community's bylaws.

Summoning for the Assemblies shall be performed in accordance to the Community's bylaws. In first call, the Assembly's quorum should be no less than half plus one of the Community's members, while in second call, the applicable quorum established by the Community bylaws will apply.

According to the above, when negotiating with the Peasant Communities who own the surface lands needed for the development of mining activities involved in a given project, the holder of mining activity should verify the existence of a resolution adopted by the respective Community's General Assembly, approving the execution of the agreement to be entered into with it.[6]

(c) Upon execution of an agreement with Peasant Communities, the holder of mining activities should request registration of the same with the Public Registry, in which title over the corresponding surface land is recorded. Registration of the agreement will provide it enforceability before third parties.

4.1.3 Imposition of a legal easement

If an agreement cannot be reached with the owners of the surface land (either for the purchase or temporary use of the areas), the holder of the project may request to the mining authorities the imposition of a legal easement, which procedure may last approximately eight months, provided, however, that in the last years said easement has very rarely been granted to those who have requested it.

4.2 Use of water

[6] Although this may generate a sense of lack of trust in the Community (and, thus, needs to be handled carefully), in order to verify if applicable majority provisions have been observed when passing the resolution, the holder of mining activity should, in general, do the following:

- Determine whether the General Assembly was held as an ordinary or extraordinary Assembly and, in any case, verify if the same was summoned following the legal provisions referred above and the Community's bylaws. Thus, it will be necessary for the holder of mining activities to review said bylaws.

- As to verify if applicable quorum and majority provisions have been complied with, the holder of mining activities should have access to the Community's Members Recording Ledger. Upon review of this registry, the holder of mining activities should be able to determine if duly registered members of the Community attended the General Assembly, and if the above-mentioned quorum and majority provisions were met.

- The holder of mining activities should verify that the individuals executing the agreement on behalf of the Community, are the same authorized for such effects by the Community's General Assembly.

A temporary authorization for the use of water required for conducting the exploration activities is required. This authorization is issued by the Technical Authority of the Irrigation District in which jurisdiction the exploration project is located.

It is important to mention that legal effects of the authorizations for the use of water are subject to an annual payment set forth by the Ministry of Agriculture.

4.3 Certificate of Inexistence of Archaeological Remains

According to the provision set forth by the General Act of Cultural National Heritage it is prohibited to conduct activities in areas that contain archaeological remains or national heritage goods. All persons and legal entities are obliged to obtain a Certificate of Inexistence of Archaeological Remains (CIRA) in order to prove that no archaeological remains or national heritage good exists in its operation area.

The expedition of the CIRA is legally conditioned to the previous fulfillment of the following requirements:

(a) The Institute of National Culture (INC) should approve the plan of the works to be conducted at the mine site for the preparation of an archaeological evaluation report. This plan of the works must be prepared by an archaeologist duly registered before de INC.

(b) The preparation of the archeological evaluation report;

(c) Verification at the mine site by an archaeologist appointed by the INC, of the abovementioned archaeological evaluation report. Upon this verification, the INC should approve the archaeological evaluation report.

After having the archaeological evaluation report approved, the company should begin a new procedure before the INC for the expedition of the CIRA. The approval of the archaeological evaluation report is one of the requisites to obtain the CIRA.

5. Approvals required pursuant to environmental regulations in order to conduct exploration activities.

As a general rule, Peruvian legislation establishes that holders of mining activities are obliged to preserve the environment in which said activities are going to be performed, provided that they will be liable for any environmental damages caused by their activities.

Without prejudice to the general obligation that holders of mining activities have in order to preserve the environment in which their activities are going to take place, only since 1998 the performance of exploration activities require the prior authorization of the mining authorities to confirm compliance of environmental requirements.

Only certain exploration activities (depending on their magnitude) are subject to the above mentioned authorization:

5.1 <u>"Category A" exploration projects</u>

An exploration project of this category comprises activities that cause none or a very slight alteration to the surface (e.g. geological and geophysical studies; topographic surveys and the recollection of small rocks and minerals from the surface), in which equipment that may be transported manually or over the surface is used, without causing an alteration to the surface that is more important of that caused by its ordinary use by people not involved in exploration activities.

The activities comprised under this category require no authorization.

5.2 <u>"Category B" exploration projects</u>

The projects pertaining to this category comprise exploration activities that result in the existence of discharges and that require the disposal of wastes that could degrade the environment of the area. This category also comprises projects in which the area to be effectively disturbed is that required for the construction of 20 drilling platforms or less, the accesses among them and auxiliary facilities, provided that the disturbed area does not exceed 10 hectares; and the construction of tunnels not exceeding 50 meters of longitude.

The holders of exploration projects comprised under this category must file an affidavit before the mining authorities informing the latter about their intention to initiate the project. The following documents should be filed along with said affidavit:

(a) Information contained in Annex 1 of the Environmental Regulations for Exploration Mining Activities – Supreme Decree No. 38-98-EM (general information on the holder of the project and on the latter), as amended by Supreme Decree No. 014-2007-EM;

(b) Chart indicating the distances existent between the project and the nearby human settlements, making reference to the access routes;

(c) Maps with UTM coordinates, in an appropriate scale, of the location of the project and the areas to be potentially affected with the project, among other;

(d) Program of the exploration activities (schedule of activities);

(e) Description of the procedures and environmental control systems to be used during the exploration (on this regard, please note that the mining authorities might require evidence on the existence of an agreement executed with a company specifically authorized for the disposal of waste materials, by means of which the latter is hired for disposing said material);

(f) Plan for the recuperation of the impacts to be caused; and,

(g) Plan on the development of relationship with the human settlements located nearby the project.

The corresponding authorization will be issued automatically with the filing of the affidavit (provided, however, that an environmental viability certification needs to be issued within the following five (5) calendar days), regardless of the faculty of the authorities to verify the information filed with the affidavit.

5.3 <u>“Category C” exploration projects</u>

This category comprises projects of a higher complexity of those pertaining to the category “B”, in which the area effectively disturbed is that required for the construction of more than 20 drilling platforms, the accesses among them and auxiliary facilities, exceeding a 10 hectares disturbed area. Exploration activities involving the construction of tunnels for more than 50 meters are also comprised under this category.

With respect to projects in this category, the holder of mining activities should obtain the previous approval of an Environmental Assessment (“EA”) by the mining authorities. This document should be prepared following the guidelines established for those effects in Annex 2 of the Environmental Regulations for Exploration Mining Activities, among other guidelines.

The main aspects of the procedure for the evaluation of the EA are the following:

(a) Evidence should be provided with respect to the title held over the mining properties where the exploration works will be conducted, among with other general information of the party interested in conducting the works.

(b) Within five (5) calendar days as from the filing of the EA, a copy of same should be delivered by the mining authorities to the regional and local (district) authorities in jurisdiction the project is located.

(c) The holder of the project should publish for two consecutive days, a notice to be provided by the mining authorities making public the former’s intention to begin exploration works.

The notice should be published both in the official gazette "*El Peruano*" and in the newspaper where the respective region's judicial notices are published.

Original copies of these publications must be delivered to the mining authorities, within ten days as from the receipt of the notices by the holder of the project. Otherwise, the proceeding will be concluded.

(d) Any interested party may file before the mining authorities its comments or opinions with respect to the project, within a twenty (20) days term counted as from the publication of the notices.

(e) Upon expiry of the twenty (20) days term mentioned above and provided that no objections were made by the authorities, a decision should be made approving the same within the following ten (10) calendar days.

Should objections exist, these should be notified to the holder of the project for it to amend them within the following fifteen (15) calendar days. If the objections are not amended, the EA will be disapproved and the procedure concluded.

On the other hand, the EA should be approved if the objections were amended satisfactorily. The resolution approving or disapproving the EA must be issued within ten (10) calendar days as from the filling of the amendments or the expiry of the term for doing so.

If the mining authorities do not issue a decision on the EA within the terms applicable for those effects, the EA would be deemed approved.

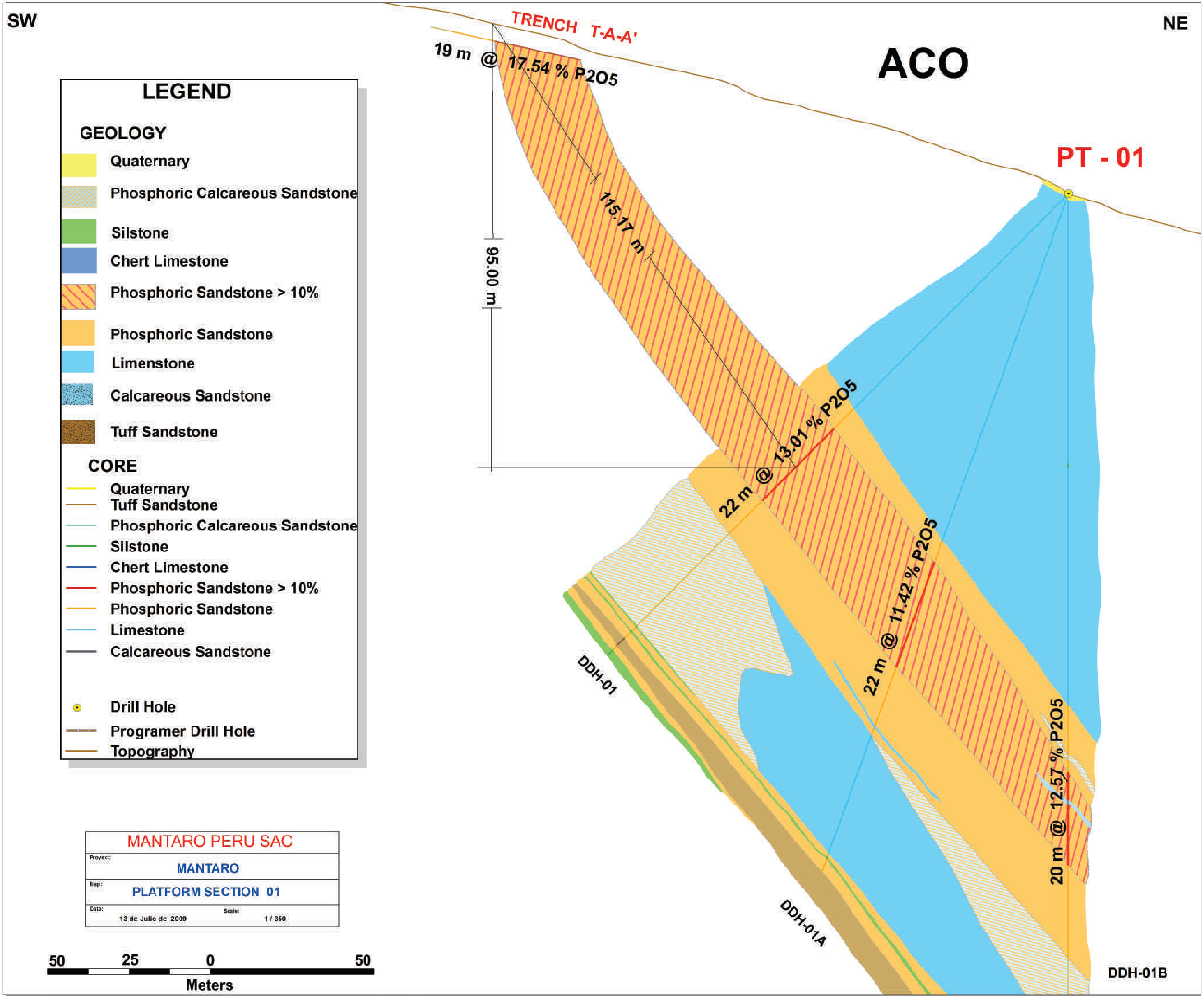
It should be noted that, once the exploration works are concluded, the holder of mining activity shall begin the remediation works of the areas disturbed with its activities. Said holder is exempted from developing these remediation works with respect to paths, roads and other facilities that might be of interest for him or for third parties that request so and undertake the environmental responsibility of those facilities.

Any amendment to the exploration project already approved by the mining authorities, should be previously approved by the latter, as such amendment may result in a relevant modification of the original project or in it pertaining to a different category.

Should the holder of the exploration project transfer or assign same, the new holder will be obliged to comply with the compromises assumed in the respective affidavit or EA, as the case may be.

25 APPENDIX 2

TRENCH & DRILL CROSS SECTIONS



SW
NE
ACO
TRENCH T-A-A'
PT - 01
19 m @ 17.54 % P2O5
115.17 m
95.00 m
22 m @ 13.01 % P2O5
22 m @ 11.42 % P2O5
20 m @ 12.57 % P2O5
DDH-01
DDH-01A
DDH-01B
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programer Drill Hole
Topography
MANTARO PERU SAC
Proyect:
MANTARO
Map:
PLATFORM SECTION 01
Data:
13 de Julio del 2009
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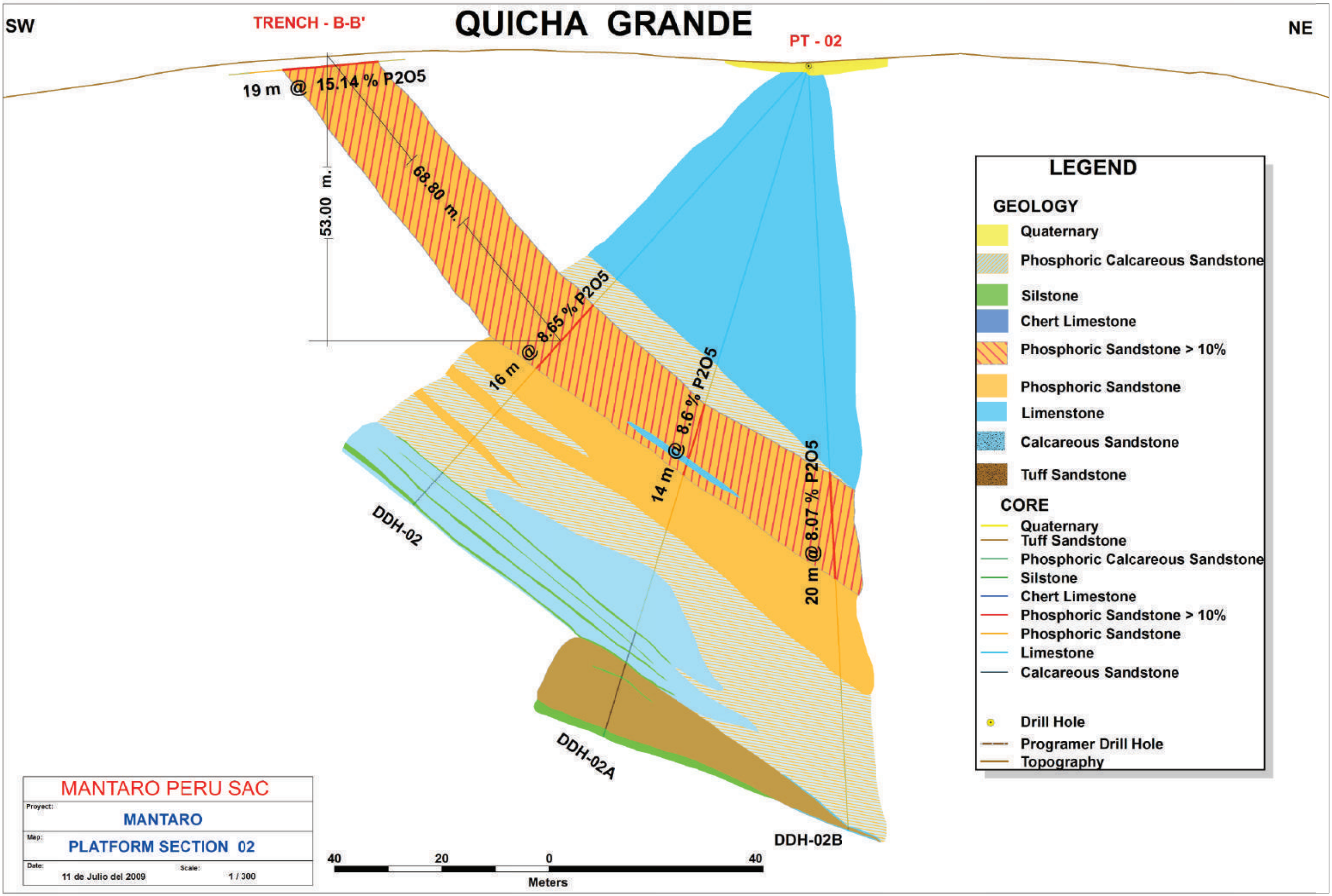
50
25
0
50
Meters


SW
TRENCH - B-B'
QUICHA GRANDE
PT - 02
NE
19 m @ 15.14 % P2O5
68.80 m.
53.00 m.
16 m @ 8.65 % P2O5
14 m @ 8.6 % P2O5
20 m @ 8.07 % P2O5
DDH-02
DDH-02A
DDH-02B
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programer Drill Hole
Topography
40 20 0 40
Meters
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Date:
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Scale:
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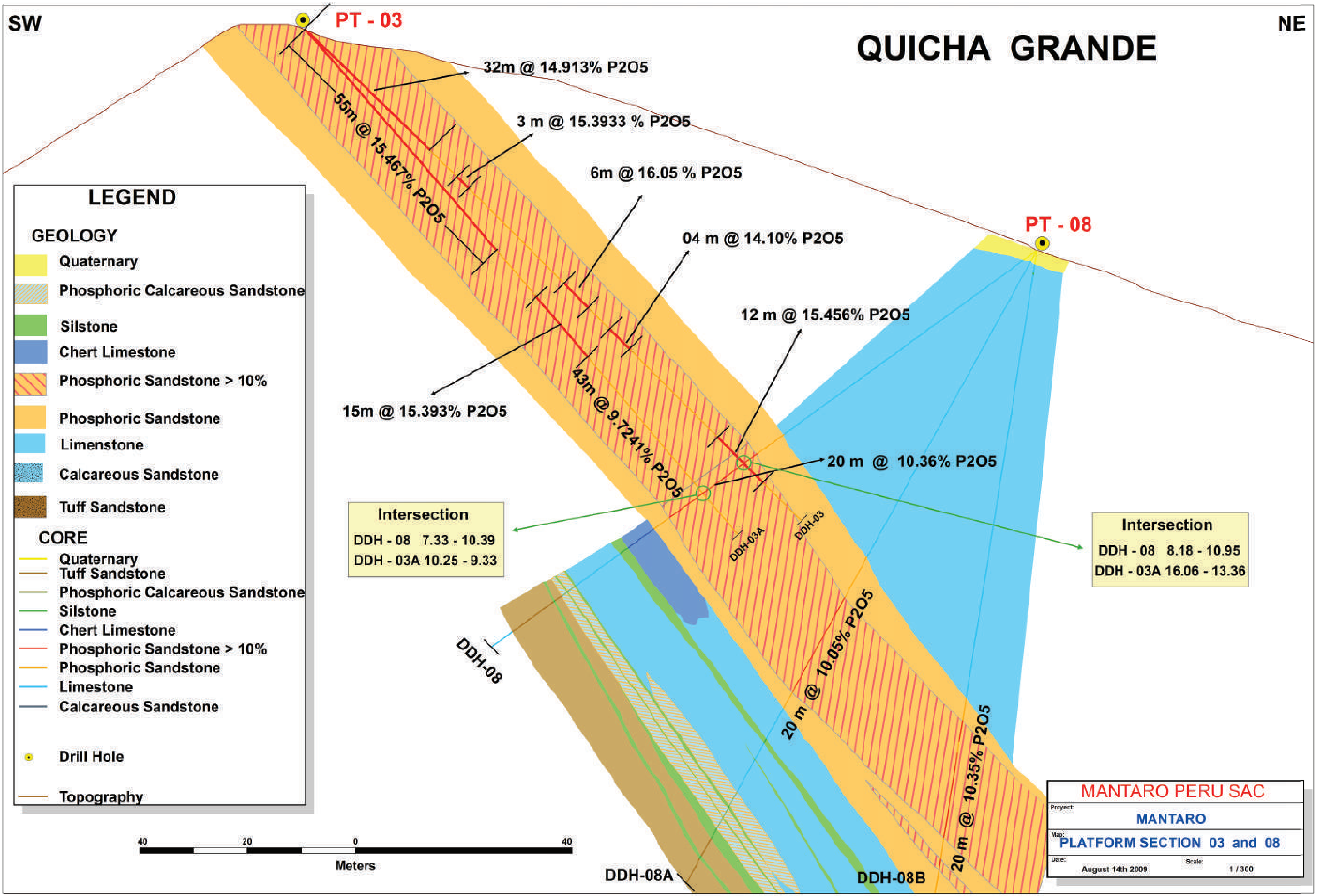

SW
NE
QUICHA GRANDE
PT - 03
PT - 08
32m @ 14.913% P2O5
3 m @ 15.3933 % P2O5
6m @ 16.05 % P2O5
04 m @ 14.10% P2O5
12 m @ 15.456% P2O5
15m @ 15.393% P2O5
55m @ 15.467% P2O5
43m @ 9.7241% P2O5
20 m @ 10.36% P2O5
20 m @ 10.05% P2O5
20 m @ 10.35% P2O5
Intersection
DDH - 08 7.33 - 10.39
DDH - 03A 10.25 - 9.33
Intersection
DDH - 08 8.18 - 10.95
DDH - 03A 16.06 - 13.36
DDH-03A
DDH-03
DDH-08
DDH-08A
DDH-08B
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Topography
40 20 0 40
Meters
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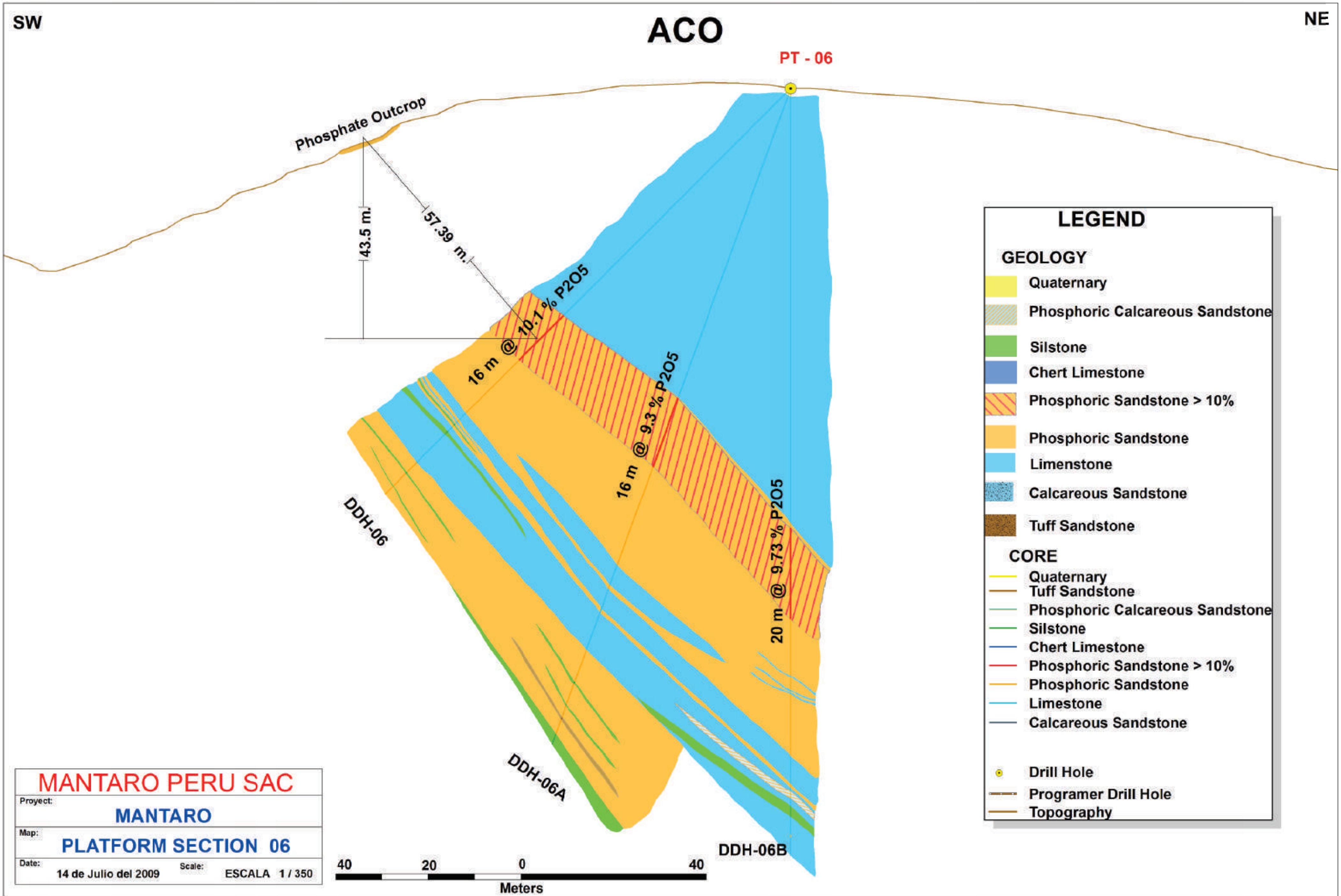
MANTARO
Map:
PLATFORM SECTION 03 and 08
Date:
August 14th 2009
Scale:
1 / 300


SW
ACO
NE
PT - 06
Phosphate Outcrop
43.5 m.
57.39 m.
16 m @ 10.1 % P2O5
16 m @ 9.3 % P2O5
20 m @ 9.73 % P2O5
DDH-06
DDH-06A
DDH-06B
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programer Drill Hole
Topography
MANTARO PERU SAC
Proyect:
MANTARO
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Date:
14 de Julio del 2009
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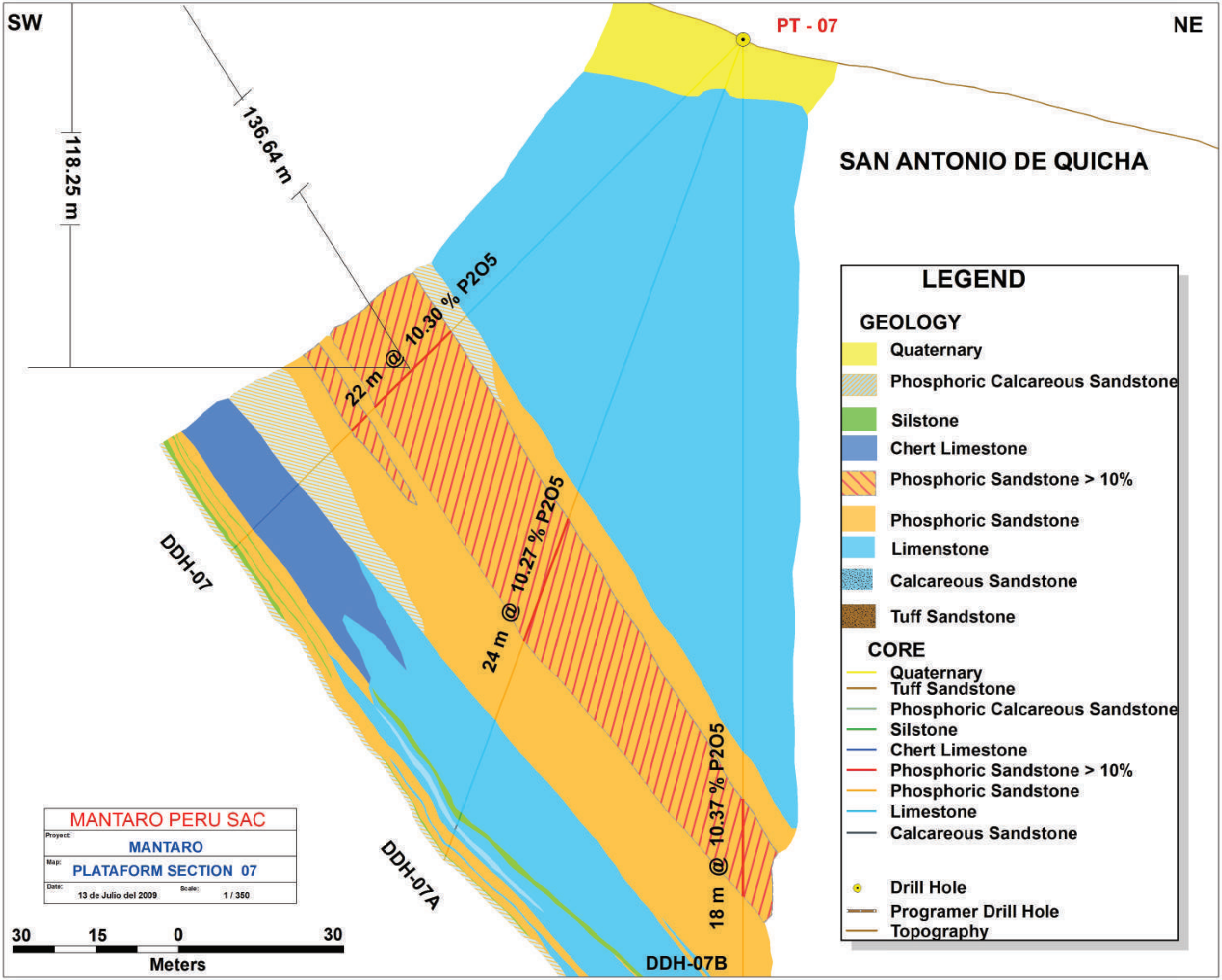
Meters


SW
NE
PT - 07
SAN ANTONIO DE QUICHA
118.25 m
136.64 m
22 m @ 10.30 % P2O5
24 m @ 10.27 % P2O5
18 m @ 10.37 % P2O5
DDH-07
DDH-07A
DDH-07B
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programer Drill Hole
Topography
MANTARO PERU SAC
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Date: 13 de Julio del 2009
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15
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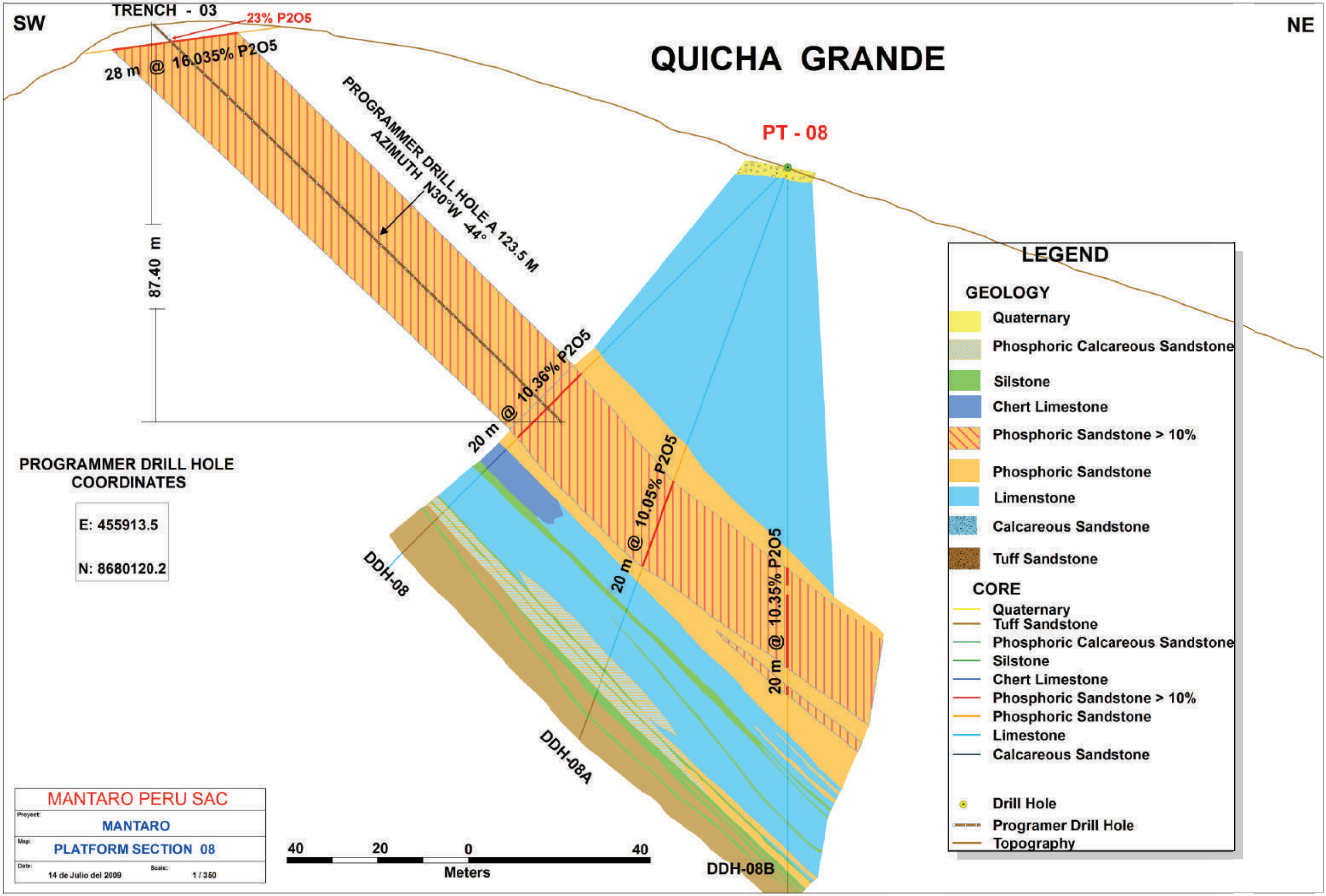
30
Meters



SW
NE
QUICHA GRANDE
TRENCH - 03
23% P2O5
28 m @ 16.035% P2O5
PROGRAMMER DRILL HOLE A 123.5 M
AZIMUTH N30°W -44°
87.40 m
PT - 08
20 m @ 10.36% P2O5
20 m @ 10.05% P2O5
20 m @ 10.35% P2O5
DDH-08
DDH-08A
DDH-08B
PROGRAMMER DRILL HOLE COORDINATES
E: 455913.5
N: 8680120.2
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programer Drill Hole
Topography
40 20 0 40
Meters
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Proyect:
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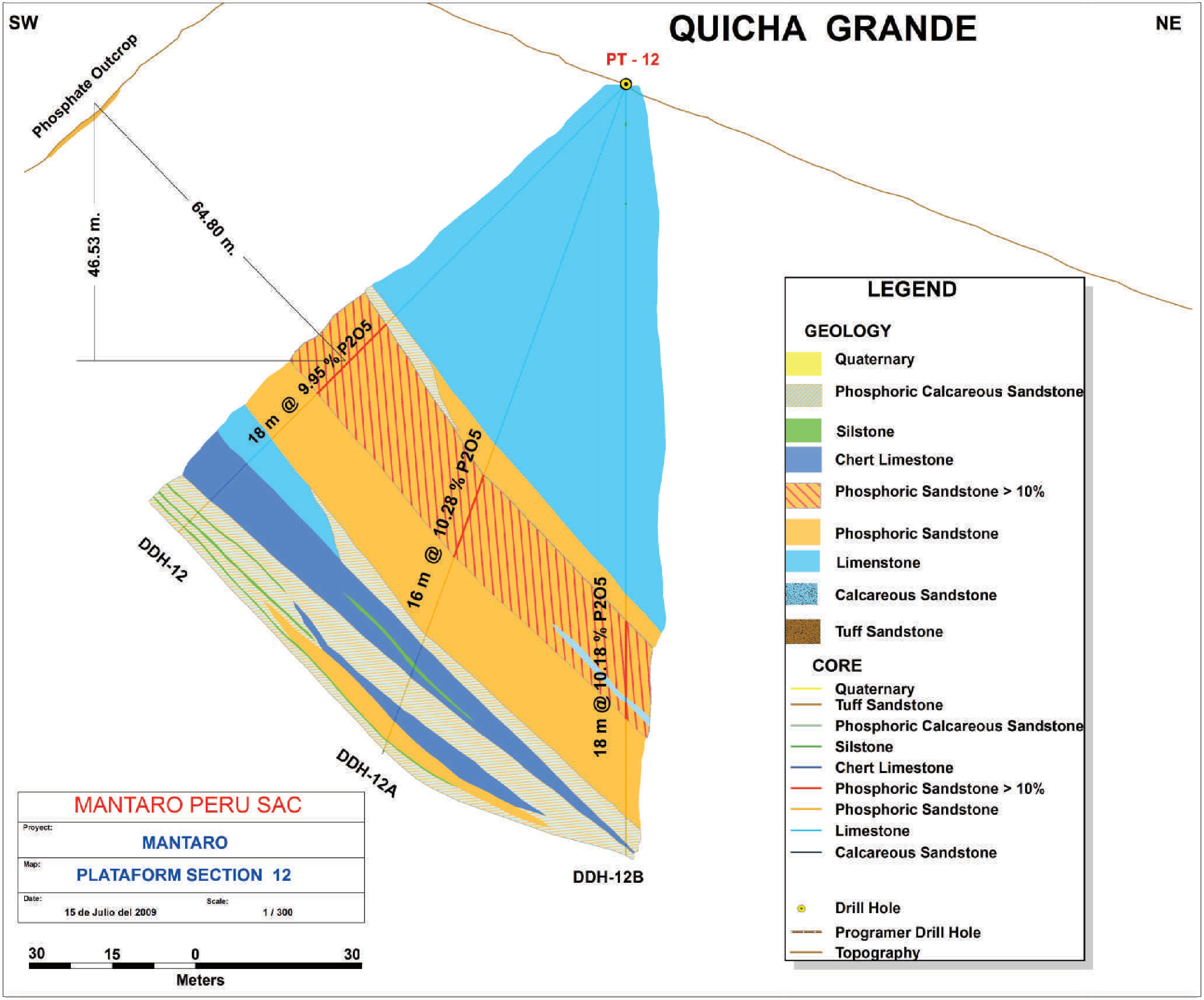
SW
QUICHA GRANDE
NE
PT - 12
Phosphate Outcrop
64.80 m.
46.53 m.
18 m @ 9.95 % P2O5
16 m @ 10.28 % P2O5
18 m @ 10.18 % P2O5
DDH-12
DDH-12A
DDH-12B
LEGEND
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limenstone
Calcareous Sandstone
Tuff Sandstone
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programer Drill Hole
Topography
MANTARO PERU SAC
Proyect:
MANTARO
Map:
PLATAFORM SECTION 12
Date:
15 de Julio del 2009
Scale:
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15
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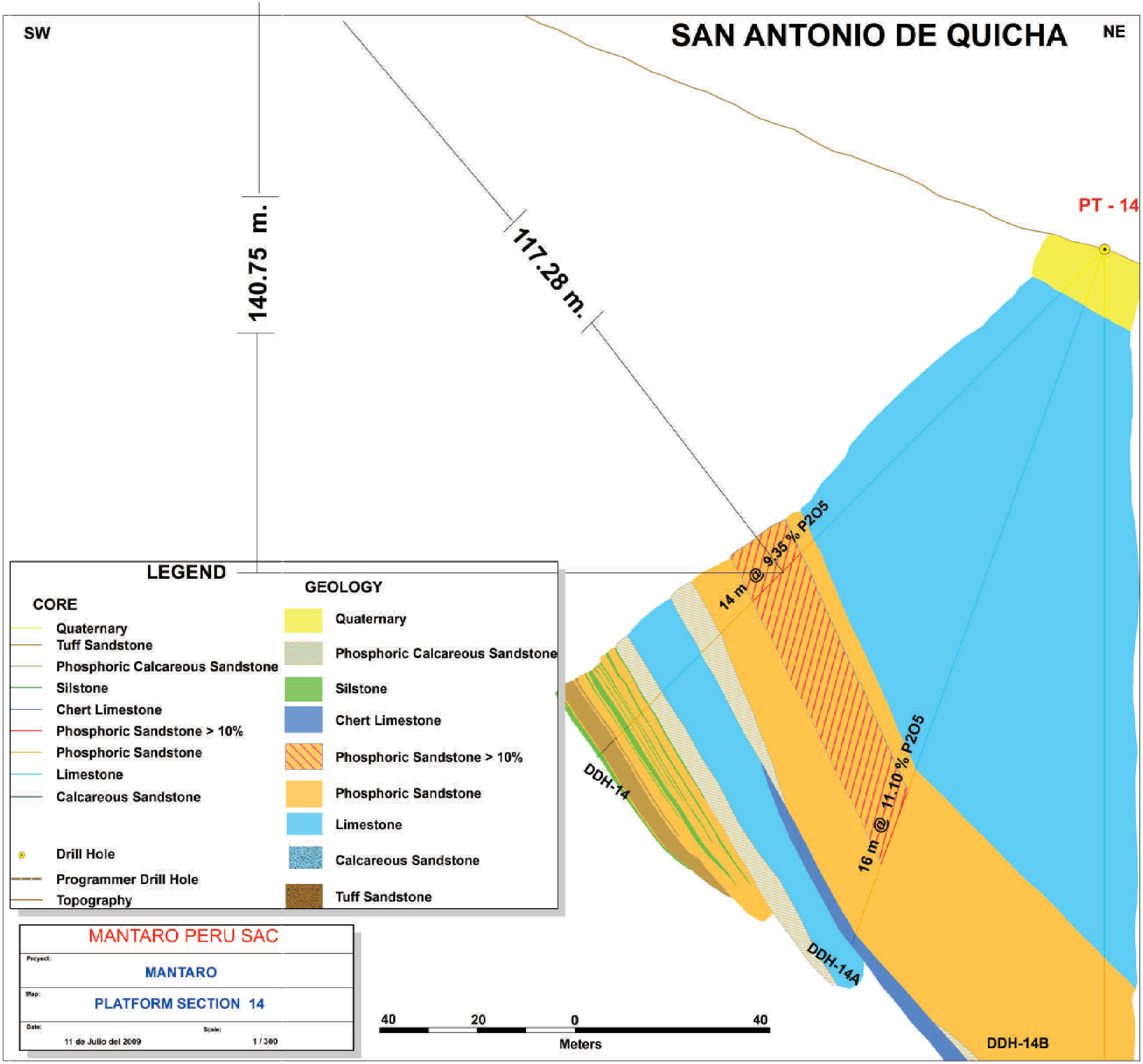
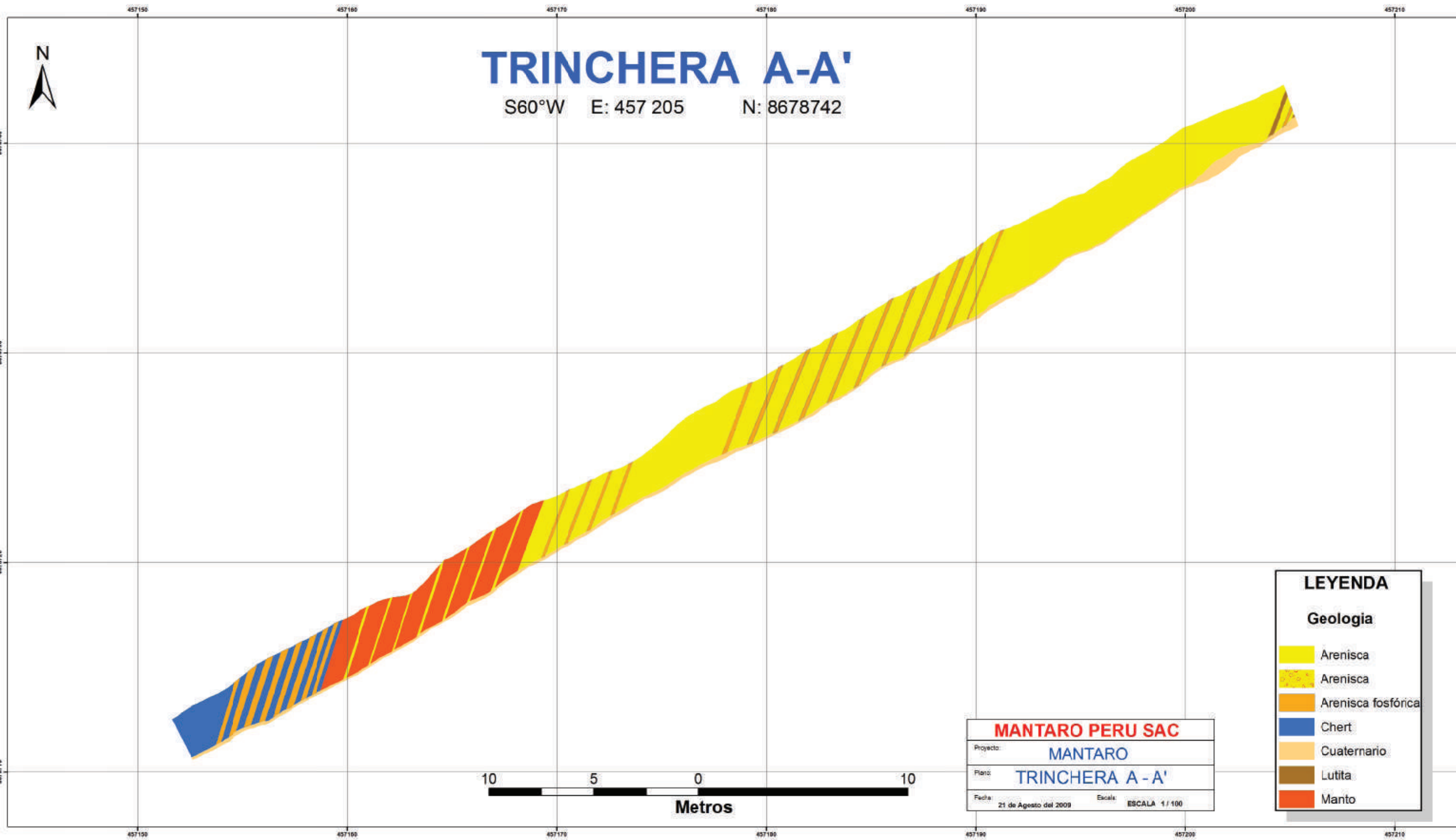
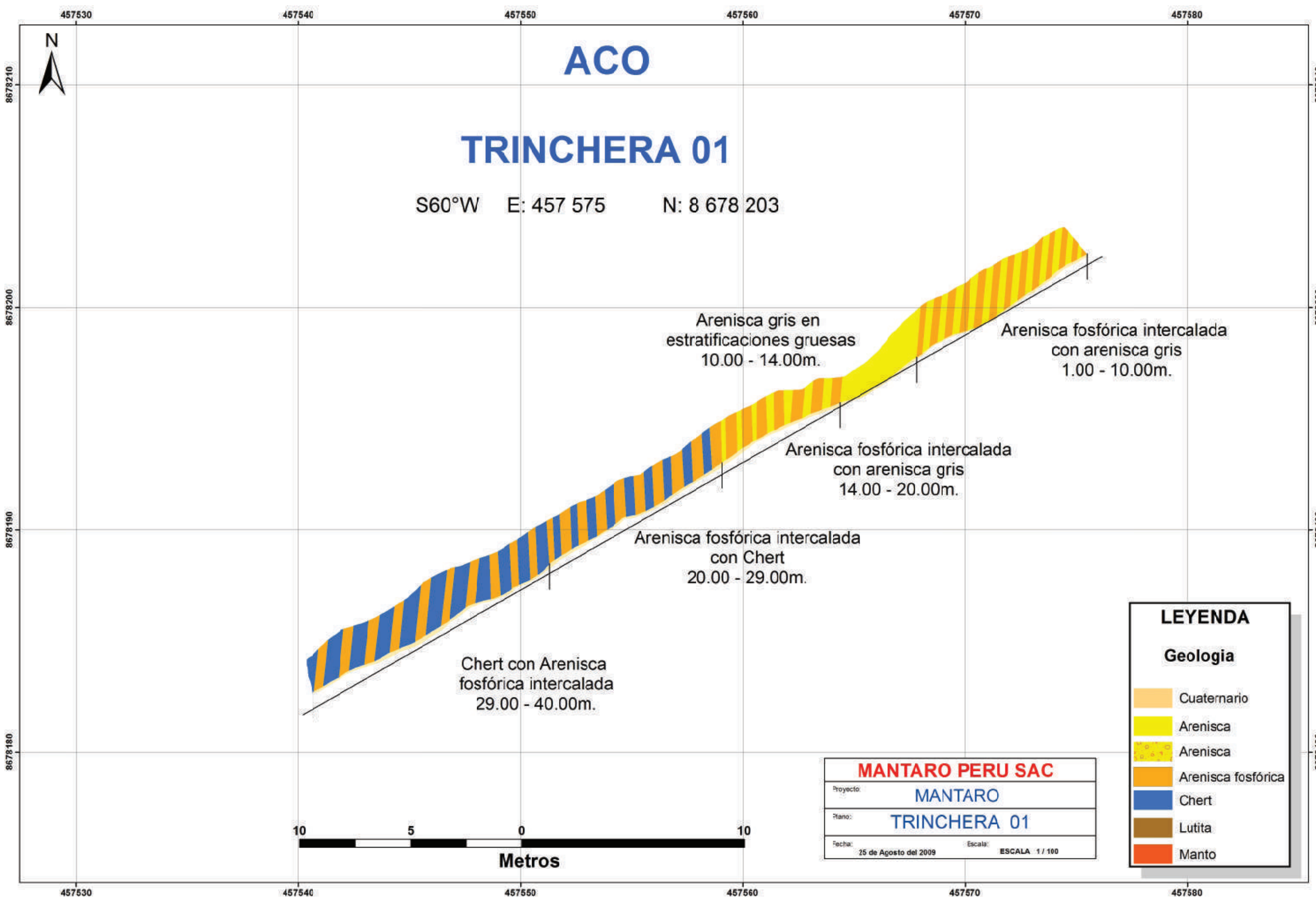
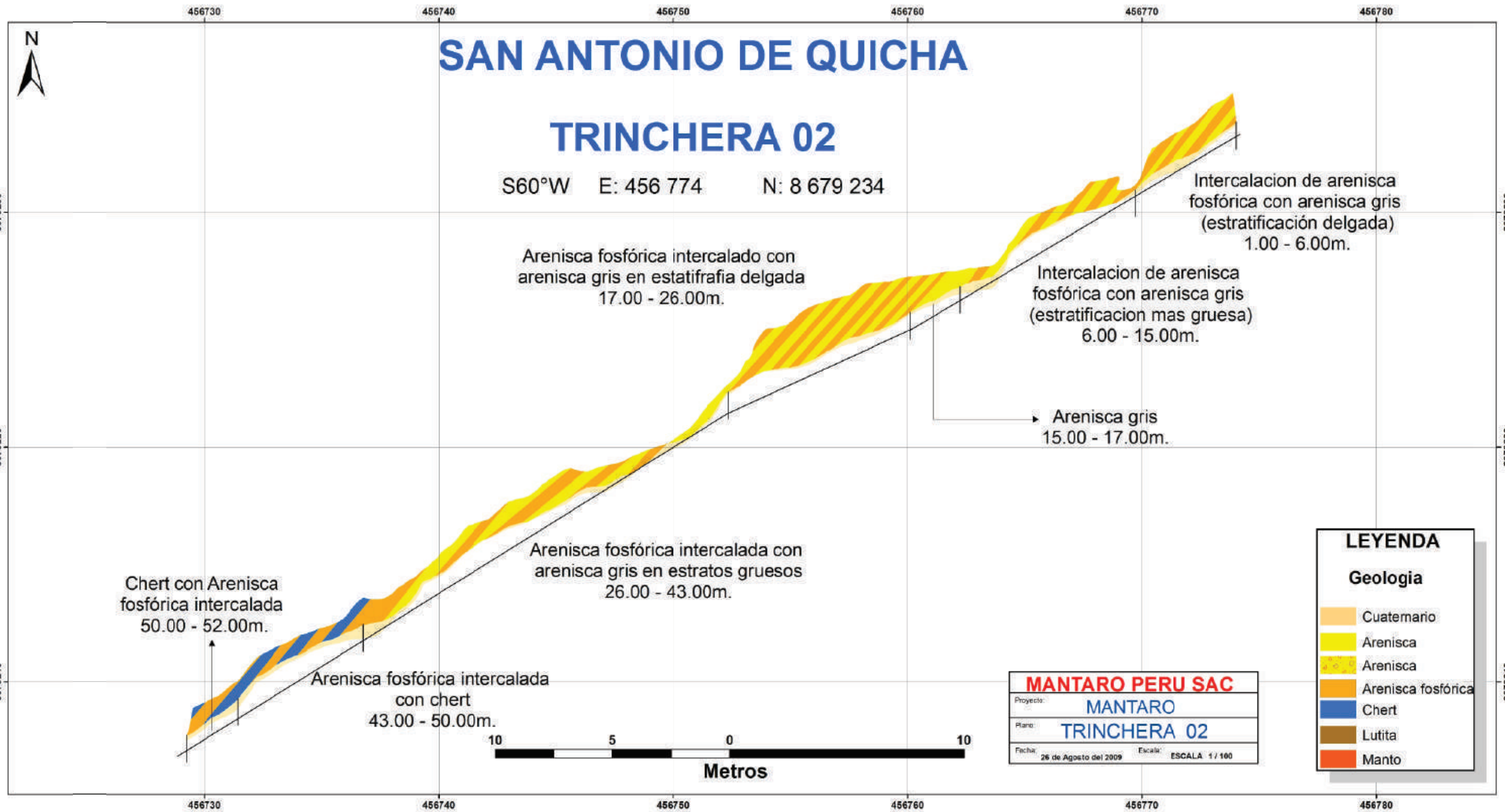
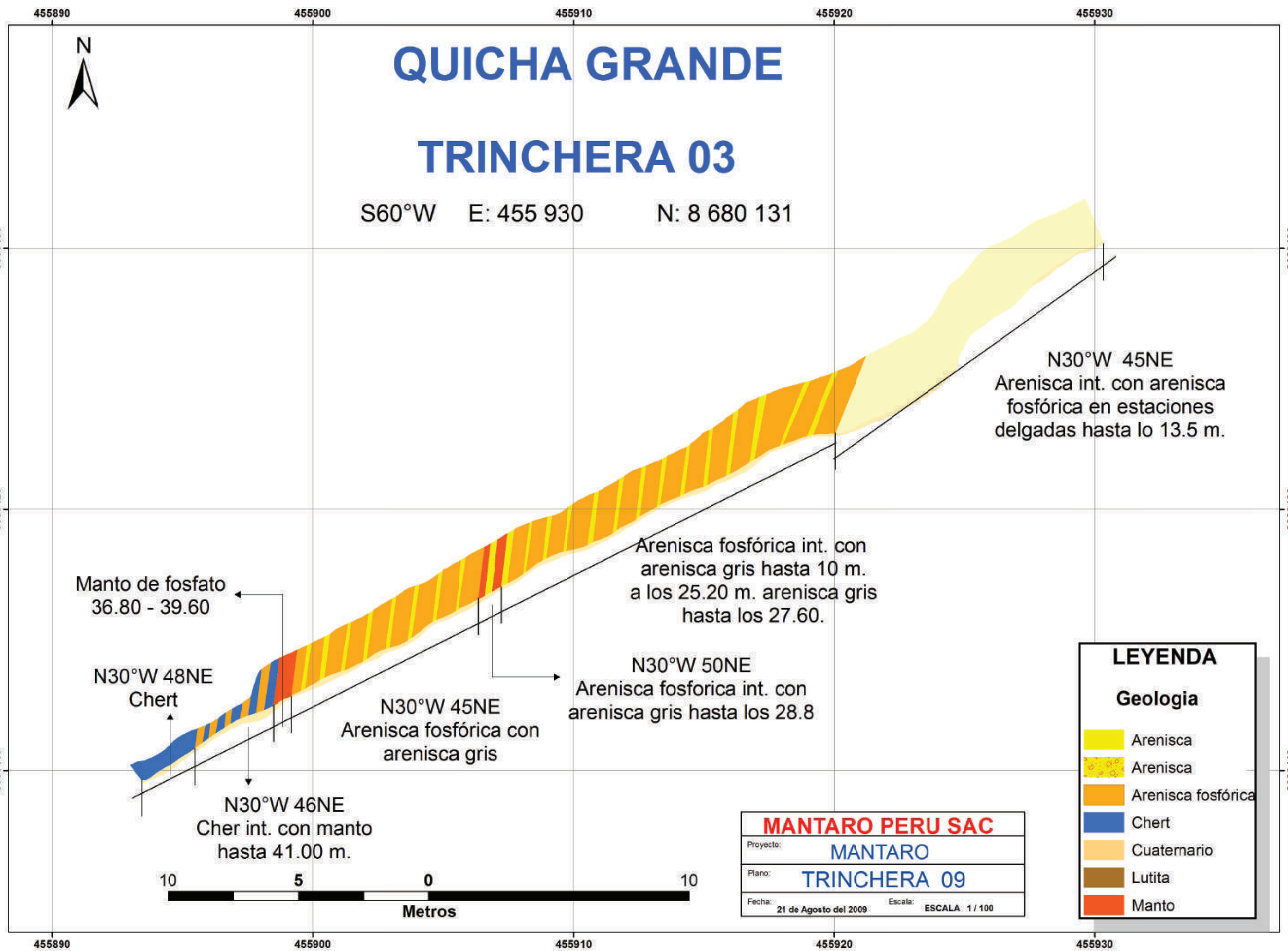
30
Meters


SW
SAN ANTONIO DE QUICHA
NE
PT - 14
140.75 m.
117.28 m.
14 m @ 9.35 % P2O5
16 m @ 11.10 % P2O5
DDH-14
DDH-14A
DDH-14B
LEGEND
CORE
Quaternary
Tuff Sandstone
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Drill Hole
Programmer Drill Hole
Topography
GEOLOGY
Quaternary
Phosphoric Calcareous Sandstone
Silstone
Chert Limestone
Phosphoric Sandstone > 10%
Phosphoric Sandstone
Limestone
Calcareous Sandstone
Tuff Sandstone
40 20 0 40
Meters
MANTARO PERU SAC
Proyect:
MANTARO
Map:
PLATFORM SECTION 14
Date:
11 de Julio del 2009
Scale:
1 / 300

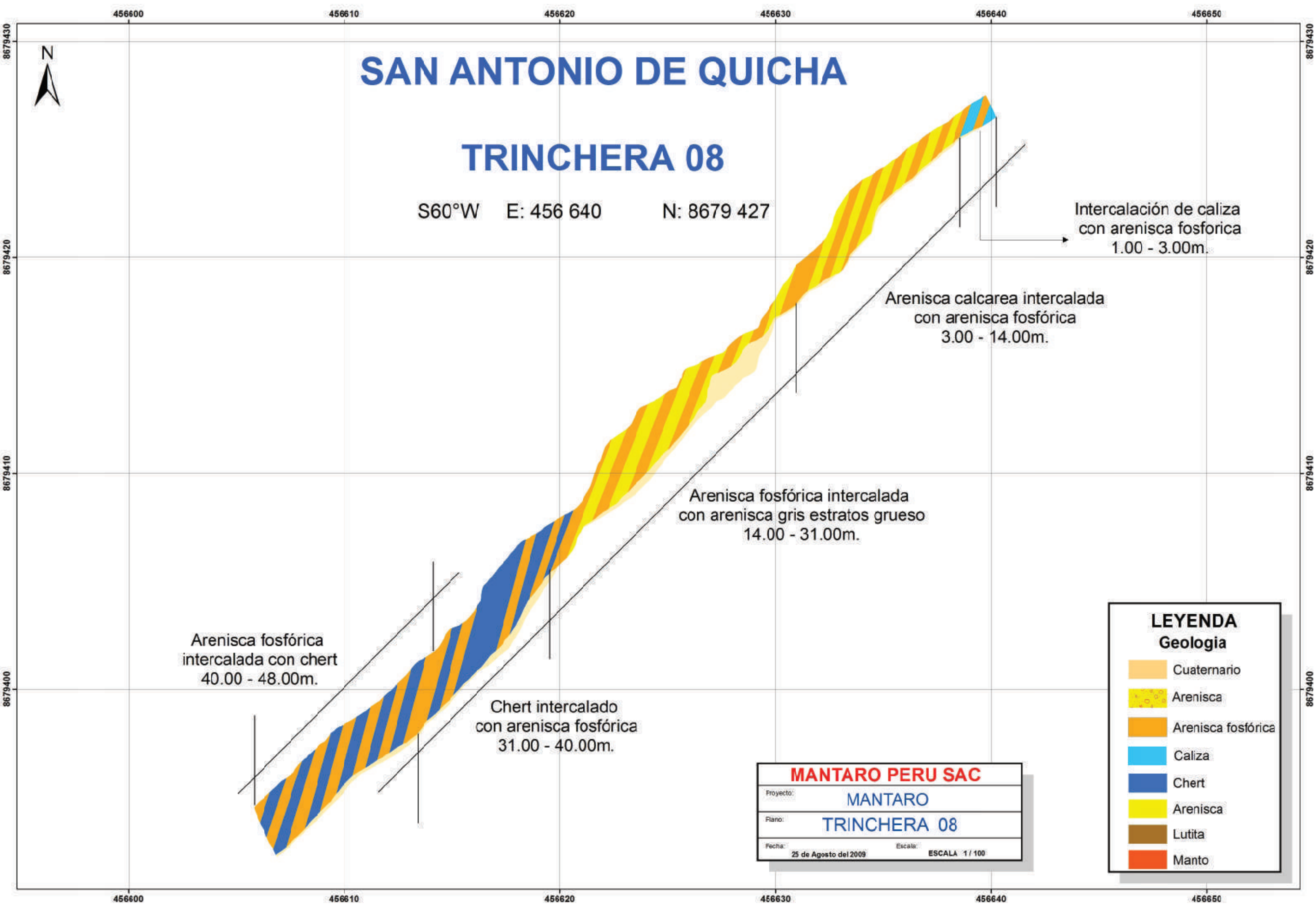

N
TRINCHERA A-A'
S60°W E: 457 205 N: 8678742
LEYENDA
Geologia
Arenisca
Arenisca
Arenisca fosfórica
Chert
Cuaternario
Lutita
Manto
MANTARO PERU SAC
Proyecto:
MANTARO
Plano:
TRINCHERA A - A'
Fecha:
21 de Agosto del 2009
Escala:
ESCALA 1 / 100
10
5
0
10
Metros


ACO
TRINCHERA 01
S60°W E: 457 575 N: 8 678 203
Arenisca gris en estratificaciones gruesas 10.00 - 14.00m.
Arenisca fosfórica intercalada con arenisca gris 1.00 - 10.00m.
Arenisca fosfórica intercalada con arenisca gris 14.00 - 20.00m.
Arenisca fosfórica intercalada con Chert 20.00 - 29.00m.
Chert con Arenisca fosfórica intercalada 29.00 - 40.00m.
LEYENDA
Geologia
Cuaternario
Arenisca
Arenisca
Arenisca fosfórica
Chert
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 01
Fecha: 25 de Agosto del 2009
Escala: ESCALA 1 / 100
Metros
10 5 0 10
N
457530 457540 457550 457560 457570 457580
8678210 8678200 8678190 8678180

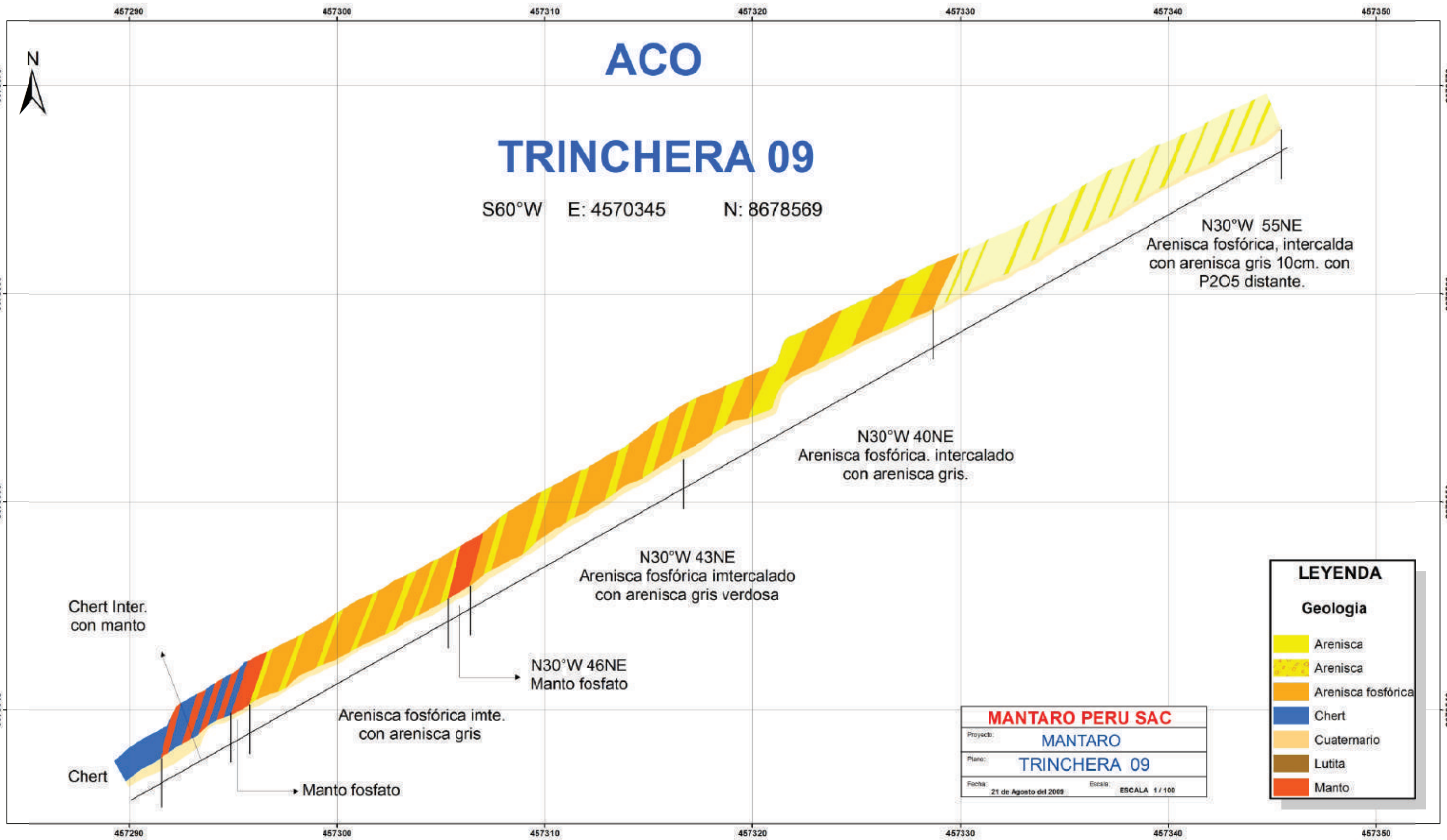

SAN ANTONIO DE QUICHA
TRINCHERA 02
S60°W E: 456 774 N: 8 679 234
N
Intercalacion de arenisca fosfórica con arenisca gris (estratificación delgada) 1.00 - 6.00m.
Intercalacion de arenisca fosfórica con arenisca gris (estratificacion mas gruesa) 6.00 - 15.00m.
Arenisca gris 15.00 - 17.00m.
Arenisca fosfórica intercalado con arenisca gris en estatifrafia delgada 17.00 - 26.00m.
Arenisca fosfórica intercalada con arenisca gris en estratos gruesos 26.00 - 43.00m.
Arenisca fosfórica intercalada con chert 43.00 - 50.00m.
Chert con Arenisca fosfórica intercalada 50.00 - 52.00m.
456730
456740
456750
456760
456770
456780
8679230
8679220
8679210
10 5 0 10
Metros
LEYENDA
Geologia
Cuaternario
Arenisca
Arenisca
Arenisca fosfórica
Chert
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 02
Fecha: 26 de Agosto del 2009
Escala: ESCALA 1 / 100



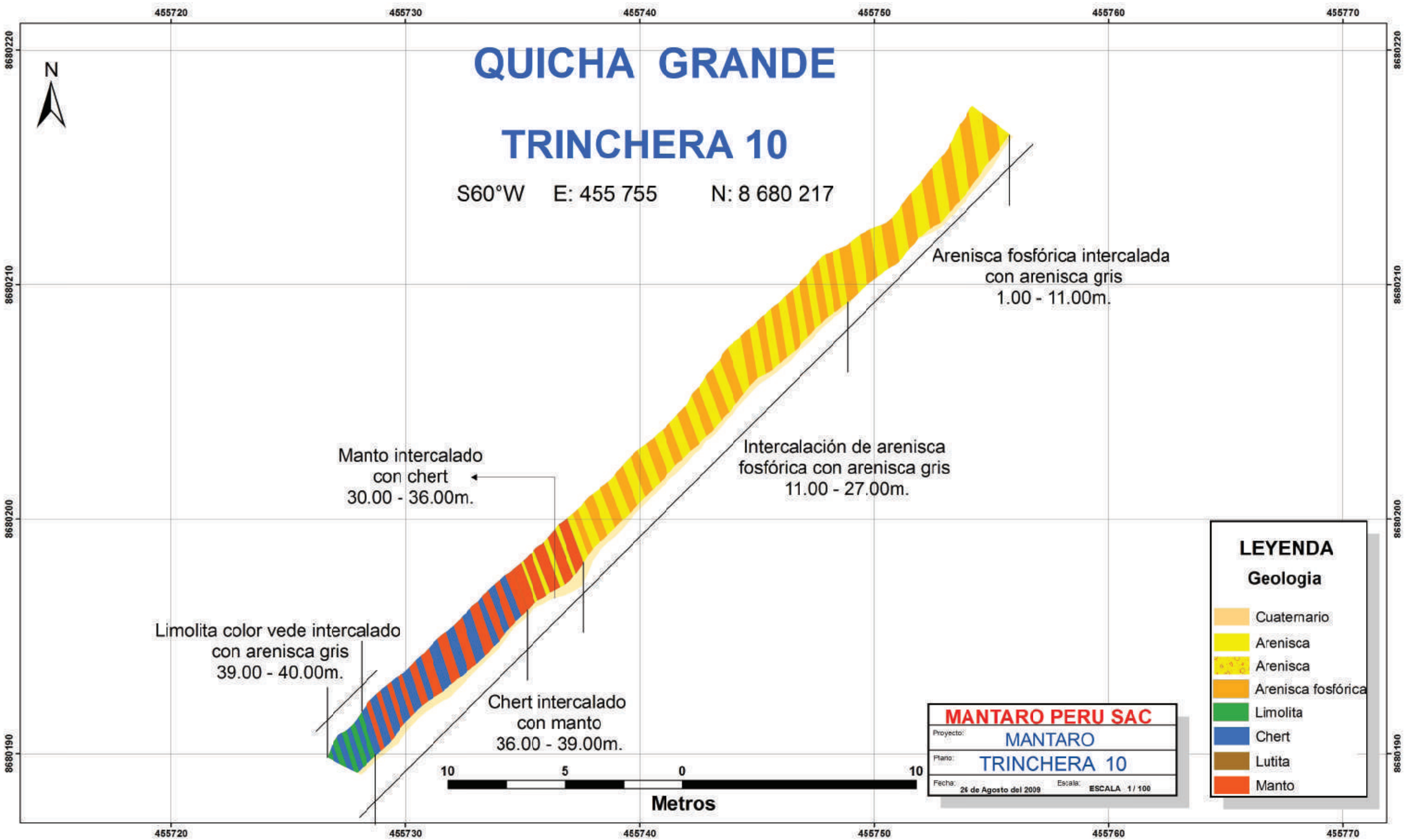
QUICHA GRANDE
TRINCHERA 03
S60°W E: 455 930 N: 8 680 131
N
N30°W 45NE
Arenisca int. con arenisca fosfórica en estaciones delgadas hasta lo 13.5 m.
Arenisca fosfórica int. con arenisca gris hasta 10 m. a los 25.20 m. arenisca gris hasta los 27.60.
Manto de fosfato 36.80 - 39.60
N30°W 50NE
Arenisca fosforica int. con arenisca gris hasta los 28.8
N30°W 48NE
Chert
N30°W 45NE
Arenisca fosfórica con arenisca gris
N30°W 46NE
Cher int. con manto hasta 41.00 m.
10 5 0 10
Metros
LEYENDA
Geologia
Arenisca
Arenisca
Arenisca fosfórica
Chert
Cuaternario
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 09
Fecha: 21 de Agosto del 2009
Escala: ESCALA 1 / 100
455890
455900
455910
455920
455930
8680130
8680120
8680110

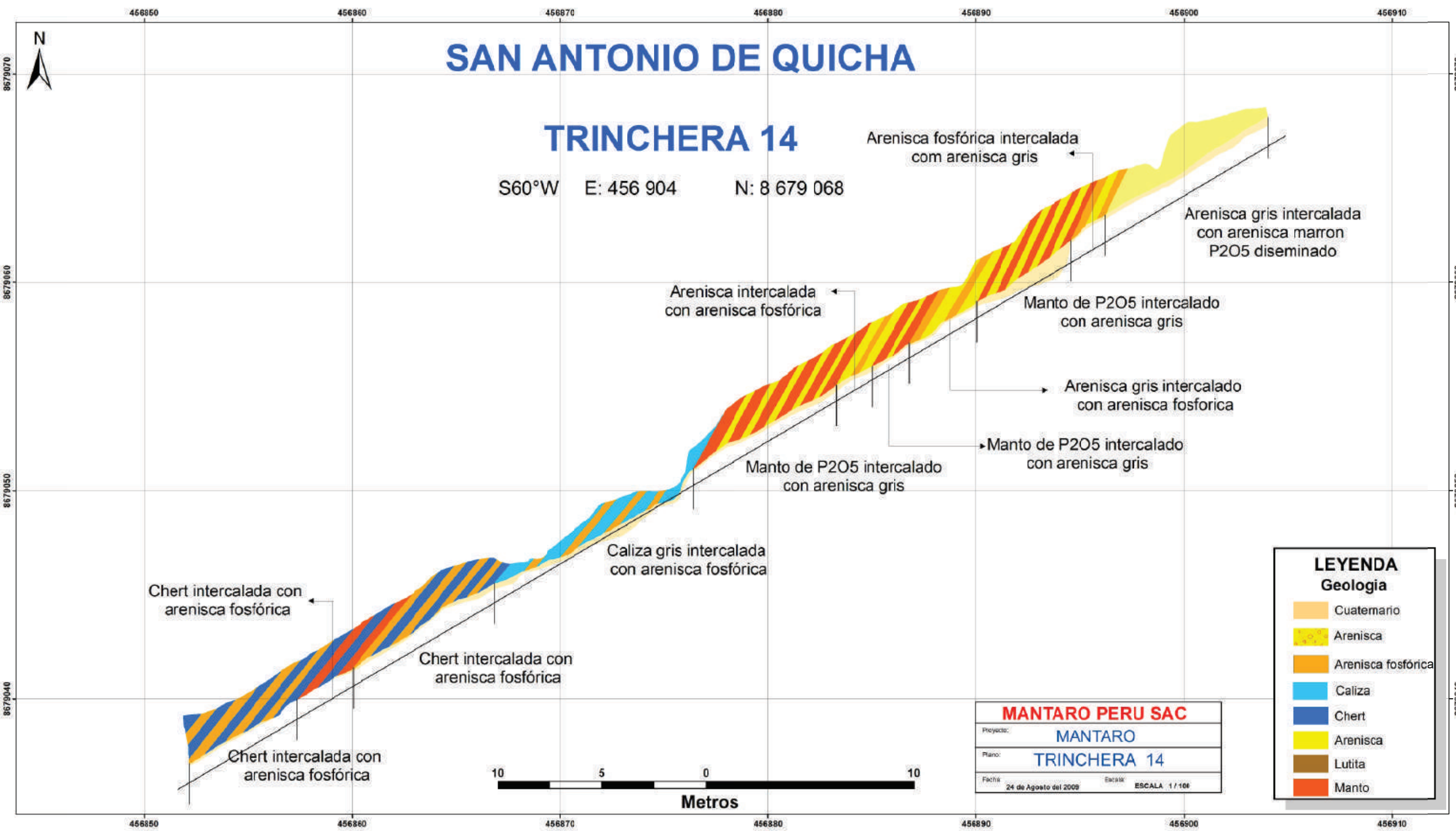


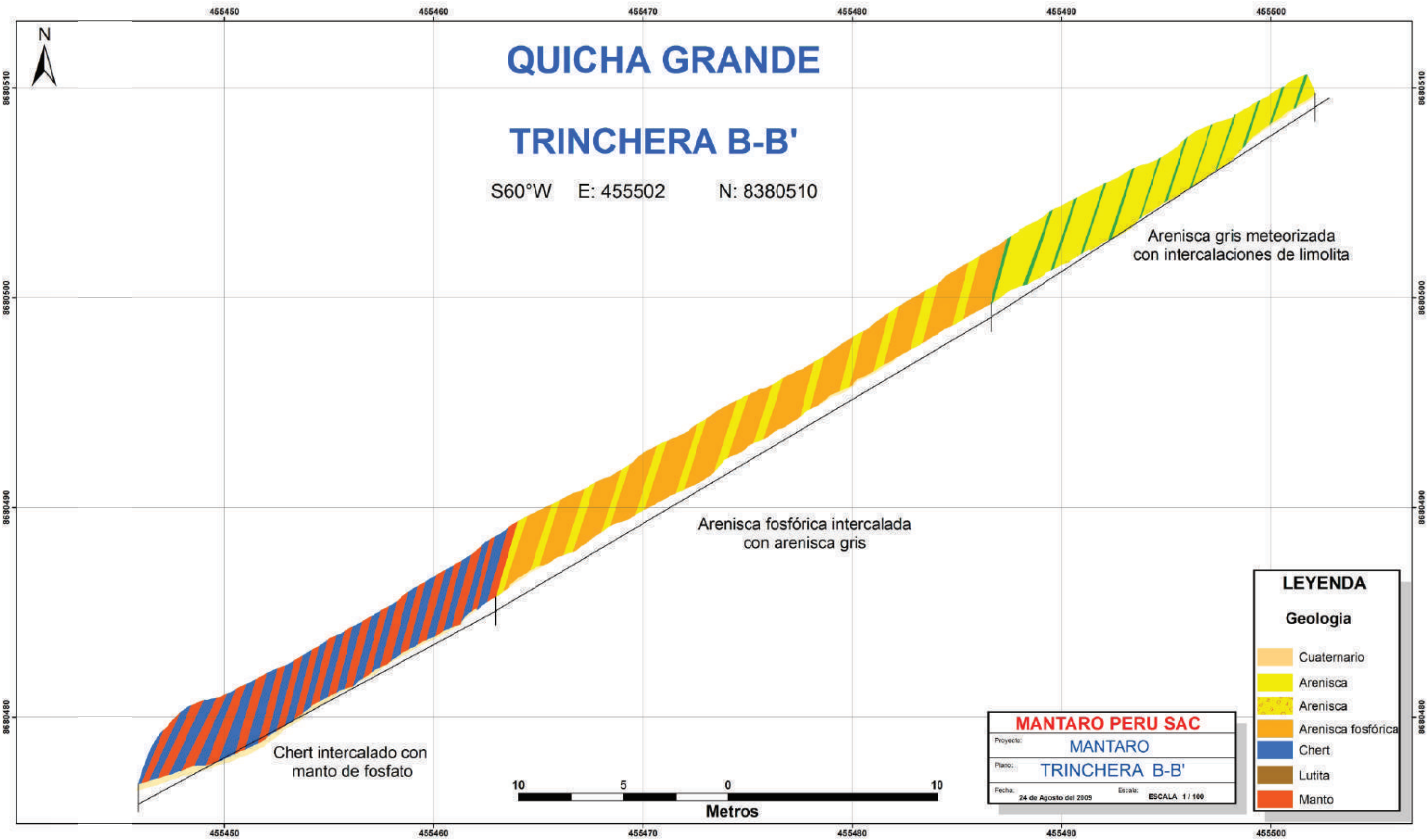
SAN ANTONIO DE QUICHA
TRINCHERA 08
S60°W E: 456 640 N: 8679 427
N
Intercalación de caliza con arenisca fosforica 1.00 - 3.00m.
Arenisca calcarea intercalada con arenisca fosfórica 3.00 - 14.00m.
Arenisca fosfórica intercalada con arenisca gris estratos grueso 14.00 - 31.00m.
Chert intercalado con arenisca fosfórica 31.00 - 40.00m.
Arenisca fosfórica intercalada con chert 40.00 - 48.00m.
LEYENDA
Geologia
Cuaternario
Arenisca
Arenisca fosfórica
Caliza
Chert
Arenisca
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 08
Fecha: 25 de Agosto del 2009
Escala: ESCALA 1 / 100
456600
456610
456620
456630
456640
456650
8679430
8679420
8679410
8679400



ACO
TRINCHERA 09
S60°W E: 4570345 N: 8678569
N
N30°W 55NE
Arenisca fosfórica, intercalda
con arenisca gris 10cm. con
P2O5 distante.
N30°W 40NE
Arenisca fosfórica. intercalado
con arenisca gris.
N30°W 43NE
Arenisca fosfórica imtercalado
con arenisca gris verdosa
N30°W 46NE
Manto fosfato
Arenisca fosfórica imte.
con arenisca gris
Manto fosfato
Chert Inter.
con manto
Chert
LEYENDA
Geologia
Arenisca
Arenisca
Arenisca fosfórica
Chert
Cuaternario
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 09
Fecha: 21 de Agosto del 2009
Escala: ESCALA 1 / 100
457290
457300
457310
457320
457330
457340
457350
8678540
8678550
8678560
8678570


QUICHA GRANDE
TRINCHERA 10
S60°W E: 455 755 N: 8 680 217
Arenisca fosfórica intercalada con arenisca gris 1.00 - 11.00m.
Intercalación de arenisca fosfórica con arenisca gris 11.00 - 27.00m.
Manto intercalado con chert 30.00 - 36.00m.
Chert intercalado con manto 36.00 - 39.00m.
Limolita color vede intercalado con arenisca gris 39.00 - 40.00m.
N
10 5 0 10
Metros
LEYENDA
Geologia
Cuaternario
Arenisca
Arenisca
Arenisca fosfórica
Limolita
Chert
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 10
Fecha: 26 de Agosto del 2009
Escala: ESCALA 1 / 100
455720
455730
455740
455750
455760
455770
8680220
8680210
8680200
8680190


SAN ANTONIO DE QUICHA
TRINCHERA 14
S60°W E: 456 904 N: 8 679 068
Arenisca fosfórica intercalada com arenisca gris
Arenisca gris intercalada con arenisca marron P2O5 diseminado
Arenisca intercalada con arenisca fosfórica
Manto de P2O5 intercalado con arenisca gris
Arenisca gris intercalado con arenisca fosforica
Manto de P2O5 intercalado con arenisca gris
Manto de P2O5 intercalado con arenisca gris
Caliza gris intercalada con arenisca fosfórica
Chert intercalada con arenisca fosfórica
Chert intercalada con arenisca fosfórica
Chert intercalada con arenisca fosfórica
10 5 0 10
Metros
LEYENDA
Geologia
Cuaternario
Arenisca
Arenisca fosfórica
Caliza
Chert
Arenisca
Lutita
Manto
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA 14
Fecha: 24 de Agosto del 2009
Escala: ESCALA 1 / 100
456850 456860 456870 456880 456890 456900 456910
8679040 8679050 8679060 8679070
N



N
QUICHA GRANDE
TRINCHERA B-B'
S60°W E: 455502 N: 8380510
Arenisca gris meteorizada
con intercalaciones de limolita
Arenisca fosfórica intercalada
con arenisca gris
Chert intercalado con
manto de fosfato
10 5 0 10
Metros
MANTARO PERU SAC
Proyecto: MANTARO
Plano: TRINCHERA B-B'
Fecha: 24 de Agosto del 2009
Escala: ESCALA 1 / 100
LEYENDA
Geologia
Cuaternario
Arenisca
Arenisca
Arenisca fosfórica
Chert
Lutita
Manto
455450
455460
455470
455480
455490
455500
8680510
8680500
8680490
8680480