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BARRICK GOLD CORPORATION,
GOLDCORP INC.

TECHNICAL REPORT ON THE PUEBLO VIEJO MINE, SANCHEZ RAMIREZ PROVINCE, DOMINICAN REPUBLIC

NI 43-101 Report

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1 SUMMARY

EXECUTIVE SUMMARY

Roscoe Postle Associates Inc. (RPA) was retained by Pueblo Viejo Dominicana Corporation (PVDC), which is the operating company for the joint venture partners, Barrick Gold Corporation (Barrick) (60%) and Goldcorp Inc. (Goldcorp) (40%), to prepare an independent Technical Report on the Pueblo Viejo Mine (the Mine) located in the Dominican Republic. The purpose of this report is to support disclosure of the Mineral Resources and Mineral Reserves for the Mine as of December 31, 2017. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA visited the Mine from November 14 to 16, 2017.

Barrick is a Canadian publicly traded mining company with a portfolio of operating mines and projects across four continents. Goldcorp is a publicly traded senior gold producer with operations and development projects throughout the Americas. Pueblo Viejo, a precious and base metal deposit, is located in the central part of the Dominican Republic on the Caribbean island of Hispaniola in the province of Sanchez Ramirez. The Mine is 15 km west of the provincial capital of Cotuí and approximately 100 km northwest of the national capital of Santo Domingo. PVDC holds 100% of the mineral rights to the Pueblo Viejo deposit.

The Pueblo Viejo Mine is an open pit gold mine in the production phase. Commercial production was achieved in January 2013 and the Pueblo Viejo Mine completed its ramp-up to full design capacity in 2014. The Mine consists of two open pits, Moore and Monte Negro, and is mined by conventional truck and shovel methods. Based on the current Mineral Reserves remaining in the pits, mining operations will continue for just over four years, with processing of low-grade ore stockpiles continuing for over 12 years until 2034. Life of Mine (LOM) plan total material movement, including limestone, will range from approximately 59 million tonnes per year (Mtpa) to 64 Mtpa during the next four years of mining.

The processing plant design capacity is 24,000 tonnes per day (tpd), and the average processing rate was 21,875 tpd in 2017. Approximately 30% to 60% of run of mine (ROM) lower grade ore is stockpiled in the next five years for later processing, resulting in a forecast processing life of over 16 years at full processing capacity (just over four years of mining activity).

Table 1-1 summarizes the Pueblo Viejo Mineral Resources exclusive of Mineral Reserves as of December 31, 2017. Resources situated in the end of year (EOY) 2017 reserve pit design have been excluded due to the constrained tailings storage facility (TSF) capacity.

TABLE 1-1 SUMMARY OF MINERAL RESOURCES – DECEMBER 31, 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

	Tonnage		Grade			Contained Metal	
Classification	**(000 t)**	**(g/t Au)**	**(g/t Ag)**	**% Cu**	**(000 oz Au)**	**(000 oz Ag)**	**(000 lb Cu)**
Measured	12,955	2.39	14.25	0.067	997	5,935	19,199
Indicated	156,521	2.47	13.61	0.081	12,427	68,492	279,335
Total M&I	**169,476**	**2.46**	**13.66**	**0.080**	**13,424**	**74,428**	**298,534**
Total Inferred	**46,062**	**2.43**	**10.81**	**0.086**	**3,591**	**16,009**	**87,191**

Notes:
1. Mineral Resources are reported on a 100% basis. Barrick's and Goldcorp's attributable shares of the Mineral Resources are 60% and 40%, respectively.
2. CIM (2014) definitions were followed for Mineral Resources.
3. Mineral Resources are estimated based on an economic cut-off value.
4. Mineral Resources are estimated using a long-term price of US$1,500/oz Au, US$20.50/oz Ag, and US$3.50/lb Cu.
5. A minimum mining width (block size) of 10 m was used.
6. Mineral Resources are exclusive of Mineral Reserves.
7. Resources situated in the reserve pit are excluded due to TSF capacity constraints.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Numbers may not add due to rounding.

Proven and Probable Mineral Reserves for the Mine are set out in Table 1-2.

TABLE 1-2 PUEBLO VIEJO MINERAL RESERVES – DECEMBER 31, 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Area/Category	Tonnage (000 t)	Grade (g/t Au)	Grade (g/t Ag)	Grade (% Cu)	Contained Metal Gold (000 oz)	Contained Metal Silver (000 oz)	Contained Metal Copper (000 lb)
Monte Negro Pit							
Proven	11,475	2.61	18.34	0.058	961	6,765	14,648
Probable	11,555	3.03	14.82	0.069	1,126	5,506	17,466
Monte Negro P&P	**23,030**	**2.82**	**16.57**	**0.063**	**2,088**	**12,271**	**32,115**
Moore Pit							
Proven	15,180	2.86	14.29	0.126	1,398	6,973	42,258
Probable	19,483	2.93	15.17	0.111	1,837	9,502	47,591
Moore P&P	**34,663**	**2.90**	**14.79**	**0.118**	**3,235**	**16,475**	**89,849**
Cumba Pit							
Proven	55	6.48	43.17	0.339	11	77	412
Probable	1,000	5.72	31.47	0.259	184	1,012	5,708
Cumba P&P	**1,055**	**5.76**	**32.09**	**0.263**	**195**	**1.088**	**6,120**
Stockpiles – Proven	**76,852**	**2.64**	**18.63**	**0.096**	**6,521**	**46,034**	**163,130**
Totals							
Proven	103,562	2.67	17.97	0.097	8,891	59,848	220,448
Probable	32,037	3.06	15.55	0.100	3,148	16,019	70,765
Proven + Probable	**135,599**	**2.76**	**17.40**	**0.097**	**12,039**	**75,868**	**291,213**

Notes:

1. Proven and Probable Mineral Reserves are reported on 100% basis. Barrick's and Goldcorp's attributable shares of the Mineral Reserves are 60% and 40%, respectively.
2. CIM (2014) definitions were followed for Mineral Reserves.
3. No cut-off grade is applied. Instead, the profit of each block in the Mineral Resource is calculated and included in the reserve if the value is positive.
4. Mineral Reserves are estimated using an average long-term price of US$1,200/oz Au, US$16.50/oz Ag, and US$2.75/lb Cu.
5. Assumed 100% mining recovery and no dilution.
6. Totals may not add due to rounding.

CONCLUSIONS

Based on RPA's site visit, interviews with Pueblo Viejo personnel, and subsequent review of gathered information, RPA offers the following conclusions:

GEOLOGY AND MINERAL RESOURCES

- The overall resource estimation processes and procedures are of a high standard. PVDC has highly experienced professionals who have developed detailed methods and procedures appropriate for a complex operation.

- The sampling, sample preparation, analyses, and sample security are appropriate for the style of mineralization and Mineral Resource estimation.

- The geology, sampling, assaying, quality assurance/quality control (QA/QC), and data management procedures are of high quality and generally exceed industry standards.

- The detailed lithology, alteration, structural interpretation, and other work has contributed to a good overall geological understanding of the project.

- The EOY2017 Mineral Resource estimates are completed to industry standards using reasonable and appropriate parameters and are acceptable for conversion to Mineral Reserves. The resource and grade control models are reasonable and acceptable.

- The classification of Measured, Indicated, and Inferred Resources conform to Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

- RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other modifying factors which could materially affect the open pit Mineral Resource estimates.

- Mineral Resources are reported exclusive of Mineral Reserves and are estimated effective December 31, 2017.

- On a 100% basis, Measured and Indicated Mineral Resources (including stockpiles) total 169.5 Mt grading 2.46 g/t Au, 13.66 g/t Ag, and 0.08% Cu, containing 13.4 Moz Au, 74.4 Moz Ag, and 298.5 Mlb Cu.

- On a 100% basis, Inferred Mineral Resources total 46.1 Mt, grading 2.43 g/t Au, 10.81 g/t Ag, and 0.09% Cu, containing 3.6 Moz Au, 16.0 Moz Ag, and 87.2 Mlb Cu.

- The 2017 exploration program has been successful in finding new areas with good exploration potential.

MINING AND MINERAL RESERVES

- On a 100% basis, Proven and Probable Mineral Reserves (including stockpiles) total 135.6 Mt grading 2.8 g/t Au, 17.4 g/t Ag, and 0.10% Cu containing 12.0 Moz Au, 75.9 Moz Ag, and 291.2 Mlb Cu.

- The Pueblo Viejo Mineral Reserves stated for the EOY2017 meet the requirements of the CIM (2014) definitions to be classified as Mineral Reserves.

- Mining planning for the Pueblo Viejo open pit mine follows industry standards.

- The methodology used by PVDC for pit limit determination, cut-off grade optimization, and production sequence and scheduling, and estimation of equipment/manpower requirements is consistent with good industry practice.

- The Mine's initiative on selective mining (flitch mining) by half bench mining will reduce mining dilution, increase mining recovery, and, as a result, increase gold grade and ounces.

- The Mine is working on truck utilization improvement, to increase truck and shovel utilization for the remainder of the LOM. PVDC identified areas where time loss was most significant and targeted these areas to improve utilization.

MINERAL PROCESSING AND METALLURGICAL TESTING

- The metallurgical testwork is adequate to support the Mine and the recovery models are reasonable.

- Pueblo Viejo has made significant improvements to the operation of the processing circuits over the past years. As a result, throughput and plant availability have increased.

CONVERSION TO LIQUEFIED NATURAL GAS

- There are ongoing studies to convert the Quisqueya 1 power plant from heavy fuel oil (HFO) to liquefied natural gas (LNG), in order to reduce carbon footprint and decrease dependence on oil.

COSTS

- Pueblo Viejo and Barrick corporate personnel are assessing a number of improvements that have potential to materially increase profitability through lower operating costs and extended mine life.

RECOMMENDATIONS

RPA makes the following recommendations:

GEOLOGY AND MINERAL RESOURCES

- Compile and report the QA/QC results on an annual basis in addition to the monthly reports and implement procedures that will reduce certified reference material (CRM) failure rates and improve the field duplicate precision. Additionally, incorporate CRMs in the external checks.

- Continue calibrating grade capping levels with production reconciliation data.

- Complete the 2018 exploration program, consisting of a 21,755 m drill program to explore new targets in Arroyo Hondo, Moore North, Moore West Deep, Monte Negro West Deep, and continue with advanced exploration in Upper Mejita, ARD1 and Monte Negro and Moore Underground areas, budgeted for approximately US$4.15 million.

MINING AND MINERAL RESERVES

- Continue to evaluate and pursue options for the design and construction of additional TSFs in order to increase the mine life.

- Continue to evaluate mine operation initiatives to improve mining selectivity using half bench mining, increase haul truck utilization, and improve the drill and blast process.

MINERAL PROCESSING AND METALLURGICAL TESTING

- Continue to optimize the operation and maintenance of the processing plant to increase production and reduce costs.

COSTS AND PROFITABILITY

- Continue to evaluate and implement opportunities for cost savings and profitability improvements.
- Advance the contract for LNG and construction of the new facilities needed to use LNG at the Quisqueya 1 power plant and the Pueblo Viejo lime kilns as quickly as possible to take advantage of the significant cost savings.

ECONOMIC ANALYSIS

Under NI 43-101 rules, a producing issuer may exclude the information required for this section on properties currently in production, unless the technical report prepared by the issuer includes a material expansion of current production. Barrick is a producing issuer, the Pueblo Viejo Mine is currently in production, and a material expansion is not included in the current LOM plans. RPA has carried out an economic analysis of the Mine using the estimates presented in this report and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

Pueblo Viejo is located in the central part of the Dominican Republic on the Caribbean island of Hispaniola in the province of Sanchez Ramirez. The Mine is 15 km west of the provincial capital of Cotuí and approximately 100 km northwest of the national capital of Santo Domingo.

The Pueblo Viejo property, situated on the Montenegro Fiscal Reserve (MFR), is centred at 18°56' N, 70°10' W in an area of moderately hilly topography. The MFR covers an area of 4,880 ha and encompasses all of the areas previously included in the Pueblo Viejo and Pueblo Viejo II concession areas, which were owned by Rosario Dominicana S.A. (Rosario) until March 7, 2002, as well as the El Llagal area.

Placer Dome Inc. (Placer), through PVDC, acquired the Mine in July 2001. PVDC is the holder of a lease right to the MFR by virtue of a Special Lease Agreement of Mining Rights (SLA). In March 2002, the Dominican state created the MFR with an area of 3,200 ha. The SLA was ratified by the Dominican National Congress and became effective in 2003. On August 3, 2004, the Dominican state modified the MFR to include El Llagal. In March 2006, Barrick acquired Placer and subsequently sold 40% of the Mine to Goldcorp.

The SLA governs the development and operation of the Mine. The term of the SLA is 25 years following PVDC's delivery of a project notice, which occurred on February 26, 2008, with one extension by right for 25 years and a second 25 year extension at the mutual agreement of PVDC and the Dominican state, allowing a possible total term of 75 years.

The SLA, as amended in November 2009 and September 2013, sets out the payments PVDC must make to the Dominican state, which includes a Net Smelter Royalty (NSR) payment, a Net Profits Interest (NPI) payment, and corporate income tax payments.

HISTORY

The earliest records of Spanish mine workings at Pueblo Viejo are from 1505. The Spanish mined the deposit until 1525, when the mine was abandoned in favour of newly discovered deposits on the American mainland. There are few records of activity at Pueblo Viejo from 1525 to 1950, when the Dominican government sponsored geological mapping in the region.

Rosario Resources Corporation of New York (Rosario Resources) optioned the property in 1969 and completed drilling, which resulted in the discovery of an oxide deposit of significant tonnage. Open pit mining of the oxide resources commenced on the Moore deposit in 1975, and in 1980 Rosario Dominicana SA (Rosario) merged into AMAX Inc. (Amax).

Rosario continued exploration throughout the 1970s and as Amax in the early 1980s, and the Monte Negro, Mejita, and Cumba deposits were identified by soil sampling and percussion drilling and were put into production in the 1980s.

With the oxide resources diminishing, Rosario initiated studies on the underlying refractory sulphide resource in an effort to continue the operation. Feasibility level studies were conducted by Fluor Engineers Inc. in 1986 and Stone & Webster Engineering/American Mine Services in 1992.

Rosario continued to mine the oxide material until approximately 1991, when the oxide resource was essentially exhausted. Mining in the Moore deposit stopped early in the 1990s owing to high copper content (which resulted in high cyanide consumption) and ore hardness. Mining in the Monte Negro deposit ceased in 1998, and stockpile mining continued until July 1999, when the operation was shut down. In 24 years of production, the Rosario Mine produced a total of 5.5 million ounces of gold and 25.2 million ounces of silver.

Lacking funds and technology to process the sulphide ore, Rosario attempted to joint venture or dispose of the property in 1992 and again in 1996 (the privatization process). Three companies were involved in the privatization process: the GENEL JV, Mount Isa Mines Ltd. (MIM), and Newmont Mining Corporation (Newmont). This privatization process did not result in a sale of the property, but each of the three companies conducted work on the property during their evaluations.

Between 1996 and 1999, the GENEL JV completed diamond drilling, developed a new geological model, and performed mining studies, evaluation of refractory ore milling technologies, socio-economic evaluation, and financial analysis. In 1997, MIM conducted a 31 hole, 4,600 m diamond drilling program, collected a metallurgical sample from drill core, carried out detailed pit mapping, completed induced polarization (IP) geophysical surveys over the known deposits, and organized aerial photography over the mining concessions to create a surface topography. MIM also proposed to carry out a pilot plant and feasibility study using ultra-fine grinding/ferric sulphate leaching. In 1992 and 1996, Newmont proposed to carry out a pilot plant and feasibility study for ore roasting/bio-oxidation. Samples were collected for analysis, but no results are available.

Placer Dome Dominicana Corporation, a subsidiary of Placer Dome Inc. (together, Placer) acquired the property and, between 2002 and mid-2005, completed extensive work on Pueblo Viejo including drilling, geological studies, and mineral resource/reserve estimation. This work was compiled in a Feasibility Study completed in July 2005.

In addition to drilling programs in 2002 and 2004, Placer conducted structural pit mapping of the Moore and Monte Negro open pits in 2002. Placer also mapped and sampled a 105 km^2 area around the concessions as part of an ongoing environmental baseline study to identify acid rock drainage (ARD) sources outside the main deposit areas. Part of the regional mapping and sampling program focused on evaluating the potential for mineralization in the proposed El Llagal tailings storage area.

GEOLOGY AND MINERALIZATION

Pueblo Viejo is hosted by the Lower Cretaceous Los Ranchos Formation, a series of volcanic and volcaniclastic rocks that extend across the eastern half of the Dominican Republic. The Los Ranchos Formation consists of a lower complex of pillowed basalt, basaltic andesite flows, dacitic flows, tuffs and intrusions, overlain by volcaniclastic sedimentary rocks and interpreted to be a Lower Cretaceous intra-oceanic island arc. The unit has undergone extensive seawater metamorphism (spilitization) and lithologies have been referred to as spilite (basaltic-andesite) and keratophyre (dacite).

The Pueblo Viejo Member of the Los Ranchos Formation is confined to a restricted, sedimentary basin measuring approximately three kilometres north-south by two kilometres east-west. The basin is interpreted to be either due to volcanic dome collapse forming a lake, or a maar-diatreme complex that cut through lower members of the Los Ranchos Formation. The basin is filled with lacustrine deposits that range from coarse conglomerate deposited at the edge of the basin to thinly bedded carbonaceous sandstone, siltstone, and mudstone deposited further from the paleo-shoreline.

The Moore deposit is located at the eastern margin of the Pueblo Viejo Member sedimentary basin. Stratigraphy consists of finely bedded carbonaceous siltstone and mudstone (Pueblo Viejo sediments) overlying horizons of spilite (basaltic-andesite flows), volcanic sandstone, and fragmental volcaniclastic rocks. The entire sequence in the Moore deposit area has a shallow dip to the west. The numerous north-northeast and north-northwest faults in the area are associated with an intense cleavage and bedding-parallel quartz veins with gold mineralization.

The Monte Negro deposit is located at the northwestern margin of the sedimentary basin. Stratigraphy consists of interbedded carbonaceous sediments ranging from siltstone to conglomerate, interlayered with volcaniclastic flows. These volcaniclastic flows become thicker and more abundant towards the west. This entire sequence has been grouped as the Monte Negro Sediments. In the eastern part of the Monte Negro deposit area, the bedding dip is shallow to the southwest; in the west, the dip is shallow to the northwest. Numerous dikes barren of mineralization intrude the Monte Negro stratigraphy. A steep north-northwest trending fault (Monte Negro Fault) with a west-side-up sense of movement is interpreted to separate the sediments in the east from the volcanic rocks in the west and has been a focus for silicification, breccia dike emplacement, and mineralization.

In addition to the Moore and Monte Negro deposits, there are three smaller deposits, Monte Negro 10 (formerly, Monte Oculto), Cumba, and Upper Mejita. The Monte Negro 10 and Cumba deposits are located, respectively, in the northeast and east margins of the Monte Negro deposit. Mineralization is hosted in andesitic flows, is controlled by north-northwest (Monte Negro 10) and east-west (Cumba) structural trends, and associated with quartz-dickite-pyrophyllite hydrothermal alteration. The Mejita deposit is located at the eastern margin of the Moore deposit. Mineralization is hosted in carbonaceous sediments, dacitic tuffs and andesitic flows, is controlled by east-west and north-south structural trends, and is associated with quartz-dickite-pyrophyllite hydrothermal alteration.

The Pueblo Viejo deposits have undergone typical high sulphidation, zoned alteration characterized by silica, pyrophyllite, pyrite, kaolinite, dickite and alunite. Silica, alunite, and dickite are predominant in the core of the alteration envelope and occurs with pyrophyllite and kaolinite in the upper zones where a silica cap is often formed. Unlike typical high sulphidation deposits where silicic alteration is residual and a result of acid leaching, silicification at Pueblo Viejo represents silica introduction and replacement. Silica enriched zones are surrounded by a halo of quartz-pyrophyllite and pyrophyllite alteration.

The Pueblo Viejo mineralization is predominantly pyrite, with lesser amounts of sphalerite and enargite. Pyrite mineralization occurs as disseminations, layers, replacements, and veins. Sphalerite and enargite mineralization is primarily in veins, but disseminated sphalerite has been noted in core.

Gold is intimately associated with pyrite veins, disseminations, replacements, and layers within the zones of advanced argillic alteration. Gold occurs as native gold, sylvanite ($AuAgTe_4$), and aurostibnite ($AuSb_2$). The principal carrier of gold is pyrite where the sub-microscopic gold occurs in colloidal-size micro inclusions (less than 0.5 µm) and as a solid solution within the crystal structure of the pyrite.

Assay results for silver demonstrate that it has the strongest correlation with gold. In particular, silver has a strong association with Stage III sulphide veins where it occurs as native silver and in pyrargyrite (antimony sulphide), hessite (silver telluride), sylvanite and petzite (gold tellurides), and tetrahedrite.

The majority of the zinc occurs as sphalerite, primarily in Stage III sulphide veins, and to a lesser extent as disseminations. The sphalerite is beige to orange coloured and is relatively iron-free. Sphalerite commonly contains inclusions and intergrowths of pyrite, sulphosalts, galena, and silicate gangue. The encapsulated pyrite is often host to sub-microscopic gold mineralization.

Most of the copper occurs as enargite hosted in Stage III sulphide veins. Only trace amounts of chalcocite and chalcopyrite have been documented. Enargite-rich vein zones typically are confined laterally and vertically within the larger sphalerite-rich vein zones.

The mineralization extends for 2,800 m north-south and 2,500 m east-west and extends from the surface to a 500 m depth.

EXPLORATION STATUS

In 2006, PVDC carried out a review of the entire geological potential of the Mine, using works performed by previous owners, to develop an understanding of the geology of the deposit and its potential. The 2006 program allowed better definition of deposit geology and significantly increased the amount of ounces in both the Moore and Monte Negro deposits.

A total of 63,051 m were drilled in 2007, primarily for definition drilling, condemnation, and limestone purposes. During 2008, PVDC completed 123 diamond drill holes totalling 32,509 m.

In 2009, PVDC undertook a major re-logging program of all historical drill core, carried out detailed geological mapping of pits and construction excavations, and reinterpreted the geological models underpinning resource and reserve estimates.

From 2010 to 2014, PVDC continued the detailed geological mapping of the pits and construction excavations, and also undertook a close-spaced reverse circulation (RC) grade control drilling program in advance of mining in the Moore and Monte Negro open pits. A small number of water wells were drilled.

In 2014, 5,674 m of RC drilling was undertaken in the Monte Negro 10 North and Cumba areas. In 2015, PVDC carried out Phase 1 drilling in the Monte Negro North, Monte Negro South, and Moore East areas, and definition drilling in the Cumba area. The drilling confirmed the continuity of mineralization for Monte Negro North and Cumba.

In 2016, PVDC carried out Phase 2 drilling in the Monte Negro North and the Monte Negro 10 North extension areas. Results did not confirm mineralization continuity.

In 2017, PVDC carried out drilling in the Upper Mejita, Monte Negro Feeder, and Monte Negro Underground projects. The last two projects focussed on investigating the continuity of Monte Negro mineralization at depth. PVDC also performed drilling in the ARD1 area to explore for limestone potential. The results confirmed that the limestone rocks extend further to the east in the ARD1 area and some drill holes intersected gold mineralization below the limestone in the same host rocks as at Moore and Monte Negro. The 2017 exploration program was successful in delineating and confirming that these areas have good exploration potential.

MINERAL RESOURCES

The EOY2017 Mineral Resources were estimated by conventional 3D computer block modelling based on surface drilling and assaying. Geologic interpretation of the drilling data was carried out and wireframes were constructed for resource estimation based on major geological areas, lithology, alteration, oxidation boundary, and a grade indicator to define broad grade shells. The five main geological areas are Monte Negro, Moore, Monte Negro 10, Cumba, and Upper Mejita. Statistical analysis of assay data was carried out to determine grade capping levels and metal losses for each domain. Variography using 2.5 m composites was completed to determine search parameters and inverse distance to the third power was employed for gold, silver, and sulphur grade interpolation in the block model. Copper grades were interpolated using ordinary kriging and inverse distance to the second power. The resource model was classified using a combination of estimation pass number, number of composites used to assign the block grade, and the distance to nearest composite. PVDC visually validates the block model gold grades against drill holes and composites in section and plan view. Grades are also compared against the nearest neighbour (composite) gold grades and a histogram of the original composite distribution is compared to the block gold grade estimate.

RPA examined the EOY2017 Mineral Resources as reported in Table 1-1 and found them to meet or exceed industry standards. The Mineral Resources are exclusive of Mineral Reserves that could not be converted to Mineral Reserves due to operational constraints or economics (i.e., Measured and Indicated Mineral Resources), or an insufficient level of confidence (i.e., Inferred Mineral Resources).

In RPA's opinion, the EOY2017 resource model was completed to industry standards using appropriate parameters and is acceptable for reserve work.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other modifying factors which could materially affect the open pit mineral resource estimates.

MINERAL RESERVES

Mineral Reserves were estimated based on the value, or profit, calculated for each Mineral Resource block, which takes into account metal grade, sulphur content, processing plant recoveries, and costs in determining the value of a given block.

On a 100% basis, Proven and Probable Mineral Reserves total 135.6 million tonnes grading 2.8 g/t Au, 17.4 g/t Ag, and 0.10% Cu containing 12.0 Moz Au, 75.9 Moz Ag, and 291.2 Mlb Cu. The Pueblo Viejo Mineral Reserves stated for the EOY2017 meet the requirements of the CIM (2014) definitions to be classified as Mineral Reserves.

The ore stockpiles are classified as high grade, medium grade, and low grade material and placed in multiple locations on the property. At December 31, 2017, the total ore on stockpile included in the reserve statement was 76.9 Mt and stockpiles will reach the maximum of approximately 103.6 Mt of ore by 2021.

MINING

Current mine activity is in the Monte Negro and Moore phases. Mining is by conventional truck and shovel method. The mining waste to ore ratio was 0.73:1.0 in 2017.

The pit stages have been designed to optimize the early extraction of the higher grade ore. Notwithstanding, the driver of the mine schedule will be the sulphur blending requirement. This variable is as important as the gold grade, because the metallurgical aspects of the processing operation, the recoveries achieved, and the processing costs strongly depend on a very consistent, low-variability sulphur content in the plant feed.

Potentially acid generating (PAG) waste rock from the Moore and Monte Negro pits is hauled to the El Llagal tailings area and submerged in the tailings facility. An eight kilometre haul road has been constructed to link the pit area to the TSF.

The processing method requires a significant amount of limestone slurry and lime derived from high quality limestone. Limestone quarries, located approximately two kilometres from the Mine, have been in production since 2009 to supply material for construction and for the plant.

The expected remaining mine life is approximately four years for mining activity and 16 years for processing and quarry operations at full capacity. Higher grade ore is scheduled to be processed in the early years, while lower grade ore is stockpiled for later processing in order to maximize the project economics.

MINERAL PROCESSING AND METALLURGICAL TESTING

METALLURGY

The Pueblo Viejo ore is refractory and consists primarily of gold and silver intimately associated with pyrite that occurs as encapsulated sub-micron particles and in solid solution. As a result, there is a requirement to chemically break down the pyrite to recover the precious metals. In addition, there are cyanide consuming minerals and preg-robbing carbonaceous material in some ores. Pyrite and sphalerite are the two main sulphide minerals, both occurring in veins and disseminated within the host rock.

Using lithological and mineralization criteria, five metallurgical ore types have been defined, including two for the Moore deposit and three for the Monte Negro deposit. The main criterion used to define metallurgical domains was carbon content, i.e., separating carbonaceous rocks from lower carbon-content rocks in each deposit.

In addition to the mineralogical examinations used to identify gold association in the various ore types, diagnostic leach procedures were also used. Test results showed that approximately 55% to 70% of the gold is encapsulated in sulphide minerals and is not recoverable by cyanide leaching without prior destruction of the sulphide matrix. For the two black sedimentary ore types, 19% to 29% of the gold in the ore was preg-robbed by gold adsorption onto organic carbon.

Metallurgical testwork indicated that pressure oxidation (POX) of the whole ore followed by carbon-in-leach (CIL) cyanidation of the autoclave product will recover 88% to 95% (average 91.6%) of the gold and 86% to 89% (average 87%) of the silver.

RPA is of the opinion that the metallurgical testwork is adequate to support the Mine and that the recovery models are reasonable.

The efficient and trouble-free operation of the POX circuit relies heavily on maintaining a sulphur content in the autoclave feed that is optimized for the operation, such as whether four autoclaves or three autoclaves are on line. Studies showed that there are wide variations in the sulphur content of the ore as the blocks are mined sequentially. The variation in sulphur grade ranges from 3% to 20% sulphur and it is generally between 5% and 10%. Blending of ores prior to crushing is carried out.

PROCESSING PLANT

The process plant is designed to process approximately 24,000 tpd of run of mine (ROM) refractory ore. The plant bottleneck is the supply of oxygen. If the ROM feed has a low sulphide content, the plant can process over 30,000 tpd. The design basis for the oxygen plant is to provide the oxygen required to oxidize approximately 80 tonnes per hour (tph) of sulphide sulphur. This is equivalent to 1,200 tph of feed containing 6.79% sulphide sulphur, assuming a design factor of 2.2 tonnes O_2 per tonne sulphide sulphur. The overall facility consists of the following unit operations:

- Primary crushing
- Semi-autogenous grinding (SAG) and ball mill grinding with pebble crushing
- POX
- Hot curing
- Counter-current-decantation (CCD) washing
- Iron precipitation
- Copper sulphide precipitation and recovery
- Neutralization
- Solution cooling
- Lime boiling for silver enhancement

- CIL circuit
- Carbon acid washing, stripping and regeneration
- Electrowinning (EW)
- Refining
- Cyanide destruction
- Tailings effluent and ARD treatment
- Limestone crushing, calcining, and lime slaking

OPERATIONAL IMPROVEMENTS

Scoping studies were carried out in 2017, to determine the use of:

- An eight million tonne capacity pre-oxidation heap leach to reduce sulphide levels in the autoclave feed, allowing for increased throughput at equivalent recovery rates.
- A four million tonne capacity flotation plant to allow for sulphide ores to be concentrated, and the concentrate to be blended with autoclave feed. The flotation tail would be transferred around the autoclaves directly to tails. The overall effect is a significant increase in autoclave feed grade and nearly equivalent recovery.

Each project can increase productivity in the facility independently, however, the synergies of the two projects are significant, and operating a flotation plant with a throw away tail and feeding the concentrate into the autoclaves being fed primarily with pre-oxidized ores, can increase overall mine throughput by 50% to 12 million tonnes with minimal capital input. The Mine will be able to maintain an average annual production of 800,000 ounces after 2022.

The two projects have the potential to convert approximately seven million ounces of Measured and Indicated Resources into Proven and Probable Reserves.

In 2018, this work will be continued, followed by a prefeasibility study and onsite in-plant proof of concept testing including a 100 tph flotation plant and a 200,000 tpa bio-oxidation leach pad.

PROJECT INFRASTRUCTURE

As well as the existing access roads, current site infrastructure includes accommodations, offices, truck shop, medical clinic and other buildings, water supply, and old tailings impoundments with some water treatment facilities. Some of these facilities are being upgraded or renovated.

The process plant site is protected by double and single fence systems. Within the plant site area, the freshwater system, potable water system, fire water system, sanitary sewage system, storm drains, and fuel lines are buried underground. Process piping is typically left above ground on pipe racks or in pipe corridors.

The Pueblo Viejo Mine is supplied with electric power from two sources via two independent 230 kV transmission circuits. PVDC owns and operates the Quisqueya 1 power plant. It is a dual-fuel combined cycle reciprocating engine power plant capable of producing up to 220 MW of electric power.

Tailings and waste rock from mine development are deposited in the El Llagal valley, where a tributary of the Rio Maguaca flows. A TSF has been constructed to store tailings from the leach circuit blended with sludge from the neutralization circuit and also waste rock (PAG) from the open pits. Storage of tailings and waste rock is done under a permanent water cover to prevent the onset of ARD.

ENVIRONMENTAL, PERMITTING AND SOCIAL REQUIREMENTS

ENVIRONMENTAL LEGACY

When the Rosario Mine shut down in 1999, proper closure and reclamation was not undertaken. The result was a legacy of polluted soil and water, and contaminated infrastructure.

ARD studies confirm that historic mining (prior to Placer's acquisition of the Mine) and consequential ARD generation have severely impacted the surrounding area. ARD has developed from exposure of sulphides occurring in the existing pit walls, waste rock dumps, and stockpiles to air, water, and bacteria. Untreated and uncontrolled ARD has contaminated local streams and rivers and has led to deterioration of water quality and aquatic resources both on the mine site and offsite.

Under the SLA, environmental remediation within the mine site and its area of influence is the responsibility of PVDC, while the Dominican government is responsible for historic impacts outside the Mine development area and for the hazardous substances located at the Rosario plant site. However, agreement was reached in 2009 that PVDC would donate up to $37.5 million, or half of the government's total estimated cost of $75 million, for its clean-up responsibilities. In December 2010, PVDC agreed to contribute the remaining $37.5 million on behalf of the government towards these clean-up activities.

ENVIRONMENTAL STUDIES

Background data and baseline information were collected on the existing biophysical and human environments from 2002 through 2007. The baseline studies covered the immediate Mine areas and also areas beyond the mine site. The studies included ARD, air quality, archaeology sites, aquatic biology, flora and fauna, bedrock geology, soil geochemistry, and surface drainage.

Test results indicate that most of the exposed rock at the mine site is acidic and contains significant sulphide levels providing a source for additional acidity.

WATER MANAGEMENT

The following guidelines are used to develop the water management designs for the Mine:

- International Cyanide Management Code
- Dominican Republic Water Quality Standards
- International Finance Corporation (IFC) Water Quality Guidelines
- Barrick Water Conservation Standard
- Barrick Principles for Tailings Management

Mine development is designed to treat the majority of surface water that has been impacted by historical mining activity, and to control water quality during mine operation and post closure so that the water released to the receiving environment will meet water quality standards established by the Dominican Republic government and the World Bank. The process treated water is discharged to the Arroyo Margajita. The point for water quality monitoring is the outfall of the Effluent Treatment Plant.

Within the PVDC development area, two dams were constructed to collect and store ARD contaminated water prior to treatment. ARD water from the proposed mining areas is captured at Dam 1, located in the headwaters of Arroyo Margajita. ARD runoff from the low grade ore stockpile area is captured at Dam 3 adjacent to the Moore pit in the upper Mejita drainage.

Water levels behind Dam 1 and Dam 3 are maintained at the lowest possible level at all times to provide sufficient storage for the calculated 200-year return period storm event. The pond behind Dam 1 is designed with a geomembrane liner and underdrains to limit seepage. Both dams are constructed with spillways designed to pass the probable maximum flood resulting from the 24-hour Probable Maximum Precipitation.

Limestone and lime requirements for the water treatment plant were estimated based on the results of testwork at the HDS pilot plant. The pH discharge criterion used for the test was 8.5 to 9.0, which meets the Dominican Republic Standards for Mining Effluents and Receiving Water Quality applicable to mining effluents discharged to surface water (pH 6.0 to 9.0).

MINE CLOSURE REQUIREMENTS

PVDC's intent is to leave the site at closure with better water quality in the Margajita drainage system downstream than existed when PVDC acquired the Rosario Mine, operated prior to June 1999. When the Rosario Mine shut down, proper closure and reclamation was not undertaken. Freshwater diversions, ARD collection ditches, ARD collection ponds, and ARD pump stations will be required to remain in service during the post-closure phase. These facilities will have to be maintained in good operating condition until water quality meets acceptable discharge criteria.

Seepage from the TSF will be required to be collected and pumped back to the impoundment until such time as the seepage meets acceptable standards for release to the environment. The water level in the TSF will be allowed to increase and the water will be allowed to flow over the emergency spillways once the water quality meets the discharge criteria.

CAPITAL AND OPERATING COSTS

The capital costs required to sustain the Mine over the LOM total approximately US$1.5 billion.

For 2017, the average operating cost for mining, processing, and general and administration (G&A) was approximately US$63.51/t milled and the total all-in sustaining cost was US$525 per ounce.

2 INTRODUCTION

Roscoe Postle Associates Inc. (RPA) was retained by Pueblo Viejo Dominicana Corporation (PVDC), which is the operating company for the joint venture partners, Barrick Gold Corporation (Barrick) (60%) and Goldcorp Inc. (Goldcorp) (40%), to prepare an independent Technical Report on the Pueblo Viejo Mine (the Mine) located in the Dominican Republic. The purpose of this report is to support disclosure of the Mineral Resources and Mineral Reserves for the Mine as of December 31, 2017. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects.

Barrick is a Canadian publicly traded mining company with a portfolio of operating mines and projects across four continents. Goldcorp is a publicly traded senior gold producer with operations and development projects throughout the Americas. Pueblo Viejo, a precious and base metal deposit, is located in the central part of the Dominican Republic on the Caribbean island of Hispaniola in the province of Sanchez Ramirez. The Mine is 15 km west of the provincial capital of Cotuí and approximately 100 km northwest of the national capital of Santo Domingo. PVDC holds 100% of the mineral rights to the Pueblo Viejo deposit

The primary sources of information for this Technical Report are the existing Feasibility Study on the Mine prepared by Barrick in 2007 (2007 Feasibility Study Update, or FSU), Technical Reports prepared by RPA in 2012 (RPA, 2012), in 2014 (RPA, 2014), in 2015 (RPA, 2015) and RPA's site visit in November 2017.

Pueblo Viejo is a conventional truck and shovel operation with two open pits and a limestone quarry moving an average of 174,000 tonnes per day (tpd) of material including pit re-handle and limestone.

The processing plant design capacity is variable based on the sulphur content of the ore. The average processing rate was 21,875 tpd in December 2017. The ore mined from 2010 to 2017 totalled 111.2 Mt averaging 3.5 g/t Au and the ore processed during this period totalled 34.2 Mt averaging 5.2 g/t Au with an average recovery of 91% for 5.3 Moz of gold recovered.

Pueblo Viejo is scheduled to operate over the next 16 years, processing an average of 23,000 tpd of ore.

Prior RPA involvement in the Mine includes a detailed audit of the December 2007 Mineral Resource and Mineral Reserve estimates for the Pueblo Viejo gold deposit and NI 43-101 Technical Reports on the Mine prepared for PVDC in March 2012, March 2014, and May 2015 (Barrick internal report).

SOURCES OF INFORMATION

This report was prepared by the following Qualified Persons (QPs):

- Rosmery Cardenas, B.Sc., P.Eng., RPA Principal Geologist
- Hugo Miranda, MBA, ChMC(RM), RPA Principal Mining Engineer
- Holger Krutzelmann, B.Sc., P.Eng., Associate Principal Metallurgist

Messrs. Krutzelmann and Miranda and Ms. Cardenas visited the Pueblo Viejo site from November 14 to 16, 2017. Mining, processing, and stockpiling of ore was taking place during the visit, as well as on-going construction of the tailings storage facility (TSF). During the visit and more recently, discussions were held with the following personnel from PVDC:

- Luis Santana, Mine Manager
- Dan Richards - TSF Construction Superintendent
- Jose Jimenez - Mine Operation Superintendent
- Jose Recio - Technical Service Manager
- Amaury Castillo, Database Administrator
- Virgilio Hernández, Mine Geologist
- Martin Mendoza, Senior Analyst, PVDC Laboratory
- Daridania Rodriguez - Senior Long Term Engineer
- Brenda Mojica - Senior Hydrogeologist
- Rolando Rodriguez – Metallurgy
- Angela Segura – POX Metallurgical Technician
- Sandro Ludeña - Environment Superintendent
- Francis Guzman - Long Term Engineer
- Leonel Ventura - Senior Resource Evaluation Geologist
- Arturo Macassi - Geology Department Chief
- Fernando Pando - Mine Planning Department Chief
- Amauris Gomez - TSF Projects Engineer
- Francisco Peguero - Environment Supervisor

- Welington Otañez - RSC Supervisor

Rosmery Cardenas is responsible for Sections 6 to 12, 14, and 23 and contributed to Sections 1, 2, 25, and 26. Hugo Miranda is responsible for Sections 3 to 5, 15, 16, 19, 21, 22 and 24, and contributed to Sections 1, 2, 25, and 26. Holger Krutzelmann is responsible for Sections 13, 17, 18, and 20 and contributed to Sections 1, 2, 25, and 26. Mr. Miranda is responsible for the overall preparation of the Technical Report.

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References.

LIST OF ABBREVIATIONS

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

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

3 RELIANCE ON OTHER EXPERTS

This report has been prepared by RPA for PVDC, which is the operating company for the joint venture partners, Barrick (60%) and Goldcorp (40%). The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by Barrick and other third party sources.

For the purpose of this report, RPA has relied on ownership information provided by Barrick. Although the ownership has been granted by presidential decree, Barrick has obtained a favourable opinion by De Marchena Kaluche & Asociados dated December 3, 2009, entitled "Special Lease Agreement for Mining Rights of August 4, 2001 entered into by and between the Dominican State, the Central Bank of Dominican Republic, Rosario Dominicana S.A., and Pueblo Viejo Dominicana Corporation (the Special Leasing Agreement)" referring to property and legal status of lots located in the Montenegro Fiscal Reserve. RPA has relied on this opinion in Sections 1 and 4 of this report. RPA has not researched property title or mineral rights for the Mine and expresses no opinion as to the ownership status of the property.

RPA has relied on Barrick for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Project.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

Pueblo Viejo is located in the central part of the Dominican Republic on the Caribbean island of Hispaniola in the province of Sanchez Ramirez (Figure 4-1). The Mine is 15 km west of the provincial capital of Cotuí and approximately 100 km northwest of the national capital of Santo Domingo.

The Pueblo Viejo property, situated on the Montenegro Fiscal Reserve (MFR), is centred at 18°56 N, 70°10' W in an area of moderately hilly topography (Figure 4-2). The MFR covers an area of 4,880 ha and encompasses areas previously included in the Pueblo Viejo and Pueblo Viejo II concession areas, which were owned by Rosario Dominicana S.A. (Rosario) until March 7, 2002, as well as the El Llagal area.

LAND TENURE

PVDC is the holder of a lease right to the MFR by virtue of a Special Lease Agreement of Mining Rights (SLA), as amended. On March 2002, Rosario renounced the Pueblo Viejo and Pueblo Viejo II concessions and the Dominican state terminated such concessions. On March 7, 2002, the Dominican state, by virtue of Presidential Decree No. 169-02, created the MFR with an area of 3,200 ha. The SLA was ratified by the Dominican National Congress and published in the Official Gazette of the Dominican Republic on May 21, 2003, and became effective shortly thereafter. On August 3, 2004, the Dominican state, by virtue of Presidential Decree No. 722-04, modified the MFR to include El Llagal resulting in a current area of 4,880 ha. The SLA governs the development and operation of the Mine and includes the right to exploit the Las Lagunas and Mejita Tailings impoundment facilities and the Hatillo limestone deposit. The 2009 SLA amendment excluded Las Lagunas tailings impoundment facilities as part of the areas under such agreement. The Mejita Tailings impoundment facility has not been declared as a development area by PVDC.

Figure 4-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Location Map

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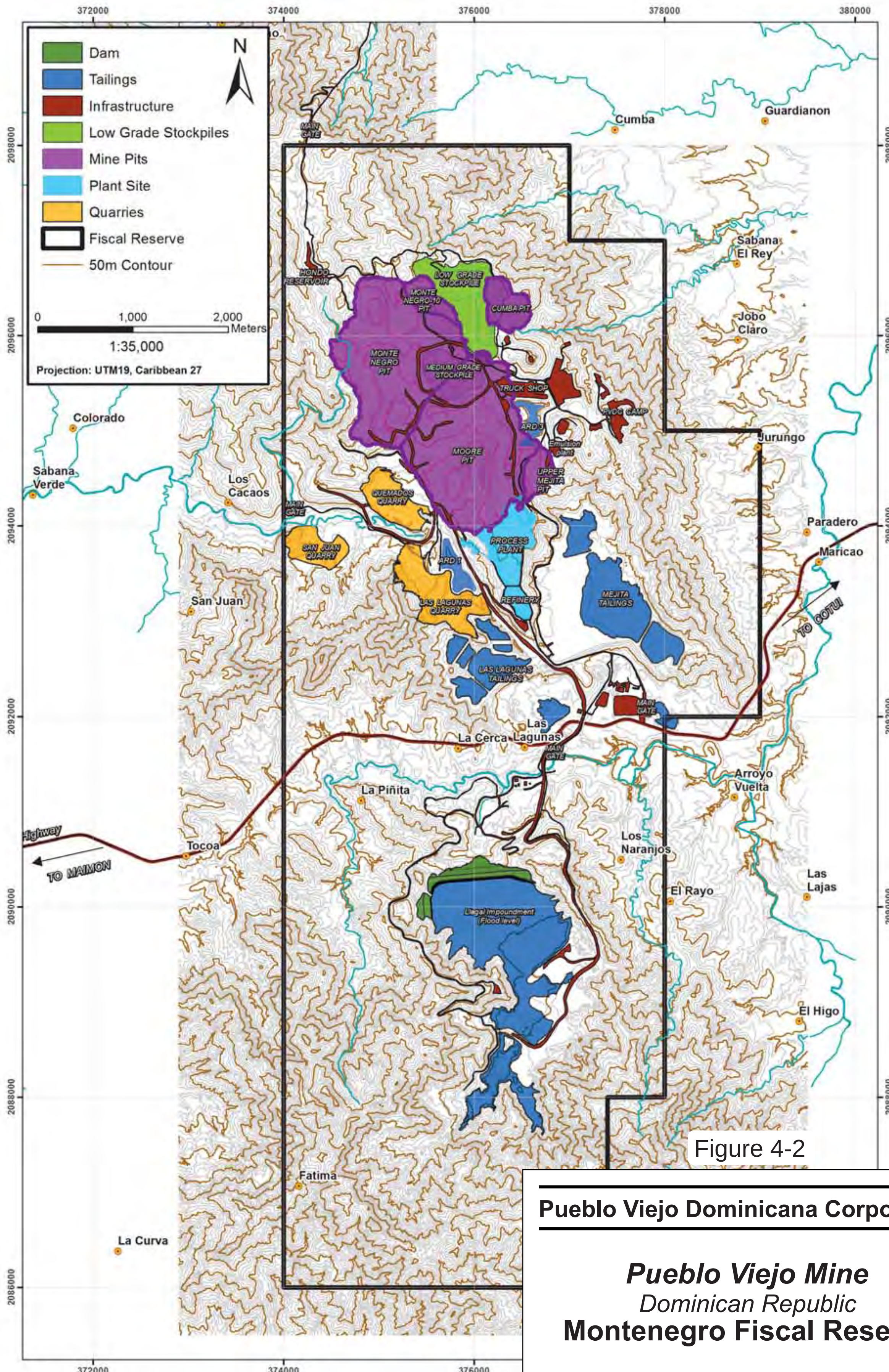

Figure 4-2

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Montenegro Fiscal Reserve

March 2018 ***Source: Barrick Gold Corporation, 2018.***

Pertinent terms of the SLA are:

- The SLA has a term of 25 years following notice by PVDC to the Dominican state that PVDC will develop a mine at the Pueblo Viejo site (Project Notice), with one extension by right for 25 years and a second 25 year extension at the mutual agreement of PVDC and the Dominican state, allowing a possible total term of 75 years.

- PVDC may exploit the Hatillo limestone deposit and all other limestone deposits within the MFR at no additional charge.

- The Dominican state will acquire and lease to PVDC the lands and mineral rights necessary for the permanent disposal of tailings and waste.

- The Dominican state will mitigate all historical environmental matters, except those conditions within areas designated for development by PVDC.

- The Dominican state will relocate, at its sole cost and in accordance with World Bank Standards, those persons dwelling in the Los Cacaos section of the site.

- The Dominican state will provide a permanent and reliable source of water necessary to conduct the operations, at no additional charge to PVDC.

- PVDC shall make Net Smelter Return (NSR) Royalty payments to the Dominican state of 3.2% of net receipts of sales, make a Net Profits Interest (NPI) payment (with a rate that varies with the price of gold) after PVDC has recaptured its initial and ongoing investments, and pay income tax under a stabilized tax regime.

In November 2009, following approval by the Dominican Republic National Congress, President Leonel Fernandez ratified amendments to the Pueblo Viejo SLA. Amendments to the SLA included revised fiscal terms and clarified various administrative and operational matters to the mutual benefit of the state and PVDC, the Mine operator. One of the principal changes was the adjustment of the NPI sliding scale to ensure a minimum Internal Rate of Return (IRR) of 10%. The NPI rate was reduced to 0% until reaching an IRR of 10%. After reaching this rate, the NPI payable to the Dominican state was to be 28.75%.

On September 5, 2013, the Dominican Republic and PVDC executed a second amendment to the SLA which became effective on October 5, 2013 following its ratification by the Dominican National Congress. The Second Amendment mainly covers changes to the special tax regime previously agreed in the SLA. The most notable modifications included:

- Elimination of a 10% return embedded in the initial capital investment for the purposes of the NPI calculation;

- An extension to the period over which PVDC may recover its capital investment;

- A delay of application of NPI deductions;
- A reduction in tax depreciation rates; and
- Establishment of a graduated minimum tax.

The graduated minimum tax rate will be adjusted up or down based on future metal prices. The agreement also includes the following broad parameters consistent with the previous terms of the SLA:

- Corporate income tax rate of 25%
- NSR of 3.2%
- NPI of 28.75%

PVDC holds all surface rights necessary to access and exploit the deposits. RPA is not aware of any significant factors and risks that could affect access, title, or the ability to operate the mine.

PERMITS

PVDC has acquired all of the permits necessary to operate the mine at the present time. General Environmental and Natural Resources Law No. 64-00 (Law 64-00) of August 18, 2000, and its complementary regulations, governs all environmental related issues, including those applicable to mining, in the Dominican Republic. Law 64-00 sets out the general rules of conservation, protection, improvement, and restoration of the environment and natural resources by unifying segregated rules concerning environmental protection and creating a governmental body (the Ministry of Environment and Natural Resources) with wide authority to oversee and regulate its application. The Ministry of Environment and Natural Resources enforces Law 64-00 and establishes the process of obtaining environmental permits.

PVDC completed a Feasibility Study on the Mine in September 2005 and presented an Environmental Impact Assessment (EIA) to the Dominican state in November of the same year. The terms of reference for the Mine were approved by the Environmental Authority on May 30, 2005, and the Ministry of Environment approved the EIA in December 2006 and granted the Environmental Licence 101-06. Other changes have been submitted to the authorities for additional facilities. The last amendment to the Environmental Licence was issued on June 29, 2017, which authorized the construction of an emulsion plant.

Requirements of the Environmental Licence included submission of detailed design of tailings dams, installation of monitoring stations, and submission for review of the waste management plan and incineration plant.

An environmental evaluation report was submitted in 2008 to address an increase in the planned processing rate to 24,000 tpd and in September 2010 the Ministry of Environment and Natural Resources issued the Environmental Licence 101-06 Modified.

When the former Rosario mine shut down its operations in 1999, proper closure and reclamation was not undertaken. The result has been a legacy of polluted soil and water and contaminated infrastructure. Responsibility for the clean-up is now shared jointly between PVDC and the Dominican government. Terms have been set for both parties in the SLA that governs the development and operation of the Mine.

In November 2009, following approval by the Dominican Republic National Congress, President Leonel Fernandez ratified the first amendment to the SLA for Pueblo Viejo. The amended SLA better reflected the scope and scale of the project since its acquisition by Barrick in 2006. The amendments set out revised fiscal terms and clarified various administrative and operational matters to the mutual benefit of PVDC and the Dominican state. In particular, the agreement stipulates that environmental remediation within the development area is the responsibility of the company with the exception of the hazardous substances; the Dominican government is responsible for historic impacts outside the Mine development area and hazardous substances at the plant site. However, PVDC may manage the clean-up effort on the government's behalf, subject to the execution of management agreement with the Dominican government.

In addition to the mine operations, by means of the Second Amendment to the SLA, the Dominican government granted PVDC a power concession to generate electricity for consumption by the Mine and the right to sell excess power. Also, in March 2012, PVDC obtained an environmental permit for the Quisqueya 1 power plant and a power transmission line (TL) from San Pedro where the power plant is situated to the mine site.

FUTURE PERMITS

Additional tailings impoundment facilities are being studied and permitting will be obtained as required.

RPA is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESSIBILITY

Access from Santo Domingo is by a four lane, paved highway (Autopista Duarte, Highway #1) that is the main route between Santo Domingo and the second largest city, Santiago. This highway connects to a secondary highway, #17, at the town of Piedra Blanca, approximately 78 km from Santo Domingo. This secondary highway is a two lane, paved highway that passes through the towns of Maimon, Palo de Cuaba, and La Cabirma on the way to Cotuí. The gatehouse for the Pueblo Viejo Mine is approximately 22 km from Piedra Blanca and approximately 6.5 km from Palo de Cuaba.

The main port facility in the Dominican Republic is Haina in Santo Domingo. Other port facilities are located at Puerto Plata, Boca Chica, and San Pedro de Macoris. Commercial airlines service Santo Domingo and Puerto Plata.

CLIMATE AND PHYSIOGRAPHY

The central region of the Dominican Republic is dominated by the Cordillera Central mountain range, which runs from the Haitian border to the Caribbean Sea. The highest point in the Cordillera Central is Pico Duarte at 3,175 m. Pueblo Viejo is located in the eastern portion of the Cordillera Central where local topography ranges from 565 m at Loma Cuaba to approximately 65 m at the Hatillo Reservoir.

Two watercourses run through the concession, the Arroyo Margajita and the Rio Maguaca. The Arroyo Margajita drains into the Rio Yuna upstream from the Hatillo Reservoir while the Rio Maguaca joins the Rio Yuna below the Hatillo Reservoir. The flows of both watercourses vary substantially during rainstorms.

The Dominican Republic has a tropical climate with little fluctuation in seasonal temperatures, although August is generally the hottest month and January and February are the coolest. The average annual temperatures in the Mine area are approximately 25ºC, ranging from daytime highs of 32°C to night time lows of 18°C. Annual rainfall is approximately 1,800 mm, with May through October typically being the wettest months. The Dominican Republic is located in an area where hurricanes occur, with the hurricane season typically from August to November.

Earthquakes are a risk. Major earthquakes occur on average every 50 years because the island of Hispaniola sits on top of small crustal blocks sandwiched between the North American and Caribbean plates.

As a result of previous mining and agriculture, there is little primary vegetation on the Pueblo Viejo Mine site and surrounding concessions. Secondary vegetation is abundant outside of the excavated areas and can be quite dense. Rosario, the previous owner of the concessions, also aided the growth of secondary vegetation by planting trees throughout the property for soil stabilization.

The economic base near the Mine area is mainly agriculture and cattle ranching. Vegetation mainly consists of crops and grasses. South of Cuance, submontane rain forest occurs in uncultivated areas. Crops include sugar cane, coffee, cocoa, tobacco, bananas, rice coconuts, yuca, tomatoes, pulses, dry beans, eggplants, and peanuts. Mining is an important economic activity, and the total number of the employees at the Pueblo Viejo Mine as of December 2017 was 2,300 and the number of contractors was 2,200.

INFRASTRUCTURE

The Pueblo Viejo Mine is located approximately 100 km northwest of Santo Domingo, the capital of the Dominican Republic. The main road from Santo Domingo to within about 22 km of the mine site is a surfaced, four-lane, divided highway that is generally in good condition. Access from the divided highway to the site is via a two-lane, paved highway. Gravel surfaced, internal access roads provide access to the mine site facilities.

In order to transport the autoclaves, which weigh over 700 t each, upgrades to a north coast road were completed instead of the route from Santo Domingo. Upgrading included road and bridge improvements, clearing overhead obstructions, erosion control, bypass route construction, clearing utility interferences, and work permitting.

A network of haul roads within the Mine limits supplement existing roads so that mine trucks can haul ore, waste, overburden, and limestone.

As well as the existing access roads, the site infrastructure includes accommodations, offices, a truck shop, a medical clinic and other buildings, water supply, the TSF, and water treatment facilities.

A double and single fence system protects the process plant site. Within the plant site area, the freshwater system, potable water system, fire water system, sanitary sewage system, storm drains, and fuel lines are buried underground. Process piping is typically left above ground on pipe racks or in pipe corridors.

A TSF is operating in the El Llagal valley approximately 3.5 km south of the plant site and the progressive raising of a large rock-filled dam with an impermeable saprolite core is underway.

The Pueblo Viejo Mine is supplied electric power from two sources via two independent 230 kV transmission circuits.

The site has sufficient access, surface rights, and suitable sources of power, water, and personnel to maintain an efficient mining operation.

The PVDC infrastructure is discussed in detail in Section 18.

LOCAL RESOURCES

The city of Santo Domingo is the principal source of supply for the Mine. It is a port city with a population of over three million with daily air service to the USA and other countries. Most non-technical staff positions and labour requirements are filled from local communities. The mine operates year round.

6 HISTORY

The following exploration and mining history summary is mainly taken from Barrick (2007).

PRE-1969

The earliest records of Spanish mine workings at Pueblo Viejo are from 1505, although Spanish explorers sent into the interior of the island during the second visit of Columbus in 1495 probably found the deposit being actively mined by the native population. The Spanish mined the deposit until 1525, when the mine was abandoned in favour of newly discovered deposits on the American mainland.

There are few records of activity at Pueblo Viejo from 1525 to 1950, when the Dominican government sponsored geological mapping in the region. Exploration at Pueblo Viejo focused on sulphide veins hosted in unoxidized sediments in stream bed outcrops. A small pilot plant was built, but economic quantities of gold and silver could not be recovered.

ROSARIO/AMAX (1969-1992)

During the 1960s, several companies inspected the property but no serious exploration was conducted until Rosario Resources Corporation of New York (Rosario Resources) optioned the property in 1969. As before, exploration was directed first at the unoxidized rock where sulphide veins outcropped in the stream valley and the oxide cap was only a few metres thick. As drilling moved out of the valley and on to higher ground, the thickness of the oxide cap increased to a maximum of 80 m, revealing an oxide ore deposit of significant tonnage.

In 1972, Rosario Dominicana S.A. (Rosario) was incorporated (40% Rosario Resources, 40% Simplot Industries and 20% Dominican Republic Central Bank). Open pit mining of the oxide resource commenced on the Moore deposit in 1975. In 1979, the Dominican Central Bank purchased all foreign held shares in the mine. Management of the operation continued under contract to Rosario until 1987. Rosario was merged into AMAX Inc. (Amax) in 1980.

Rosario continued exploration throughout the 1970s and as Amax in early 1980s, looking for additional oxide resources to extend the life of the mine. The Monte Negro, Mejita, and Cumba deposits were identified by soil sampling and percussion drilling and were put into production in the 1980s. Amax also performed regional exploration, evaluating much of the ground adjacent to the Pueblo Viejo concessions, with soil geochemistry surveys and percussion drilling. An airborne electromagnetic (EM) survey was flown over much of the Maimon Formation to the south and west of Pueblo Viejo.

With the oxide resources diminishing, Amax initiated studies on the underlying refractory sulphide resource in an effort to continue the operation. Feasibility level studies were conducted by Fluor Engineers Inc. (Fluor) in 1986 and Stone & Webster Engineering/American Mine Services (SW/AMS) in 1992.

Fluor concluded that developing a sulphide project would be feasible if based on roasting technology, with sulphuric acid as a by-product. Rosario rejected this option due to environmental concerns related to acid production.

SW/AMS concluded that a roasting circuit would be profitable at 15,000 tpd using limestone slurry for gas scrubbing and a new kiln to produce lime for gas cleaning and process neutralization.

Rosario continued to mine the oxide material until 1991, when the oxide resource was essentially exhausted. A carbon-in-leach (CIL) plant circuit and new tailings facility at Las Lagunas were commissioned to process transitional sulphide ore at a maximum of 9,000 tpd. Results were poor, with gold recoveries varying from 30% to 50%. Selective mining continued in the 1990s on high-grade ore with higher estimated recoveries. Mining in the Moore deposit stopped early in the 1990s owing to high copper content (which resulted in high cyanide consumption) and ore hardness. Mining ceased in the Monte Negro deposit in 1998, and stockpile mining continued until July 1999, when the operation was shut down.

In 24 years of production, the Pueblo Viejo Mine produced a total of 5.5 million ounces of gold and 25.2 million ounces of silver.

PRIVATIZATION (1996)

Lacking funds and technology to process the sulphide ore, Rosario attempted two bidding processes to joint venture or dispose of the property, one in 1992 and the other in 1996. In

November 1996, Rosario selected Salomon Brothers (Salomon Smith Barney) to coordinate a process to find a strategic partner to rehabilitate the operation and to determine the best technology to economically exploit the sulphide resource (the privatization process). Three companies were involved in the privatization process: the GENEL JV, Mount Isa Mines Ltd. (MIM), and Newmont Mining Corporation (Newmont). This privatization process was not achieved, but each of the three companies conducted work on the property during their evaluations.

GENEL JV

The GENEL JV was formed in 1996 as a 50:50 joint venture between Eldorado Gold Corporation and Gencor Inc. (later Gold Fields Inc.) to pursue their common interest in Pueblo Viejo. The GENEL JV spent US$6 million between 1996 and 1999 in studying the Mine and advancing the privatization process. Studies included diamond drilling, developing a new geological model, mining studies, evaluation of refractory ore milling technologies, socio-economic evaluation, and financial analysis.

MOUNT ISA MINES

In 1997, MIM conducted a due diligence program as part of its effort to win Pueblo Viejo in the privatization process. It conducted a 31 hole, 4,600 m diamond drilling program, collected a metallurgical sample from drill core, carried out detailed pit mapping, completed induced polarization (IP) geophysical surveys over the known deposits, and organized aerial photography over the mining concessions to create a surface topography. MIM also proposed to carry out a pilot plant and feasibility study using ultra-fine grinding/ferric sulphate leaching.

NEWMONT

In 1992 and again in 1996, Newmont proposed to carry out a pilot plant and feasibility study for ore roasting/bioheap oxidation. Samples were collected for analysis, but no results are available. Both of Newmont’s attempts to purchase or obtain a joint venture interest in the property failed.

PLACER DOME INC.

Placer Dome Inc., through PVDC, acquired the Mine in July 2001. Between 2002 and mid-2005, Placer Dome Dominicana Corporation, a subsidiary of Placer Dome Inc. (together, Placer), completed extensive work on Pueblo Viejo including drilling, geological studies, and mineral resource/reserve estimation. This work was compiled in a Feasibility Study completed in July 2005. In March 2006, Barrick Gold acquired Placer and subsequently sold 40% of the Mine to Goldcorp.

In addition to drilling programs in 2002 and 2004, Placer conducted structural pit mapping of the Moore and Monte Negro open pits in 2002. Placer also mapped and sampled a 105 km^2 area around the concessions as part of an ongoing environmental baseline study to identify acid rock drainage (ARD) sources outside the main deposit areas. Part of the regional mapping and sampling program focused on evaluating the potential for mineralization in the proposed El Llagal tailings storage area. Mapping and stream sediment sampling were conducted in the El Llagal valley and adjacent Maguaca and Naranjo river valleys. Further geotechnical evaluation of the El Llagal valley included BGC Engineering Inc. (BGC) of Vancouver drilling 20 core holes and collecting numerous outcrop samples. Select samples identified with the most favourable mineralization were sent for gold and trace element analysis.

PAST PRODUCTION

In August 2010, the open pit pre-stripping started. The ore mined from 2010 to 2017 totalled 111.2 Mt averaging 3.5 g/t Au and the ore processed during this period totalled 34.2 Mt averaging 5.2 g/t Au with an average recovery of 91% for 5.3 Moz of gold recovered (Table 6-1). Limestone mining has not been included in the table. Gold production was 1.167 Moz in 2016 and 1.083 Moz in 2017.

TABLE 6-1 PUEBLO VIEJO PAST PRODUCTION SUMMARY
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Year	Total Mined (Mt)	Ore Mined (Mt)	Ore Mined (g/t Au)	Ore Processed (Mt)	Ore Processed (g/t Au)	Recovery (%)	Gold Recovered (Moz)
2010	2.3	0.6	2.0	0	0	0	0
2011	17.4	11.3	3.7	0	0	0	0
2012	16.1	10.8	4.0	0.7	5.1	93	0.1
2013	15.3	11.2	3.6	4.4	6.0	93	0.8
2014	35.1	17.8	3.8	6.7	5.5	93	1.1
2015	37.9	18.4	3.4	6.9	4.9	87	1.0
2016	38.8	18.6	3.1	7.5	5.3	91	1.2
2017	39.1	22.5	3.1	8.0	4.6	92	1.1
Total	**202.0**	**111.2**	**3.5**	**34.2**	**5.2**	**91**	**5.3**

Note: Any differences from Barrick's reported values are attributable to rounding.

7 GEOLOGICAL SETTING AND MINERALIZATION

The following regional geology description is taken mostly from Barrick (2007).

REGIONAL GEOLOGY

Pueblo Viejo is hosted by the Lower Cretaceous Los Ranchos Formation, a series of volcanic and volcaniclastic rocks that extend across the eastern half of the Dominican Republic, generally striking northwest and dipping southwest (Figure 7-1). The Los Ranchos Formation consists of a lower complex of pillowed basalt, basaltic andesite flows, dacitic flows, tuffs and intrusions, overlain by volcaniclastic sedimentary rocks and interpreted to be a Lower Cretaceous intra-oceanic island arc, one of several bimodal volcanic piles that form the base of the Greater Antilles Caribbean islands. The unit has undergone extensive seawater metamorphism (spilitization) and lithologies have been referred to as spilite (basaltic-andesite) and keratophyre (dacite).

The Pueblo Viejo Member of the Los Ranchos Formation is confined to a restricted, sedimentary basin measuring approximately three kilometres north-south by two kilometres east-west. The basin is interpreted to be either due to volcanic dome collapse forming a lake, or a maar-diatreme complex that cut through lower members of the Los Ranchos Formation. The basin is filled with lacustrine deposits that range from coarse conglomerate deposited at the edge of the basin to thinly bedded carbonaceous sandstone, siltstone, and mudstone deposited further from the paleo-shoreline. In addition, there are pyroclastic rocks, dacitic domes, and diorite dikes within the basin. The sedimentary basin and volcanic debris flows are considered to be of Neocomian age (121 Ma to 144 Ma). The Pueblo Viejo Member is bounded to the east by volcaniclastic rocks and to the north and west by Platanal Member basaltic-andesite (spilite) flows and dacitic domes.

To the south, the Pueblo Viejo Member is overthrust by the Hatillo Limestone Formation, thought to be Cenomanian (93 Ma to 99 Ma), or possibly Albian (99 Ma to 112 Ma), in age.

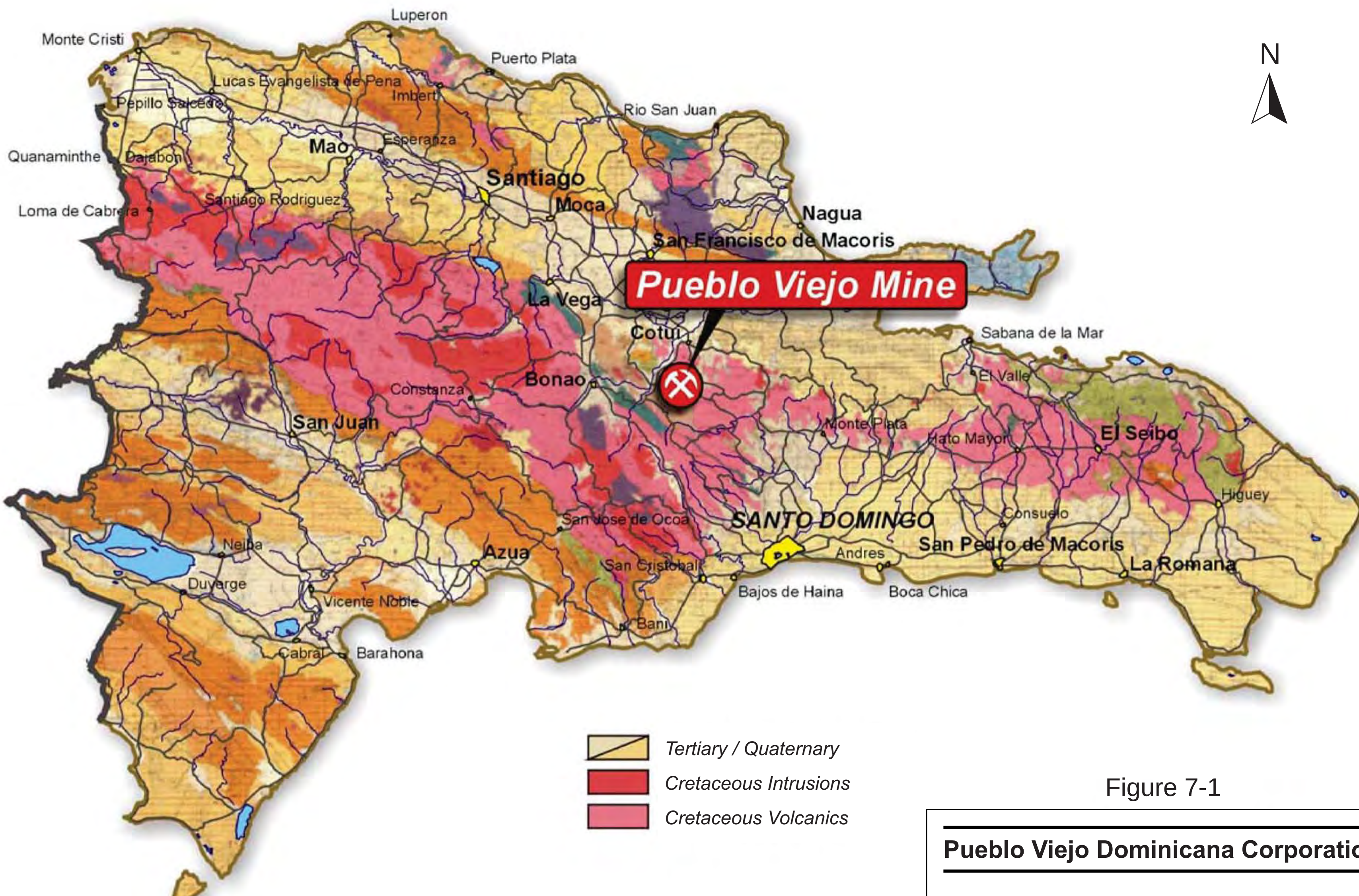

Figure 7-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine
Dominican Republic

Regional Geology

March 2018

Source: Placer, 2005.

PROPERTY GEOLOGY

Pueblo Viejo hosts the Moore and Monte Negro deposits (Figure 7-2). A revised stratigraphic column as prepared by Barrick in 2009 is shown in Figure 7-3. Cross sections with interpreted structures and the lithology are shown in Figure 7-4. The following property geology description is mostly taken from Placer (2005) and Barrick (2007).

MOORE DEPOSIT

The Moore deposit is located at the eastern margin of the Pueblo Viejo Member sedimentary basin. Stratigraphy consists of finely bedded carbonaceous siltstone and mudstone (Pueblo Viejo sediments) overlying horizons of spilite (basaltic-andesite flows), volcanic sandstone, and fragmental volcaniclastic rocks. The entire sequence in the Moore deposit area has a shallow dip to the west.

Fragmental Dacite Porphyry (FDP) that outcrops north of the plant site intrudes the stratigraphic sequence. This unit is best described as a vent breccia with a volcaniclastic appearance with quartz eyes and lithic fragments, intrusive phases such as local breccia dikes, and intrusive contacts. Propylitically altered porphyry has been intersected in core with intrusive textures and appears to form a north-northeast striking root zone to the FDP. The FDP appears to have been emplaced prior to mineralization with local zones of disseminated pyrite and anomalous gold mineralization. The eastern margin of the sedimentary basin hosting the Moore deposit, is defined by fragmental volcaniclastic rocks (Zambrana Member) and non-carbonaceous sedimentary rocks (Mejita Sediments).

There are indications that an internal sub-basin exists at Moore below the Pueblo Viejo Sediments. The sub-basin is partially filled with a mixed sedimentary sequence consisting of inter-fingering Pueblo Viejo Sediments and fragmental volcaniclastic rocks. Graded bedding and slump folding textures are often observed in core. The south and west margins of the sub-basin are defined by pinching of the spilite and volcanic sandstone horizons.

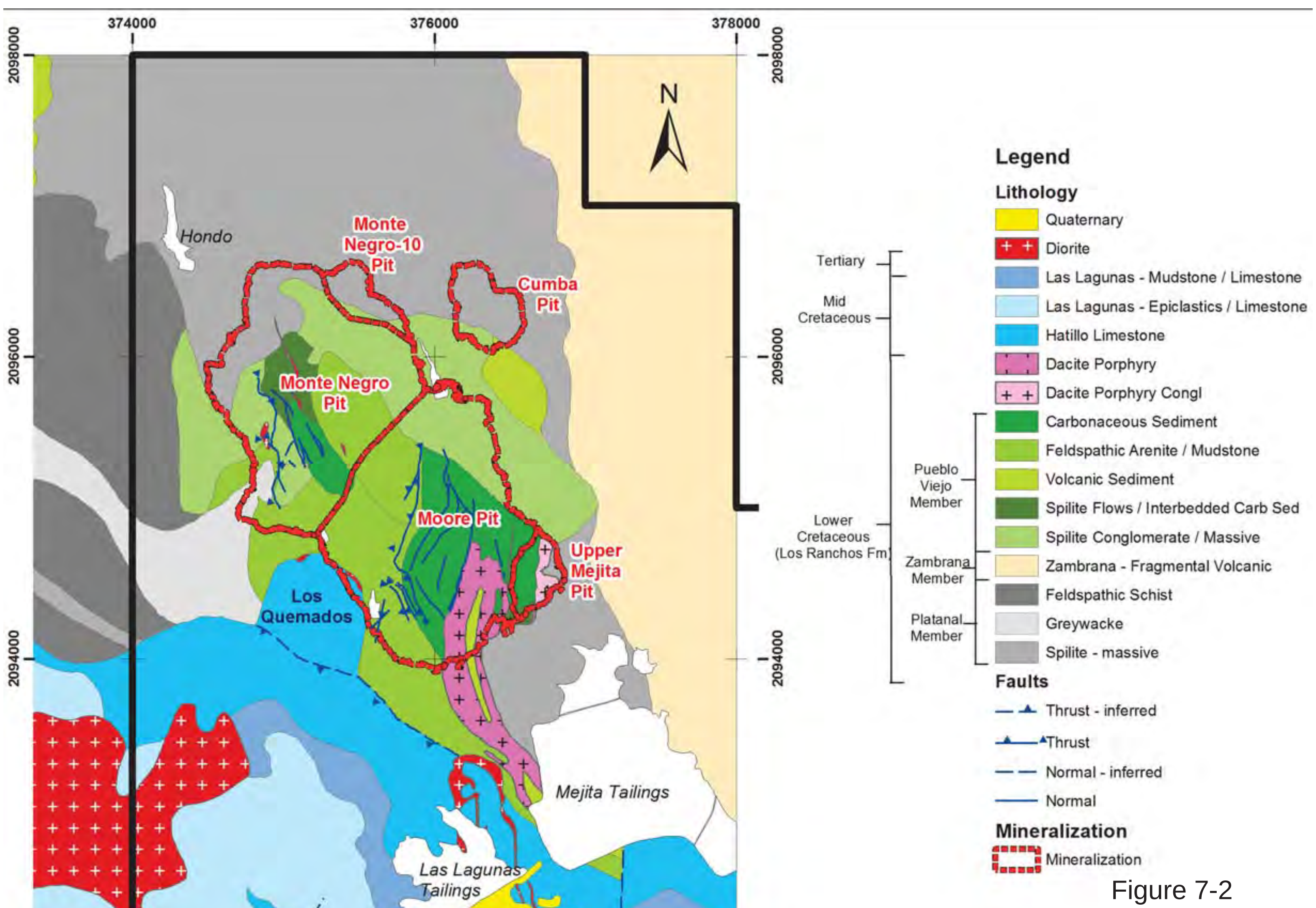

Figure 7-2

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Property Geology

March 2018

Source: Barrick Gold Corporation, 2018.

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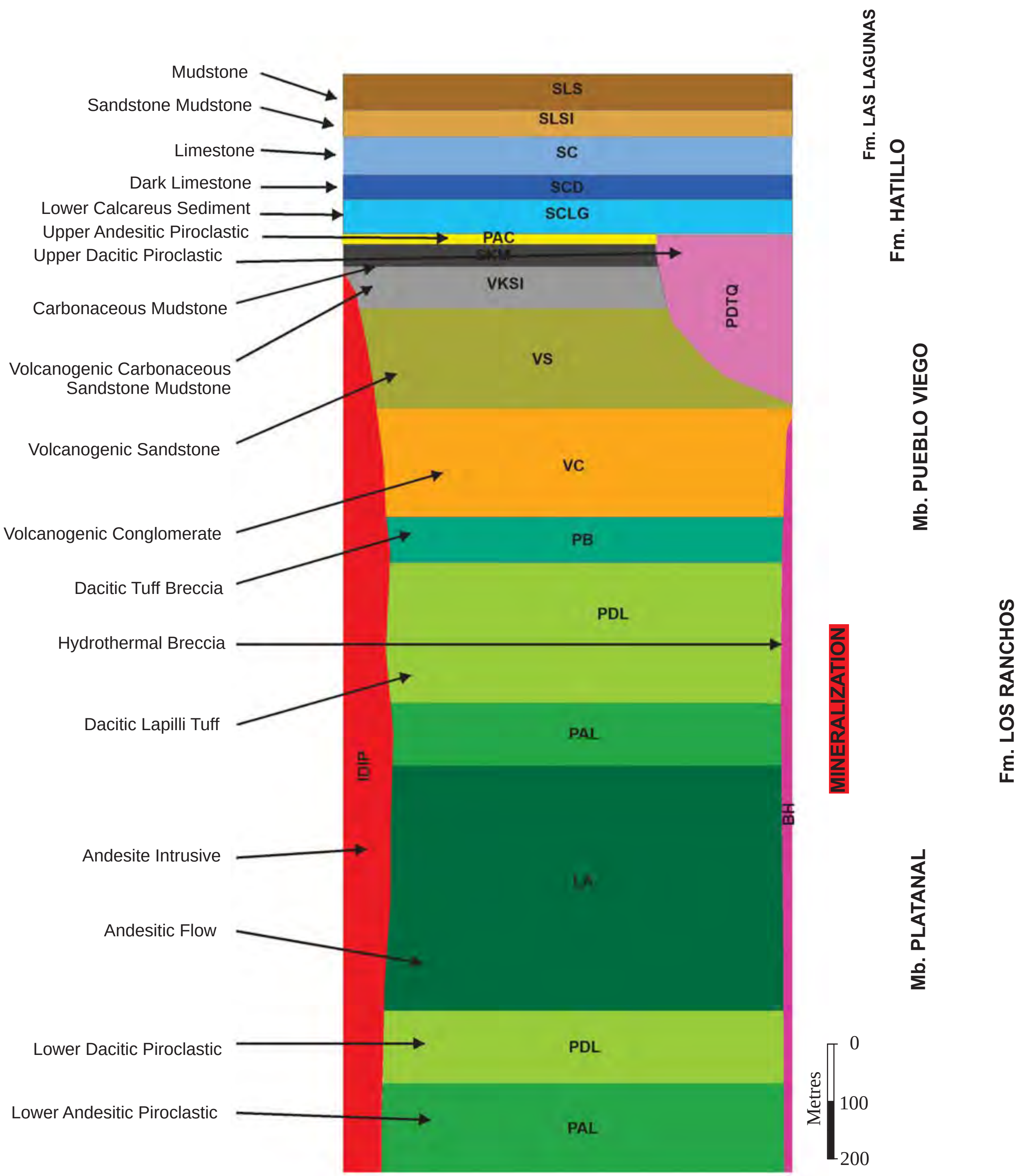

Figure 7-3

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Stratigraphic Column

March 2018

Source: Barrick Gold Corporation, 2011.

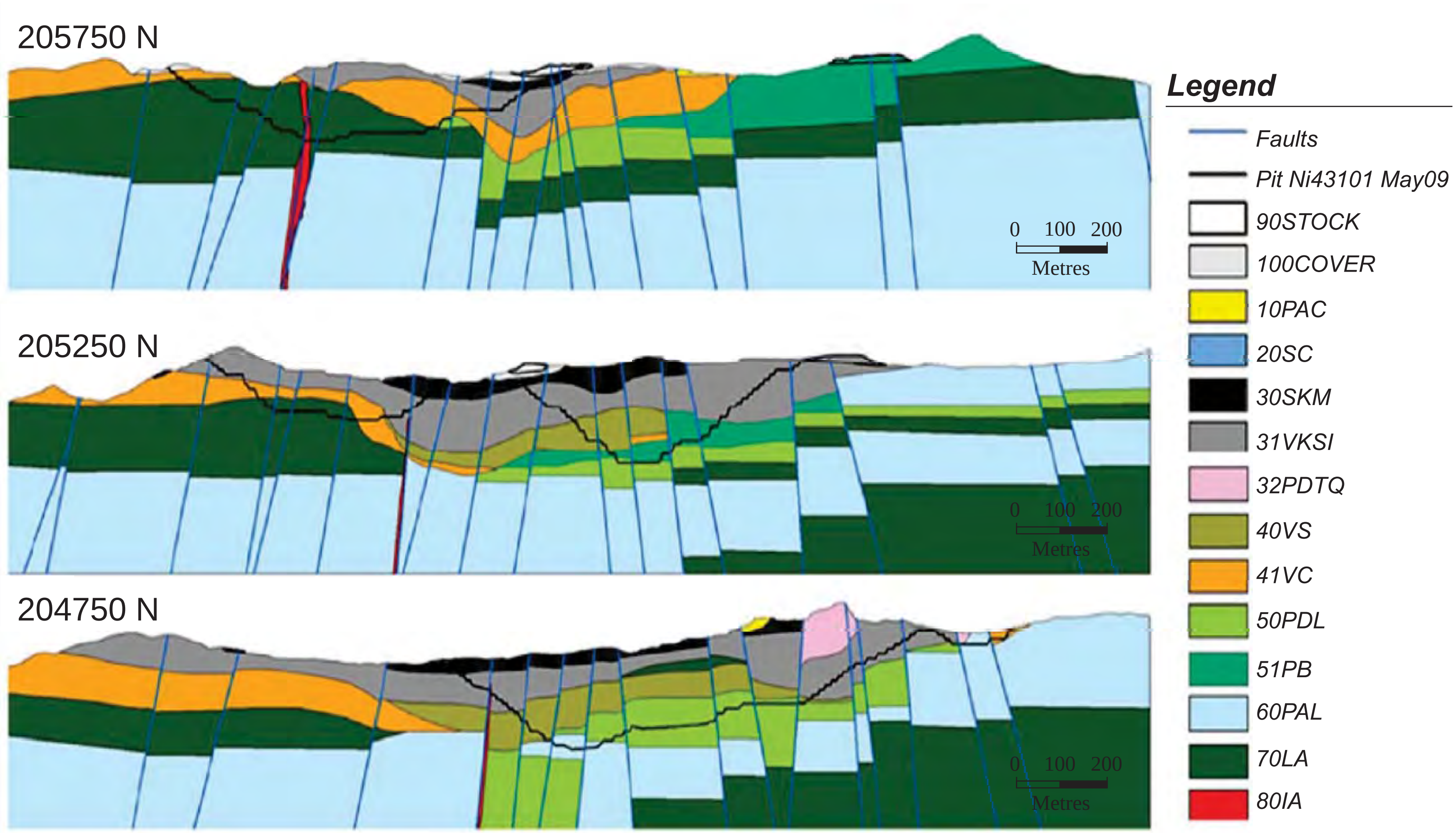

Figure 7-4

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Local Structures and Lithology Looking North

March 2018

Source: Barrick Gold Corporation, 2011.

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Bedding generally dips shallowly westwards (less than 25°), but locally steep faults with north-northeast and north-northwest strikes have rotated bedding into steep orientations. The north-northeast faults preserve evidence for an east-side-up and left-lateral sense of movement subsequent to mineralization. The north-northeast faults appear to link with a north-northwest trending fault that controls the eastern margin of the Moore dacite porphyry and is a boundary to a gold-bearing pyrite vein zone at North Hill. The westward-dipping thrust and bedding plane faults offset pyrite veins with only minor displacement evident. The faults are associated with an intense cleavage and bedding-parallel quartz veins with gold mineralization.

MONTE NEGRO DEPOSIT

The Monte Negro deposit is located at the northwestern margin of the sedimentary basin. Stratigraphy consists of interbedded carbonaceous sediments ranging from siltstone to conglomerate, interlayered with volcaniclastic flows. These volcaniclastic flows become thicker and more abundant towards the west. This entire sequence has been grouped as the Monte Negro Sediments. In the eastern part of the Monte Negro deposit area, the bedding dip is shallow to the southwest; in the west, the dip is shallow to the northwest.

The Monte Negro Sediments overlie a horizon of spilite and spilite-derived conglomerate. The conglomerate consists of pebble to boulder size clasts of spilite that are often silicified and a light pink colour. Silicification is likely volcanogenic, occurring prior to the sedimentation of the basin. The conglomerate horizon represents either a basal conglomerate channelled into the margin of the basin or a reworked, brecciated flow top of the spilite below. The horizon ranges in thickness from tens of metres to non-existent and is likely filling channels in the uneven spilite surface below.

Spilite that forms the basement of the Monte Negro deposit is the Platanal Member of the Los Ranchos Formation. Porphyritic textures and massive andesitic flows, often separated by brecciated flow tops are in the west part of the deposit. The brecciated textures become more abundant towards the east.

Thin section work on the porphyritic spilite indicates a composition of either a high-silica andesite or a low-silica dacite. Primary textures observed are consistent with an intrusion indicating that either a dome or a near surface plug may exist under the west hill of Monte Negro. The dimensions of this possible intrusion have not been determined because core drilling is limited. Dikes that intrude the Monte Negro stratigraphy include a steeply dipping north-northwest striking mafic (diorite/andesite) dike approximately 10 m wide. The dike typically follows the north-northwest trend fault through the deposit area but occasionally splays to the north. The dike is propylitically altered and is barren of gold mineralization. Similar dikes have been intersected in core in the west part of the deposit, but they are much thinner. Thin breccia dikes (pebble dikes) have also been mapped in the pit walls.

Interbedded carbonaceous siltstones, sandstones, and volcanic rocks in the Monte Negro Central Zone generally dip shallowly towards the southwest. In the Monte Negro South Zone andesitic volcanic and volcaniclastic rocks generally dip shallowly (13°) towards the northwest. A steep north-northwest trending fault (Monte Negro Fault) with a west-side-up sense of movement is interpreted to separate the sediments in the east from the volcanic rocks in the west. The fault is interpreted to have been a focus for silicification, breccia dike emplacement, and mineralization.

Bedding in the hanging and footwalls of the Monte Negro Fault has been folded into upright, open folds in close proximity to the fault. The axial trace of the folds trends north-northwest sub-parallel to the strike of the north-northwest conjugate vein set.

Thrust faults displace veins and have brought sedimentary rocks into contact with andesitic volcanic and volcaniclastic rocks. A discordant thrust fault contact is well exposed at the southern end of Monte Negro West.

MONTE NEGRO 10 DEPOSIT

Monte Negro 10, formerly Monte Oculto deposit, is part of the Monte Negro mineralization and is located at its northeast margin. Mineralization is hosted in andesitic flows, is controlled by a north-northwest structural trend, and associated with quartz-dickite-pyrophyllite hydrothermal alteration.

CUMBA DEPOSIT

The Cumba deposit is located to the east of the Monte Negro deposit. Mineralization is hosted in andesitic flows, is controlled by an east-west structural trend, and associated with quartz-dickite-pyrophyllite hydrothermal alteration.

UPPER MEJITA DEPOSIT

The Upper Mejita deposit is located on the east side of the Moore deposit. Mineralization is hosted in carbonaceous sediments, dacitic tuffs and andesitic flows, is controlled by east-west and north-south structural trends, and is associated with quartz-dickite-pyrophyllite hydrothermal alteration.

STRUCTURE

Surface mapping and core logging have identified two main structural trends (Figure 7-5). The first trend is northeast bearing with vertical dips. The second, later trend is north-northwest bearing with vertical dips, and cuts the northeast structures. This second trend is more economically important because many feeders in the hydrothermal system used these structures for mineralization.

Both structural trends have contributed to basin formation, as many of these faults were growth faults during basin development.

Low angle faults are recognized in surface mapping. These faults were the last deformation event in the basin because they cut the previous systems and mainly affect the carbonaceous sedimentary package. They have an average dip of 8º to 10º and no mineralization is related to these low angle faults.

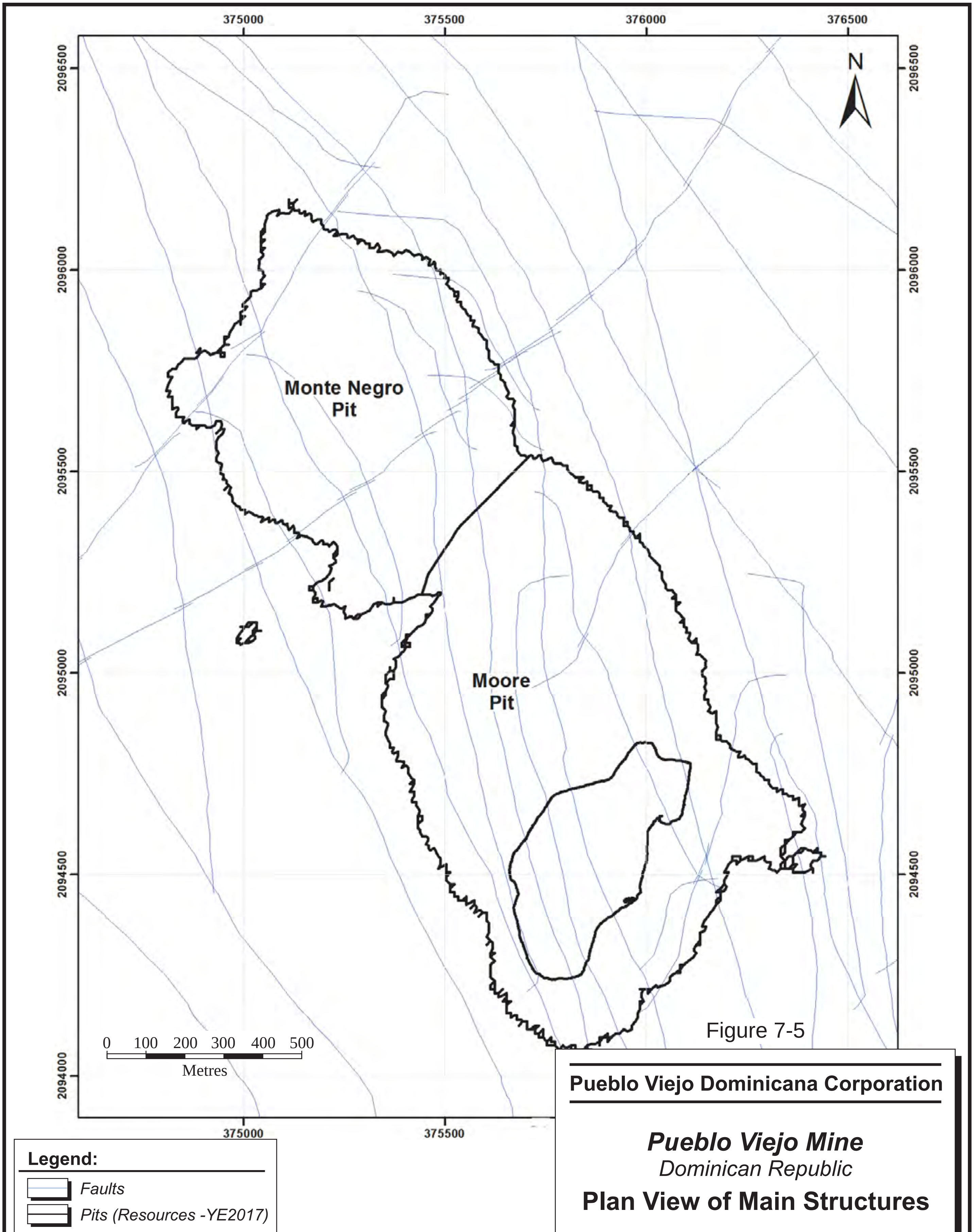


Figure 7-5

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Plan View of Main Structures

March 2018

Source: Barrick Gold Corporation, 2018.

HYDROTHERMAL ALTERATION

The Pueblo Viejo deposit has undergone typical high sulphidation, zoned alteration characterized by silica, pyrophyllite, pyrite, kaolinite, dickite, and alunite. Silica is predominant in the core of the alteration envelope and occurs with kaolinite in the upper zones where a silica cap is often formed. Unlike typical high sulphidation deposits where silicic alteration is residual and a result of acid leaching, silicification at Pueblo Viejo represents silica introduction and replacement. Silica enriched zones are surrounded by a halo of quartz-pyrophyllite and pyrophyllite alteration.

Ongoing studies by Barrick have determined four main alteration assemblages at the Pueblo Viejo deposit (Figure 7-6). These assemblages are:

- Quartz - Alunite ± Dickite (qtz - al ± dk)
- Quartz - Pyrophyllite ± Dickite (qtz - py ± dk)
- Pyrophyllite - Illite - Kaolin (py - ill - kao)
- Illite - Chlorite - Smectite (ill - chl - sm)

Advanced argillic alteration is easily distinguished from the assemblage typical of the seawater metamorphosed (spilitized) Los Ranchos Formation. Limits of the alteration zones are marked by a rapid change (over a few metres) in mineralogy. Outside of alteration zones, finer grained sedimentary rocks are pyritic (framboids) or sideritic with diagenetic conditions suggesting an anoxic, restricted basin. Within mineralization, siderite is completely replaced by pyrite.

In the Moore deposit, silica and kaolinite are more common in the upper parts of the system. In the now depleted oxide mineralization, silicification was closely associated with gold mineralization and caused mineralized zones to form hills with relief of about 200 m. In areas of intense silicification, jasperoid masses were produced, original sedimentary textures destroyed, and carbonaceous material removed. Locally, veins and masses of pyrophyllite cut the jasperoid bodies.

In the Monte Negro deposit, silica and kaolinite are again more abundant in the upper portions of the system and a silica cap is present. Silicification is more widespread at Monte Negro and not as closely associated with gold mineralization. Regardless, gold content is typically higher in silicified or partially silicified (quartz-pyrophyllite) rock.

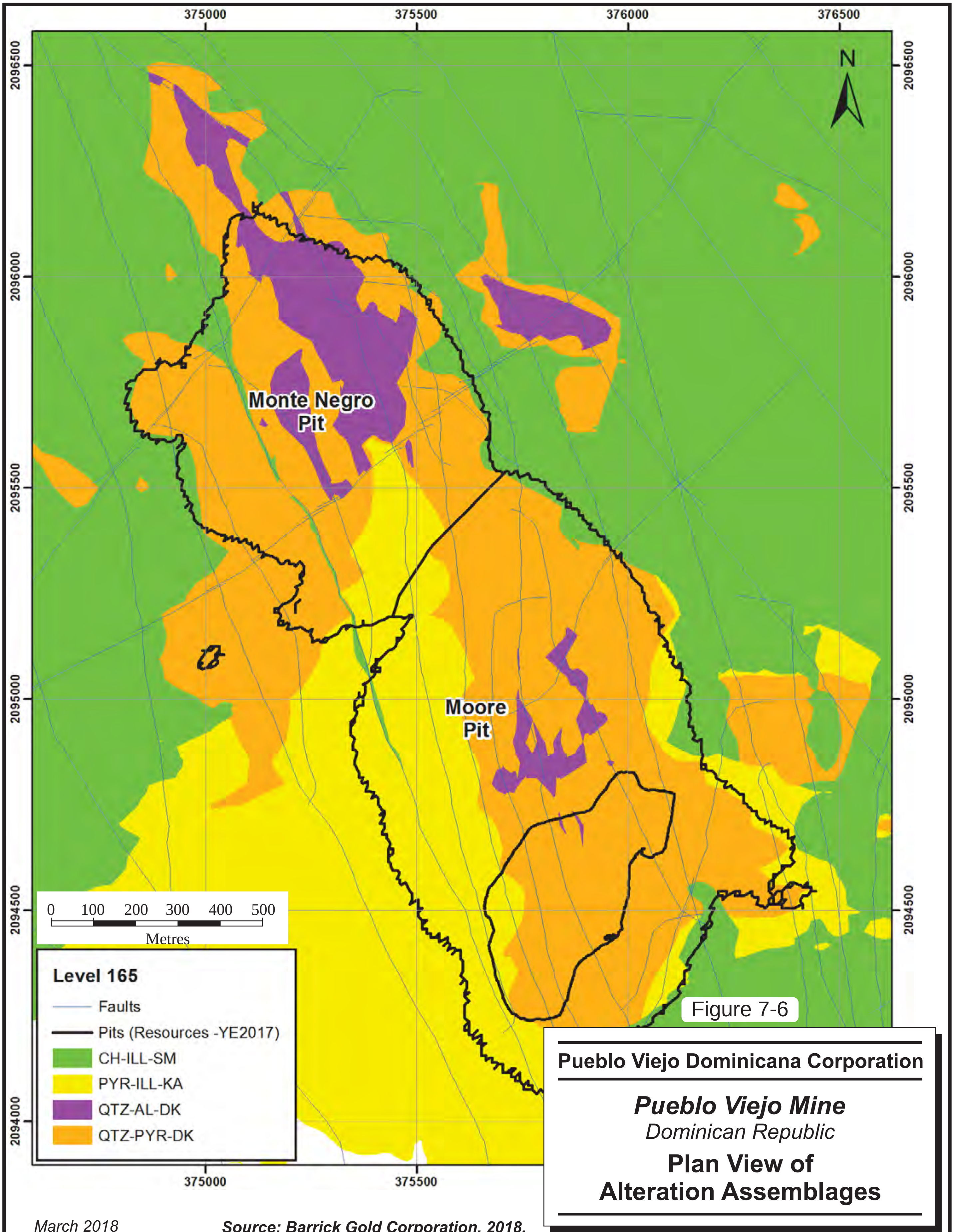


Figure 7-6

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Plan View of Alteration Assemblages

March 2018

Source: Barrick Gold Corporation, 2018.

WEATHERING

Past mining operations have stripped the deposit areas of almost all surface oxidation and the oxide mineralization is now virtually depleted. The oxide was formed where surface oxidation removed sulphide minerals and carbon from the host sediments, leaving silicified host rock and massive jasperoid with jarosite, goethite, and local hematite mineralization. The thickness of the oxide mineralization ranged from 80 m at North Hill in the Moore deposit to 50 m in the South Hill and East Mejita deposits to nothing in the stream valleys. The thickest oxide mineralization was developed in intensely silicified, thinly bedded, and well fractured sedimentary rocks. In contrast, areas underlain by intensely pyrophyllitized sedimentary rocks only had a few metres of oxidation. Soil cover and saprolite were negligible over the oxide mineralized zones.

Gold mineralization was largely immobile in the oxide mineralization. No gold enrichment occurred, but free gold existed. Fine specks of gold (less than 100 µm) could be panned from only the highest grade zones. Silver was depleted in the near-surface parts of the oxide mineralization and enriched at the oxide-sulphide interface. Zinc and copper were leached from the oxide with the destruction of the sulphides.

MINERALIZATION

The following summary is sourced from Barrick (2007 and 2009).

GENERAL DESCRIPTION

Metallic mineralization in the deposit areas is predominantly pyrite, with lesser amounts of sphalerite and enargite. Pyrite mineralization occurs as disseminations, layers, replacements, and veins. Sphalerite and enargite mineralization is primarily in veins, but disseminated sphalerite has been noted in core.

Studies have determined that there were three stages of advanced argillic alteration associated with precious metal mineralization:

1. Stage I alteration produced alunite, silica, pyrite, and deposited gold in association with disseminated pyrite.
2. Stage II overprinted Stage I and produced pyrophyllite and an overlying silica cap.

3. Stage III of mineralization occurred when hydro-fracturing of the silica cap produced pyrite-sphalerite-enargite veins with silicified haloes. Syntaxial vein growth preserves evidence for pyrite-enargite-sphalerite-grey-silica paragenesis.

Individual Stage III veins have a mean width of four centimetres and are typically less than 10 cm wide. Exposed at surface, individual veins can be traced vertically over three pit benches (30 m). Veins are typically concentrated in zones that are elongated north-northwest and can be 250 m long, 100 m wide, and 100 m vertical. Stage III veins contain the highest precious and base metal values and are more widely distributed in the upper portions of the deposits.

Veins tend to be parallel and follow a number of local structures that crosscut the deposit. Those structures have a northerly trend at Monte Negro and Moore, with a northwest-southeast trend also present at Moore.

The most common vein minerals are pyrite, sphalerite, and quartz, with lesser amounts of enargite, barite, and pyrophyllite. Trace amounts of electrum, argentite, colusite, tetrahedrite-tennantite, geocronite, galena, siderite, and tellurides are also found in veins.

The abundance of pyrite and sphalerite within veins varies across the deposit areas. Veins in the southwest corner of the Monte Negro pit are relatively sphalerite-rich and pyrite-poor when compared to veins elsewhere in the Moore and the Monte Negro deposits. The sphalerite in these veins is darker red in colour, possibly indicating that it is richer in iron. The abundance of dark red sphalerite in these veins may also be indicative of the outer margins of a system of hydrothermal-magmatic mineralized fluids.

Late massive pyrophyllite veins that probably represent the last stage of veining and alteration cut the Stage III veins. All stages of veining are cut by thin, white quartz veins associated with low angle thrusts that post-date mineralization.

METAL OCCURRENCE AND DISTRIBUTION

The following summary is taken from Barrick (2007).

GOLD

Gold is intimately associated with pyrite veins, disseminations, replacements, and layers within the zones of advanced argillic alteration. Gold values are generally the highest in zones of silicification or strong quartz-pyrophyllite alteration. These gold-bearing alteration zones are widely distributed in the upper parts of the deposits and tend to funnel into narrow feeder zones.

In the Moore deposit, a high-grade structural feeder zone within an alteration funnel was intersected by a GENEL JV core hole GEN_MDD6. The hole intersected an intensely silicified shear zone that returned gold values of 9.1 g/t Au over 40 m (30 m true width). The shear is steeply dipping and appears to strike either north or northwest. While the shear is open to depth, it possibly has a strike length of less than 100 m. This style of mineralization differs from the upper zones of the deposit, where high grade gold is associated with sulphide veins. This feeder zone also contains a higher concentration of lead in the form of lead sulphosalts and galena. In the Monte Negro deposit, a high-grade feeder zone has not been identified.

AMTEL Laboratories of London, Ontario, conducted a study to establish the deportment of gold in four separate composites from Pueblo Viejo. These composites represented four of the five metallurgical rock types established for the deposit: sedimentary rocks (MN-BSD) and volcanic rocks (MN-VCL) at Monte Negro and sedimentary rocks (MO-BSD) and volcanic rocks (MO-VCL) at Moore. Spilites at Monte Negro (MN-SP) were not sampled (see Section 13 for further discussion on the metallurgy of the deposit).

Gold occurs as native gold, sylvanite ($AuAgTe_4$), and aurostibnite ($AuSb_2$). The principal carrier of gold is pyrite where the sub-microscopic gold occurs in colloidal-size micro inclusions (less than 0.5 µm) and as a solid solution within the crystal structure of the pyrite. The abundance of the gold minerals varied significantly between the different composites.

Studies have shown that there are four major forms of pyrite: microcrystalline, disseminated, porous, and coarse grained. The microcrystalline pyrite tends to have the highest gold concentration. This type of pyrite is also the most arsenic-rich, which renders it the most prone to oxidation and the most difficult to liberate, as it forms complex intergrowths within the rock and with sphalerite. Coarse-grained pyrite has the lowest gold concentration and has a well-developed crystal habit making it less susceptible to oxidation.

There are less common forms of gold, gold minerals such as native gold, electrum, tellurides (sylvanite, calaverite, petzite), and locally, aurostibnite. Most grains are less than 10 µm in diameter and are largely associated with growth zones of pyrites. To a lesser extent, gold minerals occur as inclusions in enargite, quartz, and lead-sulphosalts (primarily geocronite).

Gold may also exist in the crystal structure of sulphosalts, such as enargite and geocronite, but additional research is required.

While there is a strong correlation between gold and zinc (zones with sphalerite veins tend to have the highest gold grades), sphalerite carries gold only as intergrowths of gold-bearing pyrite. The quantity of gold carried by the sphalerite depends on the percentage of gold-bearing pyrite encapsulated and the amount of sub-microscopic gold within the pyrite.

SILVER

Assay results for silver demonstrate that it has the strongest correlation with gold. In particular, silver has a strong association with Stage III sulphide veins where it occurs as native silver and in pyrargyrite (antimony sulphide), hessite (silver telluride), sylvanite and petzite (gold tellurides), and tetrahedrite.

ZINC

The majority of the zinc occurs as sphalerite, primarily in Stage III sulphide veins and to a lesser extent as disseminations. The sphalerite is beige to orange coloured and is relatively iron-free. An exception is the dark red veins found in the southwest corner of the Monte Negro deposit that may represent a discontinuous halo surrounding the alteration zone.
Sphalerite commonly contains inclusions and intergrowths of pyrite, sulphosalts, galena, and silicate gangue. The encapsulated pyrite is often host to sub-microscopic gold mineralization.

Trace amounts of zinc can be found in tetrahedrite and enargite.

COPPER

Most of the copper occurs as enargite hosted in Stage III sulphide veins. Only trace amounts of chalcocite and chalcopyrite have been documented. Enargite-rich vein zones typically are confined laterally and vertically within the larger sphalerite-rich vein zones. Enargite is difficult to identify in hand specimen and is easily confused with tennantite-tetrahedrite.

LEAD

Lead minerals include galena, geocronite, boulangerite, and bournonite, most of which are present as fine inclusions or within fractures in pyrite, sphalerite, and enargite. Geocronite and boulangerite are the most prevalent.

There are a limited number of lead assays in the Pueblo Viejo database. Assaying completed by the GENEL JV shows a strong correlation between gold and lead. Elevated lead values were found in the structural feeder zone in the Moore deposit and lead may provide clues on where to search for other feeder zones.

MOORE DEPOSIT MINERALIZATION

Pyrite-rich, gold-bearing veins at the deposit have a mean width of four centimetres and are steeply dipping with a trend commonly north-northwest. Secondary pyrite vein sets trend north-south and north-northeast. The orientation of pyrite veins and steep faults is similar, albeit with different dominant sets (north-northwest for veins and north-northeast for faults). This suggests a probable link between steep faulting and vein development.

WEST FLANK ZONE

Thinly bedded carbonaceous siltstones and andesitic sandstones in the West Flank dip shallowly westwards. Dips increase towards the west where north trending thrusts displace bedding.

Pyrite and limonite-rich veins with gold mineralization are subvertical and trend commonly north-northwest. The veins are oblique to the general north-northeast strike of bedding and do not appear to have been rotated. Quartz veins with gold trend northwest oblique to the pyrite veins have a similar strike to the interpreted contact with the overlying Hatillo limestone. They also occur as tension gash arrays in centimetre-scale dextral shear zones that trend north-northwest.

Faults create centimetre-scale displacement of bedding and pyrite-sphalerite veins occur along steep north-northeast trending faults and westerly dipping thrusts. Two main north-northeast faults were mapped across the West Flank, sub-parallel with the Moore dacite porphyry contact. Displacement of veins preserves evidence for a lateral, sinistral component of movement.

NORTH AND SOUTH HILLS ZONES

Bedding to the north of the Moore dacite porphyry dips shallowly westwards. Bedding has been rotated about both north-northwest and north-northeast axes. The change in bedding orientation reflects movement associated with north-northwest and north-northeast trending faults.

There are three steep-dipping, gold-bearing, pyrite-rich vein sets: northwest, northeast, and north-south. Northwest trending veins generally contain enargite and sphalerite, while northeast trending veins are more pyrite ± pyrophyllite rich. The average vein width is 3.5 cm.

The fault pattern is dominated by steep north-northeast trending faults that appear to link with north-northwest trending faults. A north-northeast trending steep fault along the western margin of the Moore dacite breccia has rotated bedding from shallow to steep dips, indicating an east-side-up sense of movement. The sense of movement along north-northwest faults could not be determined. Thrusting parallel to bedding is common and is evidenced by intense cleavage and quartz veins parallel to bedding. Bedding plane displacement is minor, generally less than 20 cm.

MONTE NEGRO DEPOSIT MINERALIZATION

MONTE NEGRO CENTRAL ZONE

Pyrite-rich veins with gold mineralization are sub-vertical and have bimodal trends, which are interpreted to form conjugate sets. The mean width is two centimetres. The north-northwest trending set is sub-parallel to the strike of bedding and fold axes, indicating a possible genetic relationship between folding and mineralization. Enargite and sphalerite-bearing veins with gold dominantly trend north-northeast and have a mean width of three centimetres. The combination of vein trends forms a high grade gold zone (Vein Zone 1) which extends 500 m north-northwest, is 150 m wide, and up to 100 m thick between the F5 Fault to the east and the Main Monte Negro Fault to the west.

The fault pattern is dominated by steep north-northwest trending faults sub-parallel to the dominant pyrite vein set. The main Monte Negro Fault is a 25 m x 500 m zone of silicification, brecciation, mineralization, folding, and faulting. It is interpreted as a major fault that was active during and subsequent to mineralization.

MONTE NEGRO SOUTH ZONE

Andesitic volcanic and volcaniclastic rocks with minor intercalations of carbonaceous sediments dip shallowly northwards. Close to the interpreted Monte Negro Fault, bedding dips more westerly and strikes north-northwest.

North-northwest trending steep faults displace bedding and dip towards the southwest. Displacement of marker agglomerate beds indicates a metre scale west-side-up sense of movement. The faults are sub-parallel to the interpreted Monte Negro Fault, which also has an apparent west-side-up sense of movement.

Mineralized veins at the Monte Negro South Zone are relatively pyrite-poor, sphalerite-rich, and wider (five centimetres to six centimetres). The veins are sub-vertical and trend northwest. The episodic vein fill demonstrates a clear paragenesis (massive pyrite-enargite-sphalerite-grey silica).

Shallow-dipping bedding and sub-vertical sphalerite-silica veins on the southern margin of Monte Negro South are cut by a westerly-dipping thrust. The thrust has brought thinly bedded pyritic sedimentary rocks into contact with andesitic volcanic and volcaniclastic rocks. The fault dips 35° and was mapped across the top of the Monte Negro South hill. The overthrust sedimentary rock package contains asymmetric folds and bedding cleavage relationships that indicate a reverse (west-side-up) sense of movement. An upper thrust has brought a massive volcanic unit into contact with the underlying folded sediments.

The main zone of gold mineralization that results from this combination of structures extends for approximately 150 m along the West Thrust Fault.

MINERALIZATION CONTROLS USED IN RESOURCE ESTIMATES

Mineralization at Pueblo Viejo is not constrained by lithology. The primary controls on the geometry of the gold deposits are strong quartz-pyrophyllite-dickite alteration and quartz-pyrite veining along sub-vertical structures and stratigraphic zones. The stratigraphic shape of some zones may be controlled by sub-horizontal structures that contain pyrite veins. The veins are tens of centimetres wide but are most commonly less than two centimetres wide. Narrow veinlets occur along bedding planes and along fracture surfaces. These veins are commonly highly discordant to bedding but locally branch out along shallow-dipping bedding planes, linking high angle veins in ladder-like fashion without obvious preferred orientations. These veins served as feeders to the layered and disseminated mineralization that occurs in shallower levels in the deposit. This resulted in composite zones of mineralization within fracture systems and stratigraphic horizons adjacent to major faults that served as conduits for hydrothermal fluids.

In summary, gold is intimately associated with the pyrite veins, disseminations, replacements, and layers within the zones of advanced argillic alteration. Gold values generally are the highest in zones of silicification or strong quartz-pyrophyllite alteration. Sphalerite is largely restricted to the veins, with pyrite lining the vein walls and sphalerite occurring as botryoidal aggregates. Galena, enargite, and boulangerite occur in small quantities in the centre of the veins.

These gold-bearing alteration zones are widely distributed in the upper parts of the deposits and tend to funnel into narrow feeder zones at depth. Mineralization is generally contained within the boundaries of advanced argillic alteration. The outer boundary of advanced argillic alteration, combined with lithological and veining zones were used to generate domains for resource estimation.

The mineralization extends for 2,800 m north-south and 2,500 m east-west and extends from the surface to a 500 m depth.

8 DEPOSIT TYPES

Pueblo Viejo is a Cretaceous high sulphidation epithermal gold, silver, copper and zinc deposit. High sulphidation deposits are typically derived from fluids enriched in magmatic volatiles, which have migrated from a deep intrusive body to an epithermal crustal setting, with only limited dilution by groundwater or interaction with host rocks. Major dilatant structures or phreatomagmatic breccia pipes provide conduits for rapid fluid ascent and so facilitate evolution of the characteristic high sulphidation fluid.

Similar deposits occur at Summitville, Colorado; El Indio, Chile; Lepanto, Philippines; and Goldfield, Nevada. They are characterized by veins, vuggy breccias, and sulphide replacements ranging from pods to massive lenses, occurring generally in volcanic sequences and associated with high-level hydrothermal systems. Acid leaching, advanced argillic alteration, and silicification are characteristic alteration styles. Grade and tonnage varies widely. Pyrite, gold, electrum, and enargite/luzonite are typical minerals, and minor minerals include chalcopyrite, sphalerite, tetrahedrite/tennantite, galena, marcasite, arsenopyrite, silver sulphosalts, and tellurides (Panteleyev 1996).

The geological setting of the deposit is not certain at this time. Sillitoe and Bonham (1984), Muntean et al. (1990), and Kesler et al. (1981) have described the setting as a maar diatreme complex with the various deposits around the margins of the diatreme. These studies concluded that coarse-grained fragmental rocks that occur at depth are the product of an explosive volcanic eruption that partially filled the crater with fragmented rock. The crater was subsequently filled with shallow, marine sedimentary rocks with variable amounts of fragmental rocks from nearby volcanoes. This sequence was cross-cut by younger dikes and small dacite and andesite lava domes.

Alternatively, Nelson (2000) describes the setting as a volcanic dome complex emplaced in a shallow marine environment and attributes the coarse fragmental rocks to collapsing carapaces on those domes. The author concludes that sedimentary rocks were deposited in depressions between the domes.

More recently, Sillitoe et al. (2006) provide evidence from the Pueblo Viejo district that an extensive advanced argillic lithocap and the contained giant high sulphidation epithermal gold-silver deposits were emplaced beneath a thick limestone cover. The authors imply that alteration and mineralization cannot be synchronous with the host volcano-sedimentary sequence and are substantially younger. Hence, there is no genetic relationship between the Moore and Monte Negro deposits and either a maar-diatreme system or volcanic dome complex. Whereas other interpretations imply that mineralization pre-dated deposition of the Hatillo Limestone, Sillitoe et al. (2006) suggest that the impermeable limestone acted as a barrier inhibiting upward fluid flow, groundwater recharge, and heat dissipation. This resulted in high gold and zinc tenors, the dominance of quartz-pyrophyllite over vuggy quartz alteration, prograde overprinting of alunite by higher temperature pyrophyllite, and the almost exclusively magmatic character of the mineralized fluid. The authors present a model of blind high sulphidation deposits, based on a regional rather than detailed analysis of the mineralized zone within the open pits that could be applied to exploration in calc-alkaline magmatic arc elsewhere, especially in limestone terranes or potentially beneath other low permeability rock units.

In 2009, PVDC undertook a major relogging campaign of historical drill core and carried out detailed mapping of pits and construction excavations. The work has led to an updated geological model underpinning the resource and reserve estimations and a maar-diatreme deposit formation interpretation in which extensive and compressive deformation resulted in the present-day lithostructural domains. The conduits provided by maar-diatreme formation controlled mineralization. Structural control predominates, particularly at depth, and passes into lithological control near surface. Mineralization is present in pyroclastic rocks and sediments and occurs along bedding planes in upper sedimentary units and within narrow, local structures in the lower volcanic package.

The PVDC interpretation is based on geological evidence observed within the Pueblo Viejo deposit and is not a regional interpretation as presented by Sillitoe et al. (2006). However, PVDC believes that uncertainty with respect to the deposits origin has no practical impact on exploration at the levels that may be mined by open pit methods. The areal extent of the deposits has been constrained by drilling and the vertical extents are reasonably well known, although additional drilling is required to define the deepest parts of the deposit.

9 EXPLORATION

Reviews of pre-PVDC exploration are included in Section 6 History and pre-PVDC drilling and sampling from this era are included in subsequent sections of this report. Much of the following PVDC exploration description is taken from Barrick (2007).

In 2006, PVDC began to review the entire geological potential of the Pueblo Viejo Mine, using works performed by previous owners to develop an understanding of the geology of the deposit and its potential.

The main components of PVDC's 2006 exploration program, which provided data for input to the 2007 FSU were:

- Data compilation and integration
- Rock sampling (300 samples) and pit mapping
- Alteration studies on 1,427 soil samples, 3,591 rock samples and 5,249 core samples
- Geophysical surveys.
  - 41 km of IP Pole – Dipole
  - 132 km of ground magnetic readings on a 200 m grid
- Geochemical Survey
  - 1,482 samples collected for gold and inductively coupled plasma (ICP) assaying
- Two-phase diamond drilling program:
  - Phase 1, 13 diamond drill holes, 3,772 m
  - Phase 2, 40 diamond drill holes, 6,334 m
- Updated Mineral Resource estimate

The 2006 program allowed better definition of deposit geology and significantly increased the amount of ounces in both the Moore and Monte Negro deposits.

The 2007 exploration program resulted in the discovery of new deeper mineralization on the east side of Monte Negro and additional mineralization in the west part of the Moore pit. In 2008, definition drilling was carried out to increase resources at Monte Negro North and between the Moore and Monte Negro pits.

In 2009, PVDC undertook a major relogging program of all historical drill core, carried out detailed geological mapping of pits and construction excavations, and reinterpreted the geological models underpinning resource and reserve estimates.

From 2010 to 2014, PVDC continued the detailed geological mapping of the pits and construction excavations, and also undertook a close-spaced reverse circulation (RC) grade control drilling program in advance of mining in the Moore and Monte Negro open pits. A small number of water wells were drilled.

In 2014, PVDC undertook a drilling program in the Monte Negro 10 North and Cumba areas. Details are described in the following section.

In 2015, PVDC carried out Phase 1 drilling in the Monte Negro North, Monte Negro South, and Moore East areas, and definition drilling in the Cumba area. The drilling confirmed the continuity of mineralization for Monte Negro North and Cumba.

In 2016, PVDC carried out Phase 2 drilling in the Monte Negro North and the Monte Negro 10 North extension areas. Results did not confirm mineralization continuity.

In 2017, PVDC carried out drilling in the Upper Mejita, Monte Negro Feeder, and Monte Negro Underground projects. The last two projects focussed on investigating the continuity of the Monte Negro mineralization at depth. PVDC also performed drilling in the ARD1 area to explore for limestone potential. The results confirmed that the limestone rocks extend further to the east in the ARD1 area and some drill holes intersected gold mineralization below the limestone in the same host rocks as at Moore and Monte Negro. The 2017 exploration program was successful in delineating and confirming that these areas have good exploration potential (Figure 9-1).

Figure 9-1

Legend:

1	*Cumba*
2	*Upper Mejita*
3a-c	*Underground high grade pods*
4	*ARD 1*
5	*Monte Negro Feeder*

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Exploration Targets

March 2018

Source: Barrick Gold Corporation, 2018.

10 DRILLING

Drilling campaigns have been conducted by most of the participating companies during the history of the Pueblo Viejo Mine including Rosario, GENEL JV, MIM, and Placer. In 2006, PVDC began its first core drilling campaign to evaluate the Mine. From 2006 to 2017, PVDC drilled 771 exploration holes (446 diamond drill and 325 RC) totalling 164,673 m. The cut-off date for the drill data for the EOY2017 Mineral Resource and Mineral Reserve model was November 17, 2017.

Geotechnical and water management drilling at the Mine was completed by BGC, an international consulting firm specializing in geotechnical and water resource engineering. From 2001 to 2015, BGC drilled 487 drill holes totalling 15,716 for geotechnical and water management purposes. Water Management Consulting (WMC) drilled a number of holes in 2003 and 2004. The BGC and WMC holes from 2001 to 2015 are mostly short holes and have been excluded from the Mineral Resource estimate because they were not assayed. The time periods of drilling on Pueblo Viejo are summarized below.

- Rosario – 1970s to the early 1990s
- GENEL JV – 1996
- MIM – late 1996 to 1997
- BGC – 2001 to 2010
- WMC – 2003 to 2004
- Placer – 2002 to 2004
- PVDC – 2006 to present

The drilling is summarized in Table 10-1 and the drill holes are shown in Figure 10-1. Examples of drill cross sections are provided in Section 14. Overall, a total of 4,863 drill holes totalling 443,057 m were completed on the property from the 1970s to 2017, including geotechnical, limestone, and water management drilling. The drill hole database used to support the development of Mineral Resources for the Pueblo Viejo Mine contains 2,816 drill holes, comprised of 937 diamond drill core holes, 681 RC, and 1,198 percussion and rotary holes. A total of 185,865 m of diamond drilling, 62,552 m of rotary and percussion drilling, and 100,850 m of RC drilling have been performed. PVDC also drilled a significant number of RC grade control drill holes from 2010 to 2017. In addition to the drilling listed in Table 10-1, 13,889 close-spaced RC grade control drill holes totalling 571,279 m have been completed. PVDC sampled some of the hydrogeology and geotechnical holes, and the EOY2017 Mineral Resource estimate includes 30,683 m from a number of holes drilled from 2013 to 2017.

TABLE 10-1 DRILLING SUMMARY

Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Drill Prefix	Year	Comp.	Drill Type	Purpose	Total Holes	Total Holes Included	Total Metres Included	Total Holes Excluded	Total Metres Excluded
AH	1970s-1990s	Rosario	RAB	Expl.	534	0	0	534	14,368
CU	1970s-1990s	Rosario	RAB	Expl.	357	0	0	357	9,721
DDH	1970s-1990s	Rosario	DH	Expl.	181	167	21,710	14	1,305
HA	1970s-1990s	Rosario	RAB	Expl.	111	0	0	111	2,966
P	1970s-1990s	Rosario	Percussion	Expl.	343	328	8,498	15	208
R	1970s-1990s	Rosario	RAB	Expl.	115	109	6,314	6	257
RC	1970s-1990s	Rosario	RC	Expl.	64	64	10,002	0	0
RS	1970s-1990s	Rosario	RAB	Expl.	176	175	24,258	1	138
S	1970s-1990s	CGS	DH	Lime.	14	14	1,519	0	0
ST	1970s-1990s	Rosario	RAB	Expl.	630	496	22,198	134	2,586
SX	1970s-1990s	Rosario	RAB	Expl.	149	89	1,250	60	773
TF	1970s-1990s	Rosario	DH	Lime.	22	1	60	21	836
GEN_MDD	1996	Genel	DH	Expl.	11	11	2,098	0	0
GEN_MND	1996	Genel	DH	Expl.	9	9	1,053	0	0
MIM_MN	1996 - 1997	MIM	DH	Expl.	16	15	2,015	1	50
MIM_MO	1996 - 1997	MIM	DH	Expl.	15	15	2,535	0	0
DH-BGC01	2001	BGC	DH	Geot.	6	0	0	6	238
DH-BGC02	2002	BGC	DH	Geot.	25	0	0	25	869
PD02	2002	Placer	DH	Expl.	19	18	3,009	1	30
LQ	2002 - 2004	Placer	DH	Lime.	4	4	529	0	0
LS	2002 - 2004	Placer	DH	Lime.	5	5	381	0	0
MN	2002 - 2004	Placer	RAB	Expl.	2	1	34	1	10
MO	2002 - 2004	Placer	RAB	Expl.	48	0	0	48	672

Drill Prefix	Year	Comp.	Drill Type	Purpose	Total Holes	Total Holes Included	Total Metres Included	Total Holes Excluded	Total Metres Excluded
WS	2002 - 2004	BGC	RAB	Geot.	3	0	0	3	318
DH-BGC03	2003	BGC	DH	Geot.	1	0	0	1	70
WMC02	2003	W.M.	DH	Geot.	20	0	0	20	470
APV04	2004	BGC	DH	Hydro.	6	0	0	6	1,541
AU_BGC04	2004	BGC	DH	Geot.	7	0	0	7	212
DH-BGC04	2004	BGC	DH	Geot.	27	0	0	27	920
GT04	2004	Placer	DH	Geot.	13	13	1,939	0	0
ID	2004	W.M.	DH	Geot.	3	0	0	3	255
MNPH	2004	BGC	DH	Geot.	4	0	0	4	427
MNPH	2004	BGC	RAB	Geot.	1	0	0	1	100
MOMW	2004	BGC	RAB	Geot.	3	0	0	3	290
MOPH	2004	BGC	DH	Geot.	4	0	0	4	427
MOPH	2004	BGC	RAB	Geot.	1	0	0	1	124
PD04	2004	Placer	DH	Expl.	102	99	13,393	3	212
PI	2004	G.Q.	DH	Hydro.	5	0	0	5	777
RC-BGC04	2004	BGC	RC	Geot.	3	0	0	3	88
DC-BGC05	2005	BGC	DH	Geot.	49	0	0	49	463
DH-BGC05	2005	BGC	DH	Geot.	18	0	0	18	390
LS05	2005	Placer	DH	Lime.	12	11	494	1	12
DC-BGC06	2006	BGC	DH	Geot.	6	0	0	6	53
DH-BGC06	2006	BGC	DH	Geot.	22	0	0	22	544
DPV06	2006	PVDC	DH	Expl.	59	52	14,601	7	462
DH-BGC07	2007	BGC	DH	Geot.	106	0	0	106	2,890
DPV07	2007	PVDC	DH	Expl.	230	225	63,051	5	289
LS07	2007	PVDC	DH	Lime.	49	49	3,480	0	0
DH-BGC08	2008	BGC	DH	Geot.	109	0	0	109	3,209
DPV08	2008	PVDC	DH	Expl.	123	123	32,509	0	0
GT08	2008	PVDC	DH	Geot.	22	22	3,377	0	0
LS08	2008	PVDC	DH	Lime.	19	19	3,628	0	0
DH-BGC09	2009	BGC	DH	Geot.	16	0	0	16	311
WS09	2009	BGC	DH	Geot.	2	0	0	2	337
DH-BGC10	2010	BGC	DH	Geot.	30	0	0	30	1,624
LS10	2010	PVDC	RC	Lime.	40	40	6,248	0	0
MNEX-10	2010	PVDC	RC	Hydro.	1	1	174	0	0
MOEX-10	2010	PVDC	RC	Hydro.	3	0	0	3	540
DH-BGC11	2011	BGC	DH	Geot.	1	0	0	1	30
DH-BGC12	2012	BGC	DH	Geot.	7	0	0	7	224
GT12	2012	PVDC	RC	Geot.	7	0	0	7	866
PZ-12	2012	PVDC	RC	Hydro.	50	36	6,383	14	2,546
DH-BGC13	2013	BGC	DH	Geot.	7	0	0	7	318
MNEX-13	2013	PVDC	RC	Hydro.	17	16	2,596	1	183
MOEX-13	2013	PVDC	RC	Hydro.	12	12	2,055	0	0

Drill Prefix	Year	Comp.	Drill Type	Purpose	Total Holes	Total Holes Included	Total Metres Included	Total Holes Excluded	Total Metres Excluded
PZ-13	2013	PVDC	RC	Hydro.	27	27	4,728	0	0
PZW-13	2013	PVDC	RC	Hydro.	7	7	1,201	0	0
DH-BGC14	2014	BGC	DH	Geot.	5	0	0	5	214
DPV14	2014	PVDC	RC	Expl.	42	42	5,674	0	0
MOEX-14	2014	PVDC	RC	Hydro.	28	24	4,027	4	732
PZ-14	2014	PVDC	RC	Hydro.	7	7	1,038	0	0
PZW-14	2014	PVDC	RC	Hydro.	4	3	492	1	183
DH-BGC15	2015	BGC	DH	Geot.	1	0	0	1	300
DPV15	2015	PVDC	RC	Expl.	38	38	5,890	0	0
GT15	2015	PVDC	RC	Geot.	1	1	82	0	0
LS15	2015	PVDC	RC	Lime.	29	29	2,492	0	0
MOEX-15	2015	PVDC	RC	Hydro.	3	3	549	0	0
PZ-15	2015	PVDC	RC	Hydro.	7	6	988	1	110
PZW-15	2015	PVDC	RC	Hydro.	11	9	1,569	2	290
HHMN	2015-2016	PVDC	RC	Hydro.	12	6	1,200	6	1,200
HHMO	2015-2016	PVDC	RC	Hydro.	202	46	8,726	156	28,774
DPV16	2016	PVDC	RC	Expl.	18	18	3,696	0	0
GTDH16	2016	PVDC	DH	Geot.	12	12	1,132	0	0
LS16	2016	PVDC	RC	Lime.	29	29	696	0	0
RD16	2016	PVDC	RC	Expl.	4	4	664	0	0
RD18	2016	PVDC	RC	Expl.	37	37	4,922	0	0
RD19	2016	PVDC	RC	Expl.	3	3	436	0	0
RD17	2016-2017	PVDC	RC	Expl.	158	149	20,803	9	1,424
DPV17	2017	PVDC	RC	Expl.	25	24	3,519	1	119
DPV17	2017	PVDC	DH	Expl.	34	30	8,907	4	1,163
GTDH17	2017	PVDC	DH	Geot.	23	3	300	20	2,730
LS17	2017	PVDC	DH	Lime.	20	20	4,144	0	0
Grand Total					**4,863**	**2,816**	**349,266**	**2,047**	**93,790**

Notes: "DH" is diamond drill, "RC" is reverse circulation, "Expl." is exploration, "Geot." is geotechnical, "Hydro." is hydrogeology, "Lime." is limestone, "W.M." is Water Management, and "G.Q." is Gold Quest.

Approximately half of the old rotary air blast (RAB) and percussion drill holes completed by Rosario and Placer and all of the geotechnical holes with no assays have been excluded from the Mineral Resource estimate. RPA notes that RAB holes are generally excluded from resource estimates because they tend to have less reliable samples than diamond and RC drill holes. Nevertheless, RPA concurs with PVDC's conclusion that including some of the RAB holes has had little influence on the resource estimate (Sanfurgo, 2007). Table 10-1 also includes 221 drill holes totalling 23,672 m that were mostly drilled by Rosario, Placer, and PVDC to support limestone resource estimates.

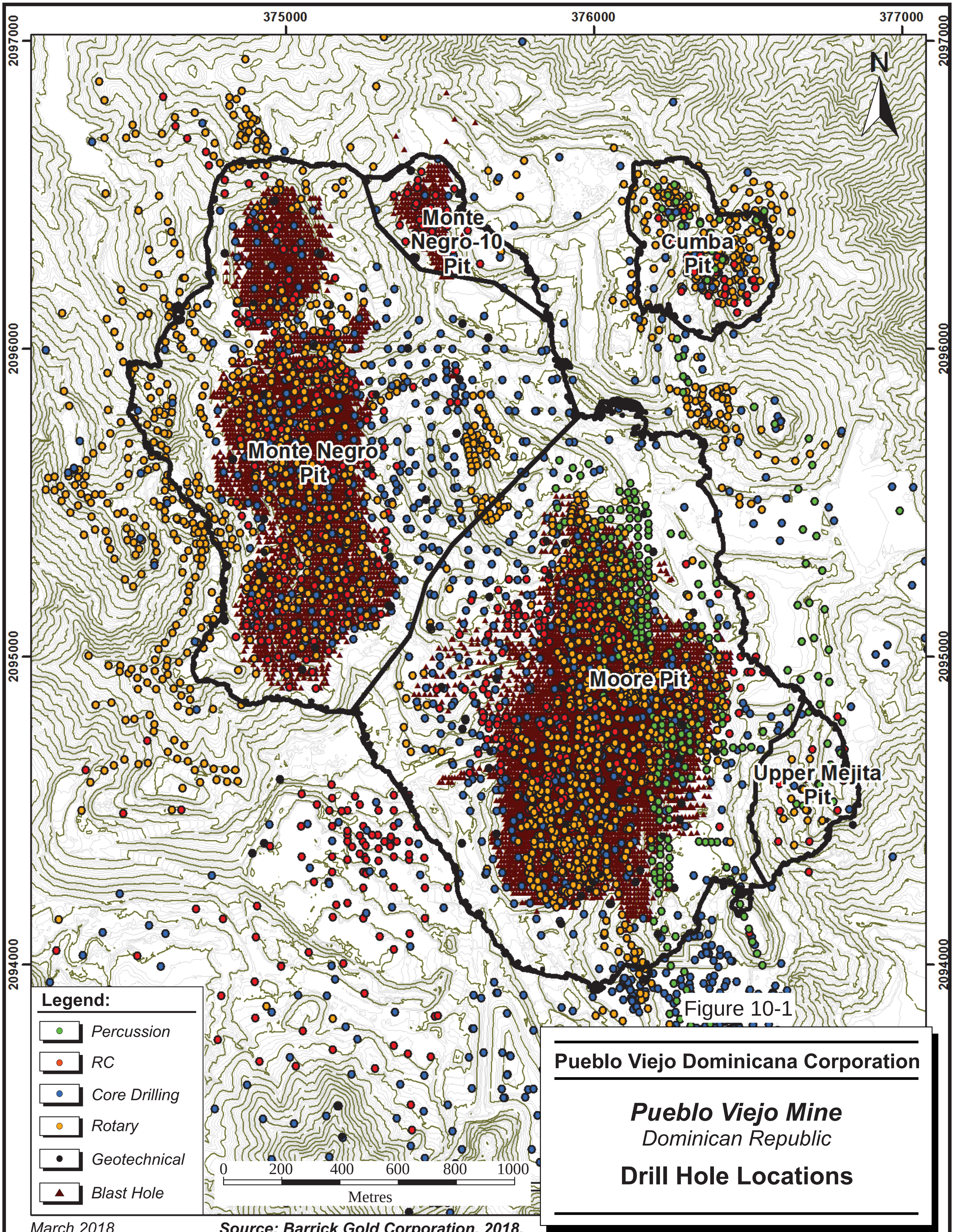


Figure 10-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Drill Hole Locations

March 2018

Source: Barrick Gold Corporation, 2018.

PRE-PVDC DRILLING

ROSARIO DRILLING

Rosario employed several drilling methods as summarized in Table 10-1. Geological information was recorded on paper logs or graphic logs for all DH, RC, and RAB drill holes.

Geology was recorded for deeper holes and for some of the shallow holes. Very few of the shallow RAB holes are relevant to Mineral Resource estimate. No photographs of the core were taken, a common practice in the 1970s and 1980s. The majority of holes were vertical with a drill hole spacing ranging from 20 m to 80 m. Downhole surveys were not performed and the type of instrumentation used for surveying collar locations is not documented.

Core recoveries were reported to be approximately 50% in areas of mineralization and within silicified material. This was evaluated by Fluor in 1986 with the following observations:

- Gold grades varied with different recovery classes. In zones of 80% to 100% recovery, gold values decreased with decreasing core recovery. In zones of 60% to 80% recovery, gold values increased with decreasing recovery. For recoveries less than 60%, gold values were generally low.
- Silver values were not affected by recovery.
- Zinc grades exceeding 1.5% decreased with decreasing core recovery. Zinc grades below 1.5% appeared to be unaffected by core recovery.

Fluor concluded that poor core recovery affected gold grades but in both positive and negative ways. It also concluded that in the context of the whole deposit, statistical noise was apparent but the data were not biased.

With respect to RAB and RC drill holes, Fluor concluded that, with the exception of the P-series RC holes and the RS series of holes below the 250 m elevation in the West Flank of the Moore deposit, there was no systematic high bias in RC gold values versus core gold values. Zinc values appeared to be affected by “placering” in overflowing RC sampling devices, resulting in a low bias in RC holes. In any case, most of the shallow Rosario holes were drilled in oxide areas now mined out and have only limited, if any, influence on sulphide mineral resource estimates.

GENEL JV DRILLING

In 1996, the GENEL JV drilled 20 holes at Pueblo Viejo, eleven in the Moore deposit and nine in the Monte Negro deposit (Table 10-1). Swiss-Boring was contracted to do the drilling using HQ core size. All holes were drilled at an angle. Downhole surveys were performed, but there is no record of the type of instruments used for the surveys. The GENEL JV used a GPS system to locate drill holes and to survey the existing pits.

AMEC verified 5% of the assay data from these holes in 2005 and found no errors in the database.

MIM DRILLING

In late 1996 and into 1997, MIM drilled 31 holes at Pueblo Viejo, 15 in the Moore deposit and 16 in the Monte Negro deposit (Table 10-1). Geocivil was contracted to do the drilling. Core size was HQ with occasional reductions to NQ as necessary to complete the holes. Five holes were vertical and 26 were drilled at an angle. There was apparently no downhole surveys performed on these holes. There is no record of instrumentation used to survey collar locations.

Original data documentation is not available from this drilling campaign for database confirmation and so the laboratory that analyzed the samples or the methodology used cannot be confirmed. Source certificates for confirmation of the database results are not available. Drill logs were entered into MS Excel and assays presented as printouts.

Placer personnel found some of the core, but because of its very poor condition, it could not be relogged or reassayed.

HISTORICAL DRILL HOLE SURVEYING

It has been concluded that the accuracy of the surveying methods used for GENEL JV holes are suitable to support resource estimates. The accuracy of collar and downhole surveys for Rosario and MIM drill holes cannot be confirmed. However, review of comparisons made between the results of these holes and results from more recent proximal holes of good quality, it has been taken to be sufficiently accurate to support resource estimates.

PLACER DRILLING

Placer completed 3,039 m of core drilling in 18 holes during 2002 and 15,331 m of core drilling in 115 holes during 2004 (Table 10-1). The drilling used thin-walled NQ rods that produce NTW (57 mm) core. All but one of the holes was angled, allowing the vertical sulphide veining to be better represented in the drill hole intercepts. Placer drilled with oriented core to calculate the true orientations of bedding, veining, and faulting in the deposit areas.

Drill pads were located using GPS or surface plans where the GPS signal was weak. After completion, the drill hole locations were surveyed in UTM coordinates by a professional surveyor, translated into the mine coordinate system, and entered into the drill hole database.

Two or three downhole surveys were completed in all drill holes using a Sperry-Sun single-shot survey camera. Surveys were spaced every 60 m to 75 m and deviation of the drill holes was minimal. Azimuth readings were corrected to true north by subtracting 10°.

Drill holes were logged on paper forms using codes, graphic logs, and geologists' remarks. Geological information related to assay intervals was recorded on a geology log. A second log was used to record structural information and a third log used to record geotechnical information. Coded data and remarks were typed into MS Excel spreadsheets and edited on site by geology technicians. Coded data were later imported into Gemcom to generate sections for resource modelling.

The following data were recorded on the geological log:

- Lithology – type, interval in metres
- Assay – interval, sample number (interval normally 2 m but intervals were also cut at lithology changes or major structures)
- Oxidation – oxide, transitional, or sulphide facies
- Alteration – type, intensity
- Veining – type, estimated percentage
- Disseminated sulphides – type, percentage

The following data were recorded on the structural log:

- Oriented Interval – core interval oriented by crayon mark
- Structure Interval – downhole depth of structure

- Structure description – type, true thickness (mm), oxidized (Y/N)
- Structure angle – alpha angle to core axis (0-90°), beta angle from bottom of the core to the downhole apex of the structure (0-360°)
- Vein composition/dominance – minerals in vein listed in order of abundance

The following data were recorded on the geotechnical log (by technicians under the supervision of a geologist):

- Drill interval – From-To and length in metres of block-to-block intervals; 1.5 m under normal drilling conditions
- Core recovery – measured in block-to-block intervals
- Sum of core pieces greater than 10 cm (rock quality designation, or RQD), measured from block-to-block intervals
- Fracture count – number of natural fractures per interval
- Oriented – whether or not drill interval was successfully marked with orienting crayon

Prior to making geotechnical measurements, the entire core interval was removed from the core box and placed in a long trough made of angle-iron. The fractures in the core were lined up and artificial fractures were identified. This process allowed the technician to mark the orienting line on the core for a better estimate of core recovery and RQD.

EVALUATION OF DRILLING PROGRAMS

Validation of the historical drilling information was addressed as part of AMEC's 2005 Pueblo Viejo Technical Report. To evaluate the possible biases between drill types and to validate the historical Rosario and MIM drilling information, Placer and AMEC performed two tests prior to the 2006 Barrick drilling. The first test compared assays from Placer and previous drilling programs. The second test was a cross section review.

The following conclusions were summarized in Barrick (2007):

- Approximately 2.5% of the Rosario data have been verified against original documents. Extensive evaluations of the possible bias introduced by various drilling procedures have been undertaken by Fluor, PAH, Placer, and AMEC. After reviewing the drill data, AMEC was of the opinion that the Rosario core, RC, and some Rosario conventional rotary data (pre-1975 and some Rosario RS-series) are generally reliable. There may be some bias in the RC data but those holes have been individually evaluated and obvious problems have been eliminated. The risk involved in using those data is judged to be acceptable. Drilling types that have produced questionable results, such as the

P-series percussion holes, ST-series rotary holes and select RC holes, have been excluded from the database and are not used in the resource estimate.

- GENEL JV data have been verified against original documents and are believed to be reliable.
- MIM data have not been verified against original documents and there is some risk involved with using those data. AMEC compared those data to nearby Placer data and found that the MIM holes indicated mineralized zones with very similar tenors and thicknesses as the Placer and Rosario data. The risk involved with using the MIM data is considered acceptable.
- Placer data have been verified against original documents and are believed to be reliable.

PVDC further reviewed the historical drill hole data prior to updating the 2007 resource estimate (see Section 12).

PVDC DRILLING

2006

PVDC completed 10,015 m of core drilling in 53 holes during 2006. The drilling was a part of the resource confirmation program conducted by the Barrick Geological Team. Six holes totalling 1,506 m were drilled to identify mineralization along high grade trends and potential mineralization with high priority targets near the pits. Forty-two holes (7,293 m) tested open mineralization along pit edges to define inferred resources along the pit edges, and five holes totalling 1,216 m were drilled to test the pit bottom.

The drilling was completed using thin-walled NQ rods that produce NTW (57 mm) core. Some holes were started on PQ and some holes were reduced to 42 mm. All the core holes drilled by Barrick were angle holes, allowing for a better representation of the vertical sulphide veining.

Drill pads were marked with wooden pegs after using GPS to find the pre-selected locations. In areas where the GPS signal was weak, the Rosario bench map and IKONOS satellite images were used. Holes were aligned using foresight and backsight pegs.

Two or three downhole surveys were completed in all drill holes using a Sperry-Sun single-shot survey camera. Surveys were spaced every 60 m to 75 m and deviation of the drill holes was minimal. Azimuth readings were corrected to true north by subtracting 10º. After completion, a wooden post marked with the drill hole number was placed in the collar of every hole. Final drill hole locations were then surveyed in UTM coordinates by a professional surveyor, translated into the mine coordinate system (truncated UTM), and entered into the drill hole database.

2007

Exploration drilling undertaken during 2007, post-dating the Barrick Feasibility Study Update exploration programs, concentrated on exploration drilling near the pits, condemnation drilling in the proposed plant area, and exploration drilling in outer targets. A total of 63,051 m of drilling was completed in 230 core holes resulting in the discovery of new deeper mineralization on the east side of Monte Negro and additional mineralization in the west part of the Moore pit.

2008

During 2008, PVDC completed 123 diamond drill holes for 32,509 m. The programs included definition drilling on open mineralization at Monte Negro North, definition drilling between the Moore and Monte Negro pits, and geotechnical drilling to define pit slope parameters. In addition, 19 diamond drill holes for 3,366 m were drilled into the limestone areas to assist in the definition of limestone quality for construction and processing purposes.

2009

No PVDC drilling was undertaken in 2009.

2010

In 2010, PVDC undertook a close-spaced RC grade control drilling program for Phase 1 pit shells in the Moore and Monte Negro pits. This drilling comprised 1,013 holes for 38,436 m in the Monte Negro pit and 626 holes for 22,010 m in the Moore pit. In-fill RC drilling of 33 holes for 5,306 m was also carried out within the limestone resource areas.

2011

PVDC continued close-spaced RC grade control drilling program for Phase 1 pit shells in the Moore and Monte Negro pits. This drilling included 409 holes for 10,376 m in the Monte Negro pit, and 612 holes for 17,048 m in the Moore pit.

2012

The RC grade control drilling totalled 902 holes for 34,474 m in the Monte Negro pit and 620 holes for 24,906 m in the Moore pit. Hydrogeology drilling totalled 94 holes for 15,321 m.

2013

The RC grade control drilling totalled 619 holes for 24,630 m in the Monte Negro pit and 996 holes for 43,076 m in the Moore pit. Hydrogeology drilling totalled 92 holes for 16,854 m.

2014

Over 40,000 RC grade control samples and over 3,000 blasthole samples taken from the Moore and Monte Negro pits were assayed in 2014. The RC grade control drilling totalled 495 holes for 23,458 m in the Monte Negro pit and 1,182 holes for 51,614 m in the Moore pit. Hydrogeology drilling totalled 11 holes for 1,992 m. In addition, 25 exploration RC drill holes totalling 5,674 m were completed mostly in the Monte Negro 10 North and Cumba areas.

During 2014, 75 piezometer and water well holes for 12,662 m were used to update the geologic model, of which 3,204 m were sampled and included in the resource estimation.

2015

The Minex (minesite exploration) drilling campaign during 2015 included 38 RC holes totalling 5,890 m and 29 RC holes totalling 2,492 m to test the limestone. Geotechnical drilling totalled two holes for 382 m and hydrogeological drilling totalled 21 holes for 3,506 m

The RC grade control drilling totalled 461 holes for 20,810 m in the Monte Negro pit, 27 holes for 1,644 m in the Monte Negro 10 pit, and 1,781 holes for 68,828 m in the Moore pit.

2016

Minex drilling campaign included 18 RC holes totalling 3,696 m. Reserve definition drilling totalled 87 holes for 9,962 m and limestone drilling totalled 29 RC holes for 696 m.

The RC grade control drilling totalled 616 holes for 26,262 m in the Monte Negro pit, 236 holes for 14,788 m in the Monte Negro 10 pit and 1,678 holes for 74,543 m in the Moore pit.

2017

Minex drilling campaign included 59 RC and diamond drill holes totalling 13,708 m in the Upper Mejita, Monte Negro Feeder, and Monte Negro Underground projects. Reserve definition drilling totalled 110 holes for 17,595 m and limestone drilling totalled 20 holes for 4,144 m including in the ARD1 area. During 2017, the sample interval was changed from two metres to 1.5 m.

The RC grade control drilling totalled 407 holes for 18,814 m in the Monte Negro pit and 1,208 holes for 55,514 m in the Moore pit.

In summary, RPA is not aware of any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

Much of the following description of sample preparation, analyses, and security is taken from Barrick (2007).

SAMPLING STRATEGY

PRE-PLACER DRILLING PROGRAMS

No information is available concerning the sampling strategies used by Rosario during its drilling programs. The record indicates that Rosario generally sampled core on two metre intervals with some samples based on lithology. RC holes were generally sampled on two metre intervals.

The GENEL JV sampled on two metre intervals. The core was split into thirds and one-third was used for the analytical sample. The remainder could be archived or split again for metallurgical testwork.

From the records, it appears that MIM samples were collected on two metre intervals with adjustments for lithological boundaries. There is no documentation of the approach.

Averaged sample intervals for the different drilling campaigns are summarized in Table 11-1.

TABLE 11-1 SAMPLE INTERVAL DATA FOR ROSARIO, GENEL JV AND MIM DRILL HOLES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Drill Hole Series	Company	Avg. Sample Interval (m)	Min Sample Interval (m)	Max Sample Interval (m)	No. Samples Taken	Avg. Au Grade (g/t)
R	Rosario	2.18	0.20	4.60	1,489	2.49
RS	Rosario	1.99	1.00	6.00	9,959	1.79
RC	Rosario	2.00	1.00	2.00	5,003	1.77
DDH	Rosario	2.20	0.08	14.41	8,910	2.02
GEN	GENEL JV	2.00	1.40	2.30	520	2.51
MIM	MIM	1.97	0.20	8.00	2,309	2.21

PLACER DIAMOND DRILLING

Placer sample intervals were normally two metres, but were shortened at lithological, structural, or major alteration contacts. Prior to marking the sample intervals, geotechnicians photographed and geotechnically logged the core, then a geologist quick-logged the core, marking all the geological contacts. Geotechnicians then marked the sample intervals and assigned sample numbers. After the sample intervals were marked, the geologist logged the core in detail and the core was sent for sampling where it was cut into halves using a core saw.

PVDC DIAMOND DRILLING

PVDC adopted Placer's core sampling procedures as described above, with the exception that three metre samples are used in non-mineralized zones.

SAMPLE PREPARATION, ANALYSES, AND SECURITY

ROSARIO

Samples were analyzed by fire assay for gold and silver, by LECO combustion furnace for carbon, and sulphur and by atomic absorption spectrometry (AAS) for copper and zinc. No details are available on crush sizes, sub-sample sizes, or final pulp sample weights used during sample preparation. It was reported in a feasibility study undertaken for Rosario by Stone & Webster International Projects Corporation in 1992 (Stone & Webster, 1992) that the analytical procedures used up to that time were of industry standard.

For the sulphide drilling program that started in 1984, two assay laboratories were present at site, a mainline laboratory responsible for gold, silver, copper, zinc, and iron analyses and a sulphide laboratory responsible for carbon and sulphur analyses. Sample preparation methods are not documented for this period.

Security of the samples after removal from the hole is not documented.

GENEL JV

It is inferred from discussions in GENEL JV documents, that samples were prepared on site by GENEL JV personnel. A one-third split of the core was crushed to minus 10 mesh, homogenized by passing through a Gilson splitter three times and sub-sampled to about 400 g using a Gilson splitter. The sub-sample was packaged and sent to an independent laboratory, Chemex Laboratories Ltd. in Vancouver, British Columbia, Canada (Chemex) where presumably the final pulverization was undertaken. In GENEL JV's documents, the final pulp grain size is not stated.

Samples were assayed at Chemex for gold, silver, zinc, copper, sulphur, and carbon. The procedures are not stated in GENEL JV documentation. A 32-element ICP analysis (G-32 ICP) was performed on each sample.

Security measures utilized by the GENEL JV are not documented.

MIM

No details are available on the sample preparation, analytical procedures, or security measures for the MIM samples.

Core from Rosario, MIM, and GENEL JV drilling was previously stored in inadequate storage facilities, which led to severe oxidation of the remaining core rendering it of limited value.

PLACER

During the 2002 and 2004 programs, drill core was cut in half with a diamond blade saw at site. In both programs, half of the core was archived and stored on site for future reference in suitable storage conditions. In 2002, the second half of the core was used for metallurgical testwork. In 2004, the half of the core that was stored on site was placed in plastic sample bags marked with the appropriate sample number and sealed with a numbered security tag (zap-strap). The manager of the drilling company drove the samples from the site to the airport unaccompanied by a Placer employee. The core samples were sent to Vancouver using airfreight and were received by ALS Chemex Labs Ltd. (ALS), an independent laboratory. No record was kept of the state of the security tags when logged into ALS.

The samples were prepared by marking all bags with a bar code, drying and weighing the sample, crushing the entire sample to greater than 70% passing 2 mm (10 mesh), and splitting off 250 g. The split was pulverized to better than 85% passing 75 µm (200 mesh) and was used for analysis. The remaining sample was stored at ALS in Aldergrove, BC, Canada.

Samples were assayed for gold, silver, copper, zinc, carbon, sulphur, and iron using the analytical techniques listed in Table 11-2. In addition to these elements, multi-element analysis was performed on 80 samples from drill hole PD02-003 using ALS's ME-MS61 procedure. In 2004, every other sample from all drill holes was also analyzed using the ME-MS41 procedure.

All drill core samples from the Placer drilling programs were analyzed for total carbon by ALS's C IR07 LECO furnace procedure. To ensure that the total carbon values represented organic carbon, a suite of 114 samples were reanalyzed by the C-IR6 procedure which removes all inorganic carbonate by leaching the sample prior to LECO analysis. The sample suite represented all of the lithologies found in the deposit area. All exhibited advanced argillic alteration or silicification of varying intensities. The results showed that the total carbon analysis was representative of organic carbon in samples with advanced argillic alteration or silicification.

TABLE 11-2 ALS ANALYTICAL PROTOCOLS FOR PLACER SAMPLES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Element	ALS Chemex Method Code	Description	Range
Au	Au-GRA21	30 g fire-assay, gravimetric finish	0.05-1,000 ppm
Ag	Ag-GRA21	30 g fire-assay, gravimetric finish	5-3,500 ppm
Cu	AA46	Ore grade assay, aqua regia digestion, AA finish	0.01-30%
Zn	AA46	Ore grade assay, aqua regia digestion, AA finish	0.01-30%
C	C-IR07	Total Carbon, LECO furnace	0.01-50%
S	S-IR07	Total Sulphur, LECO furnace	0.01-50%
Fe	AA46	Ore grade assay, aqua regia digestion, AA finish	0.01-30%

PVDC

PVDC drill core is cut in half with a diamond blade saw at site. The entire second half of core is kept for records and future metallurgical testwork. The archived half of the core is stored on site for future reference in suitable storage conditions. The sampled half is placed in plastic sample bags marked with the appropriate sample number and sealed with a numbered security tag.

Core samples from 2006 and early 2007 were shipped directly to ALS, an independent laboratory (ISO 9001, ISO/IEC 17025). PVDC requested fire assay (FA) with AAS finish for gold and silver on 30 g aliquots and gravimetric finishes (GR) for all assays exceeding 10 g/t Au. A 32-element ICP analysis was done on all samples. All of the LECO furnace assays for 2006 and 2007 were done at Acme Analytical Laboratories Ltd., Vancouver (ACME) (ISO 9001), an independent laboratory. PVDC switched to ACME in February 2007. In 2007, PVDC changed the crushing specification from at least 70% passing 10 mesh to 80% passing 10 mesh and also modified the analytical protocols. The gold fire assay aliquot was increased to 50 g and ICP was used for silver, copper, and zinc. Silver values over 50 ppm were reanalyzed using FA-GR and copper and zinc values over 10,000 ppm were reanalyzed using a total digestion method.

ACME set up a sample preparation facility at the Pueblo Viejo site in 2007. RPA previously visited the ACME facility while at the site and found it was clean, organized, and professionally operated. Since mid-2010, PVDC has been preparing the sub-samples on-site and sending the pulverized samples to commercial laboratories: ACME in Santiago, Chile, and ALS in Lima, Peru. PVDC currently requests gold assays by FA with AA on 30 g aliquots and gravimetric finishes for all assays exceeding 10 g/t Au. Silver and zinc values are analyzed using aqua regia digestion method and AA finish. A 35-element inductively coupled plasma atomic emission spectroscopy (ICP-AES) analysis is done on all samples. Sulphur and carbon are assayed by LECO furnace.

Figure 11-1 shows PVDC's on-site sample preparation flow sheet. The crushing and pulverizing specifications have been further increased to the current standard of 85% passing -10 mesh and 90% passing -200 mesh, respectively. The PVDC laboratory does periodic sieve checks as part of its internal quality control procedures. In RPA's opinion, sampling by Placer and PVDC has been performed appropriately for the style of mineralization present at Pueblo Viejo. Sampling of the pre-Placer samples may have been adequate, but there is little in the way of documentation to confirm this. Sample preparation for the Rosario and MIM samples has not been documented.

The RC grade control samples were mostly sent to ALS Chemex in Lima up until early 2013 when the mine began assaying the samples directly at the PVDC laboratory, which is a clean, modern, and very well equipped laboratory. The main difference is that the PVDC laboratory uses a 15 g aliquot compared to 30 g at ALS Chemex.

From 2014 to 2017, all blasthole, RC grade control, and exploration drilling samples were assayed at the PVDC laboratory.

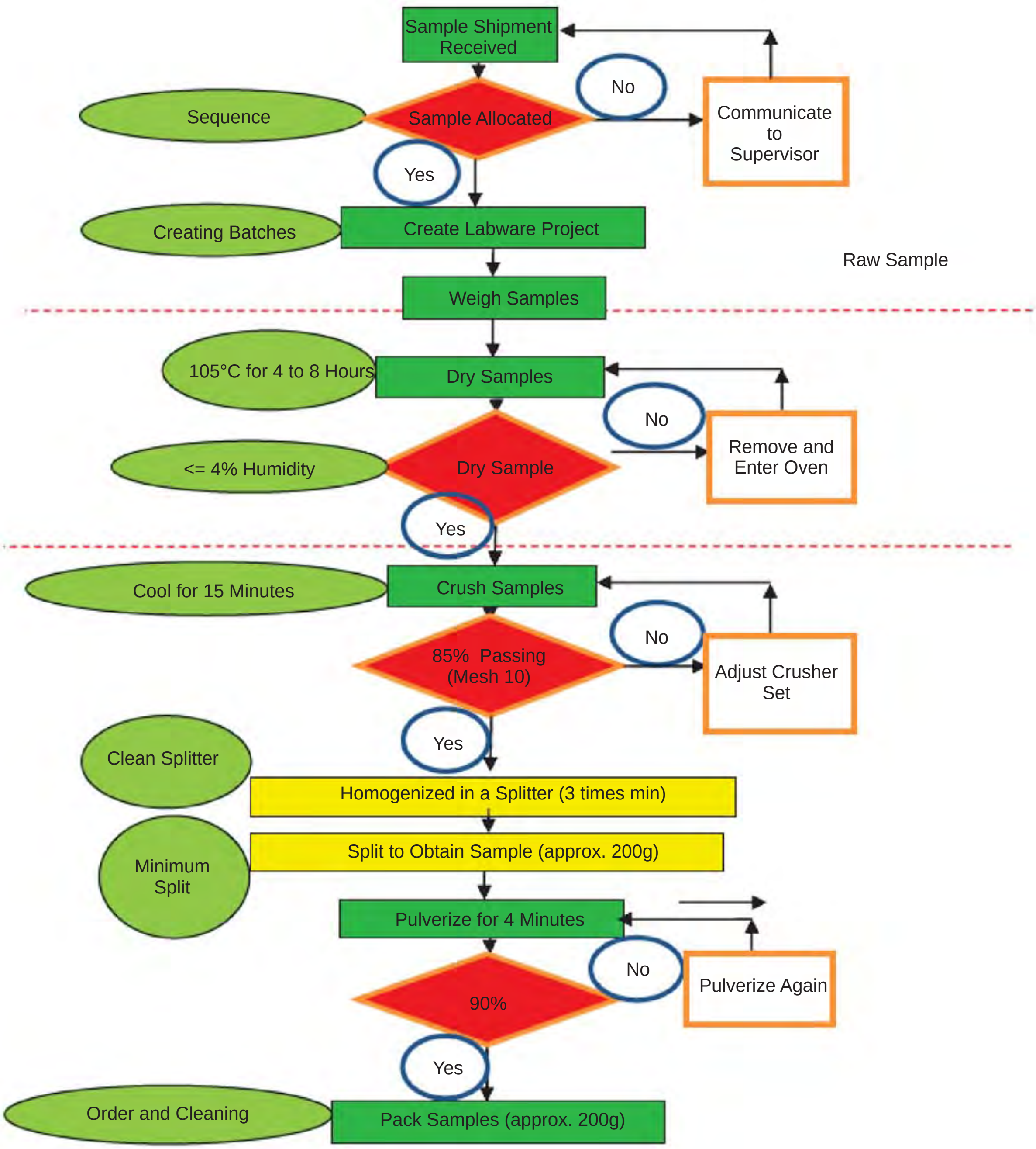


Figure 11-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

PVDC Sample Preparation Procedure

March 2018

Source: Barrick Gold Corporation, 2018.

QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance and quality control (QA/QC) procedures have varied significantly during the work history at Pueblo Viejo. AMEC (2005) found the QA/QC data pertaining to all the historical (pre-2005) drilling programs, except GENEL JV, to be inadequate for proper validation of the assay results. Placer data from 2002 to 2004 was found to be adequate, but improved QA/QC protocols would benefit future drill programs.

ROSARIO

The number of check assays completed for the Rosario drill holes is limited but provides a level of confidence for specific drill holes. In general, Rosario did not insert duplicates, blanks and standards, however, they did send replicates in 1978 and 1985 to outside laboratories.

In 1978, Rosario sent 1,586 replicate samples from ten drill holes to Union Assay Laboratory in Salt Lake City, Utah. The gold check assays exhibited substantial scatter, including several obvious outliers. Some of the scatter may have been due to sample swaps, but most of it was unexplained. There was a small bias just outside a reasonable acceptance limit of 5%. Overall, excluding obvious outliers, the data corresponded reasonably well. The silver data was similar to the gold data in the significant amount of scatter and the large number of outliers. There was a small (5%) bias between the laboratories. Copper exhibited a small amount of scatter and no appreciable bias between the laboratories. Zinc exhibited more scatter than copper but less than gold and silver, although some of the outliers appeared to be sample swaps. There was about a 7% bias between the laboratories (direction of bias not stated).

In 1985, Rosario sent samples to three laboratories for gold, silver, carbon, and sulphur assay validation including:

- 392 samples sent to the Colorado School of Mines Research Institute (CSMRI) for check assaying of the Au and Ag values in three batches.
- 236 samples sent to Hazen Laboratories.
- 154 samples sent to AMAX Research and Development Laboratory for sulphur and carbon analysis. Results for these checks have not been located.

AMEC (2005) reviewed the CSMRI check and reported that gold results generally corresponded well, but there were a number of outliers, possibly caused by sample swaps.

The same conclusions were drawn for silver. AMEC also noted that there was a small bias between the two laboratories of about 7% (direction of bias not stated).

GENEL

The GENEL JV used a combination of duplicate and Standard Reference Materials (SRMs) to monitor the quality of its assays and a detailed review of the results found that the relative error of the 171 duplicates at the 90th percentile was 14%, which is very good precision for gold mineralization, and that the standard results were generally within acceptable limits (AMEC, 2005). However, the standard dataset includes many results that exceed the accepted limits and it is not known if these samples were reassayed.

MIM

The MIM samples have no known QA/QC data.

PLACER

In 2002, Placer inserted SRMs as every 20^{th} sample to the primary laboratory, ALS. The SRMs were commercially purchased for gold only and corresponded to the average grade and cut-off grade at the time. Plots of gold versus batch number showed that the majority of the SRMs returned values within two standard deviations of their established means.

In 2004, Placer began inserting one blank (barren limestone) in addition to one SRM with every batch of 20 samples. All of these standards and the blank were assayed for Au, Ag, C, S, Cu, Fe, and Zn and provide a basis to evaluate the performance of those elements. AMEC calculated best values for all of the elements in each sample based on the results from ALS. Gold was the only certified value, and the best values calculated from the ALS data were indistinguishable from the certified values indicating that ALS generally performed well. The blank data (380 analyses) generally showed blank values except for ten anomalies, which were attributed to inadvertent switches with SRMs.

Placer also monitored the ALS internal quality control results for its blanks, duplicates, and SRMs. As well, Placer sent approximately ten sample pulps from every drill hole, resulting in 187 samples, or 13% of the total samples, from the 2002 drill program, to ACME. An additional 247 sample pulps were shipped during the 2004 drilling program and were analyzed for gold only. SRMs were not inserted into the external check pulp shipments. Results for gold, copper, and zinc indicated no significant biases between the two laboratories. The ALS Chemex silver assays, however, averaged approximately 12% lower than ACME.

ALS QUALITY CONTROL

ALS conducted analytical quality control in its laboratory by inserting blanks, standards, and duplicates into every sample run with results being reviewed by laboratory staff.

PVDC

PVDC inserted two blanks, two standards (commercial and custom), and two core duplicates into each batch of 75 samples sent to ALS. From February 2007 onwards, PVDC inserted two blanks, two to three standards (commercial and custom), two core duplicates, two coarse duplicates, and seven cleaning blanks into each batch of 76 samples prepared on the site and sent to ACME.

The PVDC geology department currently inserts three certified reference materials (CRM), three field duplicates, and two blanks into each batch of 60 samples. This is in addition to the two percent of cross checks in pulp duplicates. Consequently, 15% of the samples in each batch of 60 samples are quality control samples.

Since August 1, 2007, PVDC has been sending approximately 5% of the pulps to a secondary laboratory.

The ACME on-site preparation facility carried out regular granulometric control tests on approximately three percent of the crushed and pulverized material. The results were monitored by ACME and PVDC personnel. The PVDC laboratory has continued this practice and these results are included in monthly QA/QC reports.

From July 2006 to August 2007, PVDC sent 29,977 samples and 2,997 control samples, or 10%, to ALS and ACME. The control samples included 958 blanks, 960 core duplicates, and 1,079 SRMs. The blank results show a significant reduction in failures in February 2007, coincident with the changeover to ACME. The scatter plots compiled by PVDC indicate fairly poor precision for core duplicates, probably in the ±30% to ±40% range for assays in the 2 g/t Au to 4 g/t Au range. Scatter plots for the duplicates were also compiled on a monthly basis and some months exhibit significantly more scatter than others, suggesting that some parts of the deposit, such as the Stage III veined areas, have much higher nugget effects than other parts.

PVDC made five custom CRMs, averaging approximately 1 g/t Au to 10 g/t Au, from Pueblo Viejo mineralization. PVDC also inserts commercial CRMs. The commercial CRMs had much higher failure rates, in the 5% to 10% range, compared with the in-house standards with failure rates of generally less than 1% to 2%. No gold assaying bias is evident from any of the standard quality control charts.

Monitoring is completed on a batch by batch basis. For check samples that fell outside of the established control limits, PVDC examined the cause and, if found not to be the result of a sample number switch, the relevant batch was re-assayed. Corrective actions taken by PVDC are detailed in its in-house resource database and reports.

RPA reviewed the QA/QC results for the RC grade control samples sent to ALS Chemex in 2012 and directly to PVDC in subsequent years and makes the following comments:

2012

- 1,556 blanks were prepared at the PVDC laboratory and assayed at ALS Chemex in Lima. The detection limit for gold was 0.005 g/t. Approximately 6% blanks were above 0.05 g/t Au, however, only 3% exceeded 0.1 g/t Au.

- The 3,705 RC grade control field duplicates showed relatively good precision for gold with an overall relative standard deviation (RSD) of 28% and a precision of approximately ±33% at 1 g/t Au and 26% at 2 g/t Au, with no outliers removed but the maximum grades available in the data set at the 10 g/t Au overlimit analytical threshold.

- Eight CRMs with grades ranging from approximately 1 g/t Au to 8 g/t Au and 5% S to 12% S were assayed at ALS Chemex in Lima. The 2,658 CRM results showed good accuracy and no significant bias. In 2013, the same eight CRMs were assayed at the PVDC laboratory. The 2,490 CRM results showed good accuracy and no significant bias.

2013

- 1,248 blanks were prepared and assayed at the PVDC laboratory. Approximately 11% blanks were above 0.05 g/t Au, however, only 1% were above 0.1 g/t Au.

- 3,738 RC grade control field duplicates assayed at the PVDC laboratory showed relatively poor precision for gold with an overall RSD of 58% using all data including grades up to 78 g/t Au. Using 3,616 original assays with grades less than 10 g/t Au reduces the RSD to 46% and a precision of approximately ±63% at 1 g/t Au and 53% at 2 g/t Au, which is significantly worse than 2012.

2014

- The 2,396 blank results showed good performance with low failure rates.
- The 3,555 CRM and 3,724 field duplicates had higher failures.

2015:

- Twelve CRMs with grades ranging 1 g/t to 6 g/t Au certified by Smee & Associates Consulting Ltd. were used and assayed at the PVDC laboratory. The 1,946 CRM results show good accuracy with a small percent of failures.
- The 2,836 RC grade control duplicates showed relatively poor precision for gold with an overall RSD of 42%, however, the overall coefficient of correlation of 0.89 is good.
- Only one failure from the 2,782 blank results was identified confirming no sample contamination problem.

2016

- Eight CRMs were assayed at the PVDC laboratory. The 9,589 CRM results showed good accuracy and no significant bias, and a small percent of failures.
- No failure was identified for the 2,388 blanks results.
- The 3,580 RC grade control duplicates showed relatively poor precision for gold and the overall coefficient of correlation of 0.78 is lower than in the previous year.

2017

In 2017, PVDC inserted CRMs, blanks, field duplicates and carried out cross checks to monitor the quality of the blasthole, RC grade control, and exploration drilling samples that were assayed at the PVDC laboratory. The quality control results were monitored by the Database Manager on a regular basis and are well documented in monthly reports. Overall, approximately 15% of the samples assayed were for quality control.

RPA reviewed the results for the exploration and grade control samples analyzed at the PVDC assay laboratory between January 1 and December 31, 2017. A total of 1,670 CRMs, 2,502 blanks, 2,502 field duplicates, and 1,000 laboratory pulp duplicate external checks (analyzed at Bureau Veritas Commodities Canada Ltd.) were inserted into the sample stream during this period, for the grade control samples. There were eight percent CRMs failures and some of them showed a slightly low bias. Two blank failures during this period were identified. The field duplicates showed relatively poor precision for gold with an overall RSD of 57%, however, the pulp checks show a good accuracy with an RSD of 16% and correlation coefficient of 0.98.

For the exploration samples, a total of 723 CRMs, 1,286 blanks and 1,086 field duplicates were used. There were nine percent CRMs failures and some of them showed a slightly low bias. No blank failures were identified during this period. The field duplicates showed relatively poor precision for gold with an overall RSD of 56%. Overall, the failure rates were low for the blanks and high for the CRMs. RPA recommends that PVDC compile and report the results on an annual basis in addition to the monthly reports, implement procedures that will reduce the elevated CRM failure rates and poor and field duplicate precision experienced in 2017. RPA also recommends that PVDC incorporate CRMs in the external checks.

RPA SUMMARY AND COMMENTS

QA/QC procedures have varied significantly during the history of work at Pueblo Viejo. During the time of Rosario's operation, QA/QC consisted of two batches of check assays sent to a second laboratory without duplicate, blank, or standard samples. Although the QA/QC was sub-standard relative to current industry practice, it must be viewed in its historical context and check assaying was the industry standard for QA/QC at that time.

MIM sample data lack any QA/QC validation. The quality of those data is indeterminate. There is no reason to believe that there are any problems with those data, but the quality cannot be directly evaluated. Comparison of the tenor and thickness of mineralized zones defined by the MIM data with tenor and thickness of mineralized zones defined by the Placer and GENEL JV indicate that the grades are similar.

Placer relied on two standards and check assaying for QA/QC. No duplicate samples were analyzed and the check analysis program included no certified reference materials or blank samples.

In RPA's opinion, the overall QA/QC results from PVDC are acceptable and show that sample preparation carried out by PVDC and assaying completed by the PVDC and commercial laboratories are acceptable for resource estimate purposes. RPA is also of the opinion that sample security is adequate and meets industry standards.

Based on RPA's past evaluations and current review, it is RPA's opinion that the data are acceptable for the purposes of overall resource and reserve estimation and economic assessments. Some of the data may result in minor inaccuracies in local estimates.

12 DATA VERIFICATION

Much of the following description of data verification is taken from Barrick (2007) with additional material from AMC's 2011 Technical Report.

PRE-PLACER DATA

American Mine Services (AMS), as part of the 1992 Stone & Webster (1992) study, developed a computer database consisting of drill hole collar locations, assays and assay intervals, and geological data. The AMS database formed the foundation of the database provided to the GENEL JV and MIM in 1995 and subsequently acquired by Placer. Placer compared the GENEL JV database with that provided by Rosario and confirmed that only minor changes had been made since AMS's validation exercise. The changes were corrected based on original Rosario assay sheets and drill logs at the Pueblo Viejo site.

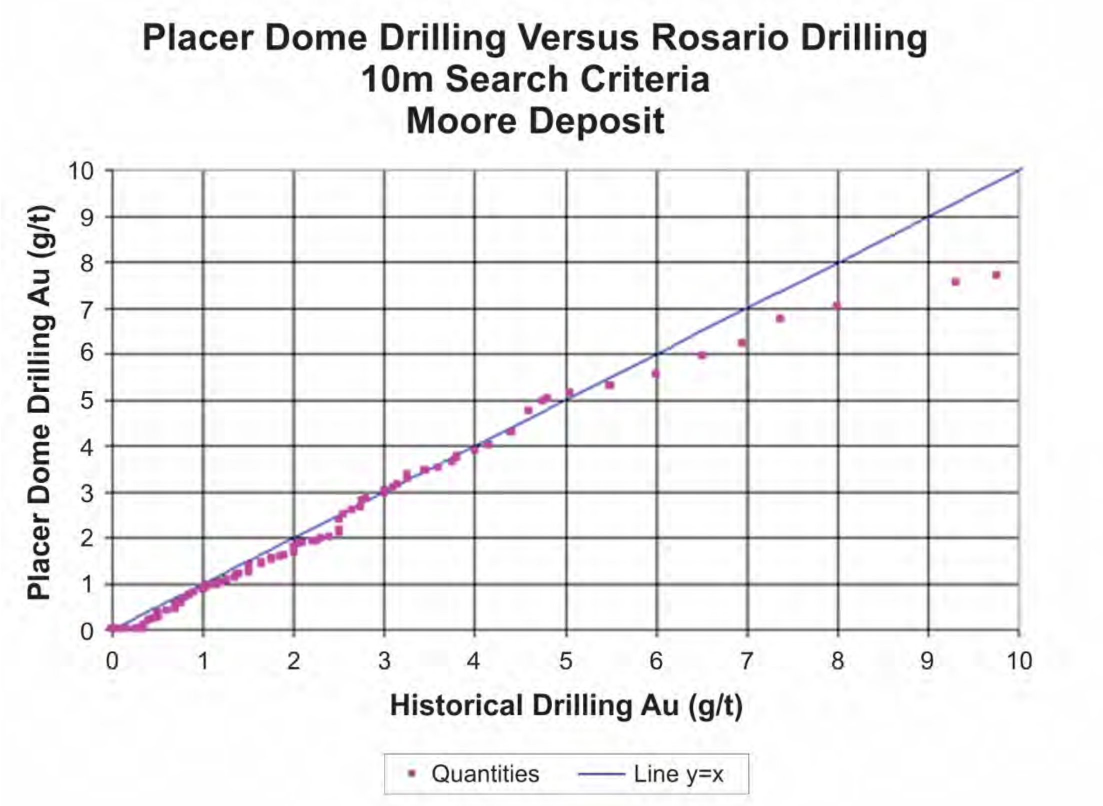
Placer compared drill locations and assay grades to original paper plans and sections at the mine site. Drill hole collar maps were plotted using the computer database and compared against hand-drawn maps and typewritten drill hole collar reports. A complete description of the validation work is contained in Placer (2003).

For the MIM drill holes, original drill logs or assay certificates are not available for validation. Assay data for MIM drill holes was received electronically. For the GENEL JV drill holes, the original assay certificates, which were used to validate the assay database and copies of drill logs, were printed from an MS Excel database. These were entered from the original logs, which have been lost. Survey notes are not available to validate the GENEL JV collar data. Placer checked 8% of the Rosario samples, 64% of the GENEL JV samples, none of the MIM samples, and 0.8% of its own samples and found very few data entry errors.

DRILL HOLE PSEUDO PAIRINGS

Rosario "pseudo" twin assay pair testing was completed by AMEC (2005). The test compared results of nearby holes by searching for Rosario samples near Placer drill holes (2002 and 2004 drilling programs) and also using earlier drilling by GENEL JV. Assays from Placer and GENEL JV drilling were paired with assays from Rosario drilling using different search radii and AMEC constructed declustered QQ plots and confirmed conclusions by Placer. The work generally showed that Rosario drilling was reliable, although biases where noted at grades higher than 6 g/t Au and below 2 g/t Au (Figure 12-1).

FIGURE 12-1 AMEC DRILL HOLE COMPARISON



HISTORICAL TWINNED HOLE COMPARISONS

As part of the 1986 Feasibility Study, Fluor (1986) undertook "twinned" hole comparison, looking at closely spaced drill holes applying a metal accumulation (grade x interval thickness) approach. Fluor concluded that there was no significant gold, silver, and zinc biases and that "carbon assays were consistently lower by 7% and zinc assays were lower on average by 36% than the original hole". One hole, RS-40, was removed from the resource estimation database because it appeared to have been drilled down a near-vertical mineralized structure. This hole has been re-instated and was included for the current resource model.

AMEC (2005) compiled a list of "twinned" holes (Table 12-1) and found that the wide divergence in "twinned" hole behaviour allowed no simple conclusions to be drawn. AMEC also observed that there was a tendency for RC holes to return somewhat higher grades and metal contents than core holes, due possibly in part to localized, downhole contamination in the RC holes; and that there appeared to be zones within the Pueblo Viejo deposits where the grades were extremely erratic and holes separated by only a few metres returned very different results. AMEC concluded that this probably explained many of the differences observed between twin holes. RPA notes that the 39 "twinned" holes in Table 12-1 represent pairs of holes with collars that are located within approximately one metre to ten metres. Normally, twinned holes are drilled to compare the reliability of different sample media and diamond drill holes are used to validate RC holes.

The types of "twin" hole pairs are summarized in Table 12-2. There are 26 pairs of holes that are of the same type, including eighteen rotary air blast (RAB) pairs, five diamond drill hole pairs, and three RC pairs. These 26 pairs are useful for investigating short-range variability, which is reported to be high locally (AMEC, 2005). Some of these same type drill hole pairs may have been a second test of holes with unusually high or low values. These 26 pairs cannot be used to validate the results from specific historical drilling programs.

TABLE 12-1 TWIN HOLE DATA IN AMEC (2005)
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Hole-ID	Easting	Northing	Elevation	Length
AH367	73626.00	96332.70	472.40	34
AH533	75615.30	95618.90	311.70	16
DDH131	75756.00	94552.00	214.50	38.2
DDH161	76159.75	94600.34	348.61	232.5
DDH162	76000.00	95302.20	338.39	242
DDH218	74992.03	95750.30	381.28	108
DDH219	74881.52	95808.29	363.06	116.1
DDH258	74312.19	95613.00	303.35	89.6
DDH259	75836.23	95092.43	310.96	187.85
GEN_MDD2	75871.76	94400.91	219.52	132.2
GEN_MNDD1	75210.71	95175.38	262.67	27.4
GEN_MNDD4	75151.64	95600.18	318.77	140.2
GT04-10	76251.35	94657.25	344.92	126.49
MIM_MN007	75175.61	95713.38	351.77	50.3
MIM_MO007	76006.03	94476.26	245.14	200.15
MIM_MO015	75903.42	94702.51	258.41	150
R117	76674.50	94570.10	328.70	18
R17	75992.00	94298.00	243.50	98.3
R29	75860.00	94455.60	226.60	18.3
R42	76233.00	95003.00	332.80	77.7
R60	75856.00	94782.00	258.00	75.4
R70	75852.00	94832.00	264.60	91.4

Hole-ID	Easting	Northing	Elevation	Length
RC14	75043.02	95746.28	380.13	204
RC15	75115.12	95394.38	309.67	114
RC16	75985.15	94802.10	281.68	84
RC16	75985.15	94802.10	281.68	84
RC9	75115.18	95397.14	309.79	208
RS111	74904.55	95592.19	344.56	56
RS131	75290.86	95100.48	251.04	116
RS142	75195.50	95362.30	291.90	150
RS2	76165.87	94596.29	348.84	152
RS3	76169.54	94604.54	349.04	202
RS4	76175.83	94609.45	349.41	72
ST257	75947.72	94360.58	220.18	30
ST329	76252.18	94759.21	337.08	30
ST445	75073.19	95630.21	341.21	10
ST543	74882.45	95652.65	344.62	12
ST569	75633.84	95850.93	338.29	11
ST630	76252.18	94759.21	337.08	60
AH369	73626.10	96332.80	472.40	26
DDH233	75615.32	95618.90	311.73	128.6
RS83	75751.20	94546.53	215.65	174
RS2	76165.87	94596.29	348.84	152
RS11	76000.14	95301.24	329.35	130
RC3	74992.97	95747.84	381.18	210
RS108	74882.88	95808.97	362.81	184
AH395	74314.00	95608.40	304.20	40
RC47	75834.01	95097.23	311.25	112
GEN_MDD2A	75871.76	94400.91	219.52	40
GEN_MNDD1A	75209.46	95175.25	262.41	74.1
GEN_MNDD4A	75151.64	95600.18	318.77	18.3
RC21	76251.48	94647.66	347.44	177
MIM_MN008	75175.61	95713.38	351.77	122
MIM_MO009	76005.00	94476.30	245.10	200
RC23	75899.97	94700.09	261.05	178
R117B	76675.72	94571.16	329.03	44
RS135	75997.24	94302.59	247.42	200
R30	75860.90	94451.10	226.60	59.4
RS90	76232.80	95005.17	329.34	194
ST562	75856.42	94787.88	258.30	60
RC51	75845.41	94837.84	265.80	164
RS94	75051.03	95752.06	379.84	237.58
RC9	75115.18	95397.14	309.79	208
RC18	75981.53	94808.59	281.36	146
RS40	75984.90	94800.80	288.90	180
RC15	75115.12	95394.38	309.67	114
RS111A	74901.39	95583.09	343.61	140

Hole-ID	Easting	Northing	Elevation	Length
ST455	75291.20	95104.90	250.00	60
ST183	75196.20	95370.70	291.90	50
RS3	76169.54	94604.54	349.04	202
RS4	76175.83	94609.45	349.41	72
RS5	76184.67	94605.36	349.38	142
ST236	75947.78	94361.00	220.00	30
ST630	76252.18	94759.21	337.08	60
ST445A	75073.19	95630.22	341.21	50
ST543A	74882.45	95652.65	344.62	32
ST578	75633.84	95850.93	338.29	16
ST631	76252.18	94759.21	337.08	50

TABLE 12-2 TYPES OF DRILL HOLE "TWINS"
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Description	Count
DH versus RAB	6
DH versus RC	4
RC versus RAB	3
DH versus DH	5
RAB versus RAB	18
RC VS RC	3
Total Number of "Twins"	39

Placer (2005) used the average of 17 "twin" holes (Table 12-3), including four pairs that are spaced more than 10 m apart and that are not included in Table 12-3, to conclude that:

> *the average grades of the twinned hole results compare well, within 10% of each other. There does not appear to be any obvious trends between drilling methods, as many of the different drilling methods compare well*.

Placer (2005) excluded two additional twin pairs (RC16-RS40 and DDH259-RC47) because of poor results and did not use RS-40 in its resource estimate. Placer excluded all of the ST series holes due to concerns related to poor sampling techniques and all of the SX holes because they were outside the resource area. Some 58 R-series, 38 RS-series, and 18 DDH-series holes were also excluded due to contamination concerns or because the holes were situated outside the resource area.

TABLE 12-3 PLACER 2005 "TWIN" HOLES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Hole 1	Hole 2	Distance (m)	Nb Data	Mean 1	Mean 2	Difference	Correlation
DDH 162	RS II	9.1	21	5.054	5.464	8.1%	-0.003
DDH218	RC3	2.6	46	5.355	7.143	33.4%	0.492
DDH219	RS 108	1.5	28	1.827	1.675	-8.3%	-0.203
RC14	RS94	9.9	79	3.393	3.545	4.5%	0.493
RC9	RC15	2.8	46	2.435	2.163	-11.2%	0.040
RS27	RC20	14.9	22	5.932	6.411	8.1%	0.443
RS62	DDH220	11.3	63	0.780	0.725	-7.1%	0.397
RS75	RC17	17.6	77	4.773	5.288	10.8%	-0.094
RS93	RC13	13.7	62	2.529	3.096	22.4%	0.045
DM-1,161	RS2	7.3	66	1.779	1.854	4.2%	0.553
MIMMN007	M1MMN008	0.0	24	1.149	2.140	86.2%	0.405
MIMM0007	MIMM0009	1.0	100	2.319	2.454	5.8%	0.437
MIMM0015	RC23	5.0	74	3.360	3.061	-8.9%	0.134
R70	RC:51	8.9	33	2.026	1.909	-5.8%	0.139
RC16	RC18	7.4	41	3.212	3.333	3.8%	0.529
RS2	RS3	9.0	67	1.850	2.645	43.0%	-0.052
RS3	RS4	8.0	27	2.284	2.209	-3.3%	-0.337
		TOTAL	**876**	**2.851**	**3.125**	**9.60%**	

RPA has reservations about the manner in which twin hole data have been compiled and documented in previous studies. RPA compiled results of six diamond drill holes and three RC holes that twin RAB holes and four diamond drill holes that twin RC holes (Table 12-4).

TABLE 12-4 TWIN HOLE RESULTS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Twin Hole 1	Twin Hole 2	Hole Separation (m)	From (m)	To (m)	Length (m)	Mean 1 (g/t Au)	Mean 2 (g/t Au)	Difference (%)
DDH131	RS83	7.3	18	38	20	4.41	0.21	-95.2
DDH161	RS2	7.3	20	152	132	1.84	1.85	0.5
DDH162	RS11	1.0	0	84	84	6.60	6.12	-7.2
DDH162	RS11	1.0	84	130	46	0.00	1.26	125987.0
DDH219	RS108	1.5	0	58	58	1.81	1.66	-8.3
DDH219	RS108	1.5	58	116	58	0.03	0.05	48.7
			TOTAL		**398**	**2.49**	**2.31**	**-7.3%**
DDH233	AH533	0.0	0	16	16	0.20	0.94	377.7
DDH258	AH395	4.9	0	40	40	1.23	1.88	53.0
			TOTAL		**56**	**0.93**	**1.61**	**72.5**
DDH218	RC3	2.6	0	94	94	5.26	7.01	33.4
DDH259	RC47	5.3	0	50	50	0.10	0.03	-67.2
DDH259	RC47	5.3	50	112	62	1.50	3.98	165.2
			TOTAL		**206**	**2.87**	**4.40**	**53.2**
GT04-10	RC21	9.6	0	54	54	0.34	0.33	-4.2
GT04-10	RC21	9.6	54	126	72	0.83	0.46	-45.2
			TOTAL		**126**	**0.62**	**0.40**	**-35.5**
MIM_M0015	RC23	4.2	0	150	150	3.36	3.05	-9.2
RC51	R70	8.8	0	92	92	1.81	1.95	7.3
RC16	RS40	1.3	2	84	82	3.21	6.76	110.6
RC14	RS94	9.9	24	110	86	5.14	5.11	-0.7
			TOTAL		**168**	**4.20**	**5.92**	**40.8**

The RAB holes can be divided into shallow rotary holes (AH, HA, CU, MN, MO, ST, SX, and R-series) and the deeper RS-series rotary holes. The AH-, CU-, HA-, and SX-series holes are less relevant because they were drilled mostly on targets outside the resource area. Only three shallow rotary holes have been twinned and these limited results suggest that the AH-series holes are unreliable as they significantly overstate the grade. The single R-series rotary hole from 0 m to 92 m compares very well with hole RC51, collared 8.8 m away. In general, the four diamond drill holes and the single RC hole (excluding RS40) match the RS-series holes reasonably well, with the exception of DDH131-RS83 and the likely contaminated deeper portion of hole RS11 from 84 m to 130 m.

The results for three out of the four RC holes that were twinned by diamond drill holes are very poor. The electronic database only contains core recovery data for the PVDC holes and does not contain any water table information.

Neither Placer nor PVDC twinned any holes, with the exception of GT04-10, which is a low grade geotechnical hold drilled by Placer. All of the twinned hole data except for the MIM hole were generated by Rosario.

RPA is of the opinion that the assay results from some of the Rosario drill holes, either entire holes or portions thereof, may be biased slightly to significantly low or high. This is consistent with the Fluor (1986) observation that poor core recovery did affect gold grades in samples, but in both positive and negative ways, and that in the context of the whole deposit, “statistical noise” was apparent – but the data were not biased.

VERIFICATION OF PRE-PVDC DATA

PLACER DATA

AMEC compared one in twenty samples in the Placer part of the assay database with original assay certificates and found no errors. Approximately 5% of the Placer assay values in the database were checked against original assay certificates.

DOWNHOLE CONTAMINATION OF RC AND ROTARY HOLES

AMEC investigated the possibility of downhole contamination in the RC portion of the drilling at Pueblo Viejo. AMEC’s review focused on the two specific downhole contamination problems that can occur in RC drilling: cyclicity and decay. Cyclicity is the tendency of metal to concentrate at the bottom of holes during pauses in drilling, which typically occurs when rods are changed but can happen at any time during the drilling process. Collapse of unstable zones in RC holes tends to occur when drilling is stopped. Decay is the tendency of material from soft, gold-bearing zones to travel down hole, contaminating samples from less mineralized material. This usually is expressed as a gradual diminishing of values down hole. This feature can also occur naturally due to halos of low grade material around high grade material. Typically, cyclicity and decay are linked. Gold grades can be enhanced by both factors.

AMEC investigated the possibility of downhole contamination in nine Rosario RC holes (RC-series), 16 Rosario rotary holes (RS-series), and 34 other Rosario rotary holes (ST-series). It concluded that the 59 holes investigated showed greater or lesser degrees of possible downhole contamination. However, with the exception of the ST series holes, contamination was not believed to be a widespread problem.

GOLD GRADE DISTRIBUTION COMPARISONS

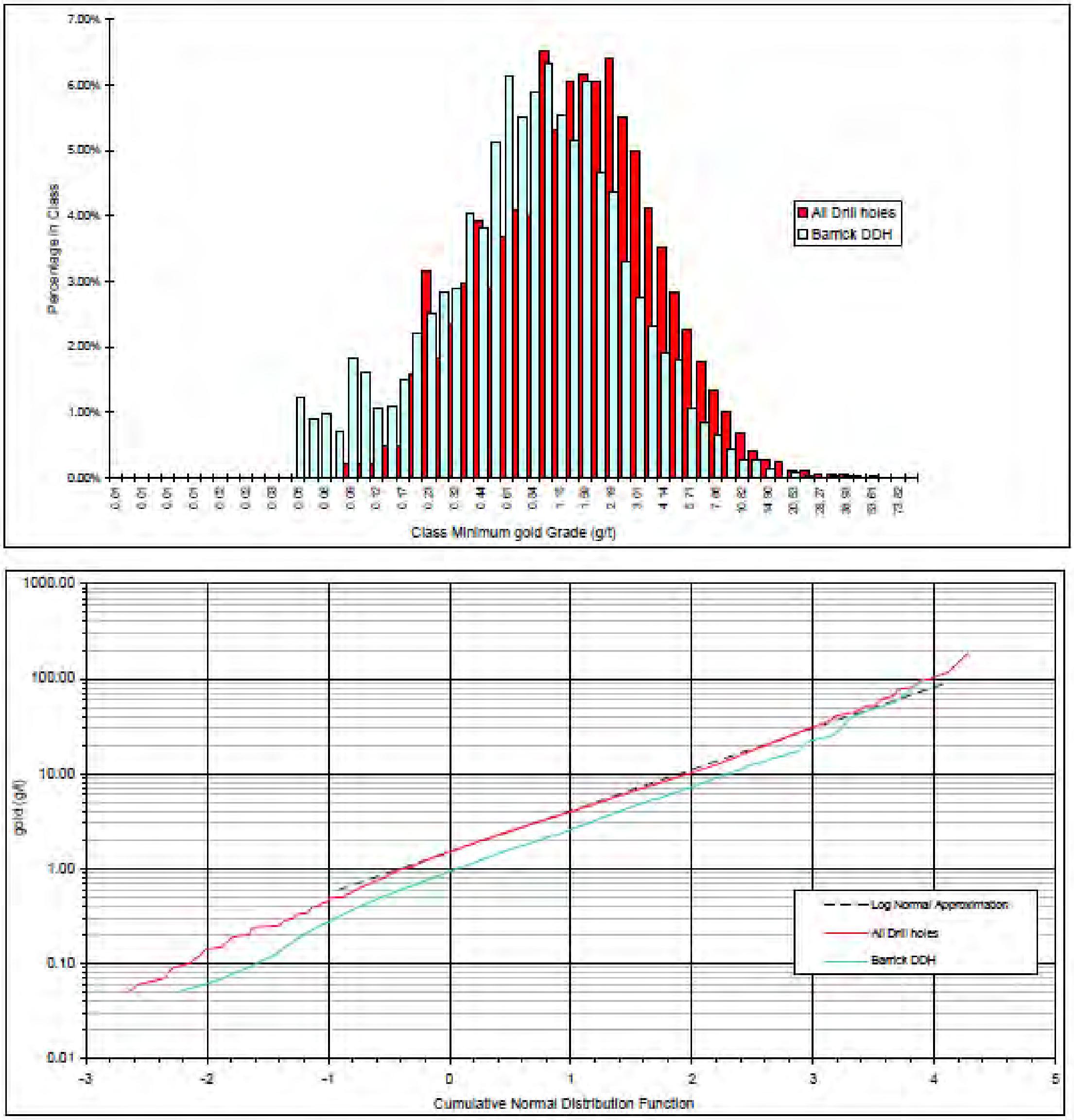
Barrick used gold grade histograms of the historical drilling campaigns, each compared to a histogram of gold assays from all drilling, to identify those campaigns with unacceptable gold grade biases. The comparisons were broken out by company and drilling type. Only the drill holes used for the resource estimate were considered.

The histograms show that the diamond core drilling from all campaigns except PVDC compare well with the global distribution. The PVDC drilling was targeted at the periphery of the existing mineralization so that overall lower grades would be expected (Figure 12-2). The RC and rotary drilling compare well also, with the exception of the Placer rotary holes (Figure 12-3) which are biased high and were possibly preferentially drilled in shallow high grade areas to better delineate early production. The information from these holes should have been removed from the database, but this does not constitute a material issue to the Mine.

CROSS SECTIONAL REVIEW OF MIM, ROSARIO, AND PLACER DRILLING

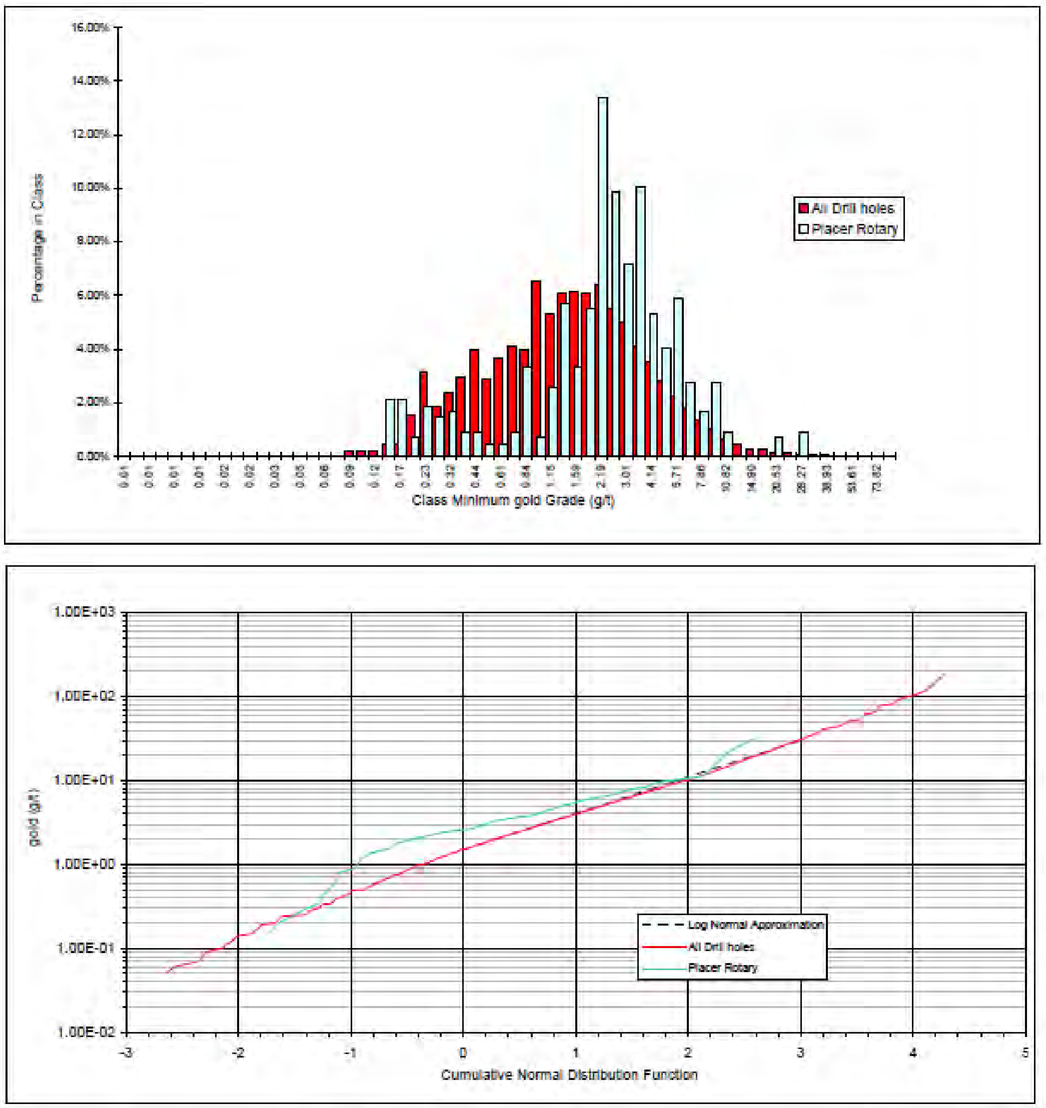
Barrick reviewed the assays from cross sections on the computer screen and assessed the similarity of the MIM, GENEL JV, Rosario, and Placer drilling in both the Moore and Monte Negro deposits. In general, there is close agreement of the orientation, tenor, and thickness of mineralization between drilling campaigns in both deposits where MIM, GENEL JV, Rosario, and Placer drill holes cross.

FIGURE 12-2 FREQUENCY DISTRIBUTION OF GOLD BY DRILLING CAMPAIGN: ALL DRILL HOLES VS. PVDC DRILL HOLES



	Untransformed gold Statistics								Log Normal Approximation Model		
	gold Cutoff = 0.01 g/t		gold Cutoff = 0.50 g/t		gold Cutoff = 1.00 g/t		gold Cutoff = 3.00 g/t			Standard	Third
	Meters	Au (g/t)	Meters	Au (g/t)	Meters	Au (g/t)	Meters	Au (g/t)	Mean	Deviation	Parameter
All Drill holes	100,895	2.392	84,646	2.798	66,387	3.376	24,935	6.025	0.40	1.00	0.00
incr. % and grade	16.1%	0.274	18.1%	0.697	41.1%	1.783	24.7%	6.025			
Barrick DDH	8,231	1.587	5,917	2.109	3,931	2.810	1,047	5.830			
incr. % and grade	28.1%	0.252	24.1%	0.721	35.0%	1.714	12.7%	5.830			

FIGURE 12-3 FREQUENCY DISTRIBUTION OF GOLD BY DRILLING CAMPAIGN: ALL DRILL HOLES VS. PLACER ROTARY HOLES



	Untransformed gold Statistics								Log Normal Approximation Model		
	gold Cutoff = 0.01 g/t		gold Cutoff = 0.50 g/t		gold Cutoff = 1.00 g/t		gold Cutoff = 3.00 g/t				
	Meters	Au (g/t)	Meters	Au (g/t)	Meters	Au (g/t)	Meters	Au (g/t)	Mean	Standard Deviation	Third Parameter
All Drill holes	100,895	2.392	84,646	2.798	66,387	3.376	24,935	6.025	0.40	1.00	0.00
incr. % and grade	16.1%	0.274	18.1%	0.697	41.1%	1.783	24.7%	6.025			
Placer Rotary	546	3.546	487	3.946	454	4.177	234	6.098			
incr. % and grade	10.8%	0.244	6.0%	0.773	40.3%	2.134	42.9%	6.098			

DRILL HOLE DATABASE VALIDATION

The Pueblo Viejo resource database is regularly validated by mine staff using mining software validation routines and by regularly checking the drill hole data on-screen visually. Barrick also runs a number of MS Access queries to validate the database.

SUMMARY

Extensive evaluations of the possible bias introduced by various drilling procedures have been done by Fluor, Placer, and AMEC and, more recently, by PVDC. AMC and RPA have also undertaken checks of database information against original data, and visually reviewed cross-sectional plots of drilling information.

The Rosario core, RC, and some rotary data are generally reliable but may be locally inaccurate. Those data that are considered to be of questionable validity have not been used in PVDC resource estimates. Most of the shallow Rosario drill holes were drilled in oxide areas now mined out and have virtually no influence on sulphide mineral resource estimates.

GENEL JV and Placer data have been verified and are considered reliable.

A portion of the PVDC data has been reviewed by AMC and RPA and is considered to be satisfactory.

Based on RPA's past evaluations and current review, it is RPA's opinion that the data are acceptable for the purposes of overall resource and reserve estimation and economic assessments. Some of the data may result in minor inaccuracies in local estimates.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

The following description of mineral processing and metallurgical testing is largely taken from Barrick (2007).

INTRODUCTION

The Pueblo Viejo Mine consists of two principal open pits: Moore and Monte Negro, with five metallurgical ore types, two at Moore and three at Monte Negro. Table 13-1 summarizes the metallurgical ore types.

TABLE 13-1 METALLURGICAL BLOCK MODEL CODES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Text Code	Ore Type	Preg-robbing	Description
MO-BSD	Moore Black Sediment	Moderate	Fine interbeds of carbonaceous shale and siltstone. Bedding is sub-horizontal and is intersected by vertical sulphide veins. It is a main lithology and exposed within the Moore pit.
MO-VCL	Moore Volcaniclastic	No	A group of volcanic (andesitic) lithology units in the Moore pit. Units include massive and fragmental volcanic flows as well as sedimentary units composed primarily of volcanic material. These units typically have lower organic carbon content.
MN-BSD	Monte Negro Black Sediment	Moderate	Interbeds of carbonaceous shale, siltstone, and volcanic flows. Beds are up to three metres thick and have a shallow dip to the south. The carbonaceous beds are similar to MO-BSD and comprise more than 50% of MN-BSD. The unit is exposed in the eastern half of the Monte Negro pit.
MN-VCL	Monte Negro Volcaniclastic	Weak	Similar to MN-BSD except that the unit is less than 30% carbonaceous beds. It is exposed in the western half of the Monte Negro pit.
MN-SP	Monte Negro Spilite	No	Volcanic spilite (andesite) flows are found at depth. It is currently exposed only at the north end of the Monte Negro pit.

The initial Feasibility Study determined different metallurgical domains for which recovery curves are created. A characterization study was performed from October 2014 to September 2015 during which time the recovery curves for Moore and Monte Negro Black Sediment were updated. This change accounted for variances in gold recovery caused by preg-robbing elements present in the ore, dependent on the carbon content of the feed material. However, those updated recovery curves continued to underestimate the gold recovery observed in the process plant. A new model was developed based on the process plant data from October 1, 2014 through August 21, 2016. The new model is detailed in Table 13-2.

TABLE 13-2 GOLD RECOVERY FORMULA
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Gold (Au) Grade Range (g/t)	Intercept	C Co-efficient	Au Co-efficient
0 < 4.23	0.0115	0.477	0.0827
4.23< 5.07	0.1816	0.672	0.0224
5.07 < 5.29	07083	0.638	-0.0717
5.29 < 5.82	0.6709	0.778	-0.0742
≥ 5.82	-0.0167	1.019	0.0300

Notes:
1. C=Carbon %
2. Gold(Au) Grade g/t
3. Factors and cut-off rounded from original information

The recovery equation is as follows:

Recovery=1-(Intercept + (C Co-efficient*C Grade) + (Au Co-efficient * Gold(Au) Grade)) / (1.15453673 * Gold(Au) Grade)

Minimum 88%

GOLD DEPORTMENT

Test results showed that approximately 55% to 70% of the gold is encapsulated in sulphide minerals and is not recoverable by cyanide leaching without prior destruction of the sulphide matrix. For the two black sedimentary ore types, MO-BSD and MN-BSD, 19% to 29% of the gold in the ore was preg-robbed by gold adsorption onto organic carbon.

For MO-VCL, MN-SP, and MN-VCL ore types, 6% to 9% of the gold was also preg-robbed. This may be caused by gold adsorption onto sulphide minerals as these ore types contain very little organic carbon. Laboratory tests have demonstrated that the preg-robbing ability of the ore is reduced after the ore is oxidized in an autoclave. At a grind size of 80% passing 150 µm, less than 2% of the gold in the ore was locked up in the silicate gangue minerals.

Metallurgical testwork indicated that pressure oxidation (POX) of the whole ore followed by CIL cyanidation of the autoclave product will recover 88% to 95% (average 91.6%) of the gold and 86% to 89% (average 87%) of the silver.

VARIATION IN SULPHUR GRADE

The efficient and trouble free operation of the POX circuit relies heavily on maintaining relatively constant sulphur content in the autoclave feed. The variation in sulphur grade ranges from approximately 3% to 20% and generally between 5% and 10%.

Blending is necessary to maintain a relatively constant sulphur grade to the autoclave feed. Blending of ores may be carried out prior to crushing or it may occur as a result of the mining sequence in the case of direct feed ore. In the mill, some blending also occurs as a result of the surge capacity provided for the autoclave feed. Although there is still variation in the sulphur grade, the variation does not happen abruptly, but rather in a slow and controlled predictive manner. Therefore, adjustment in process conditions to suit the sulphur content of the feed can be anticipated.

RELATIONSHIP BETWEEN GOLD AND SULPHUR GRADES

There appears to be a relationship between the gold and sulphur grades. Placer (2004) showed that the relationship could be described by the regression equation:

$$\%\,S = 6.330 \times \text{Gold Grade (g/t)}^{0.121}$$

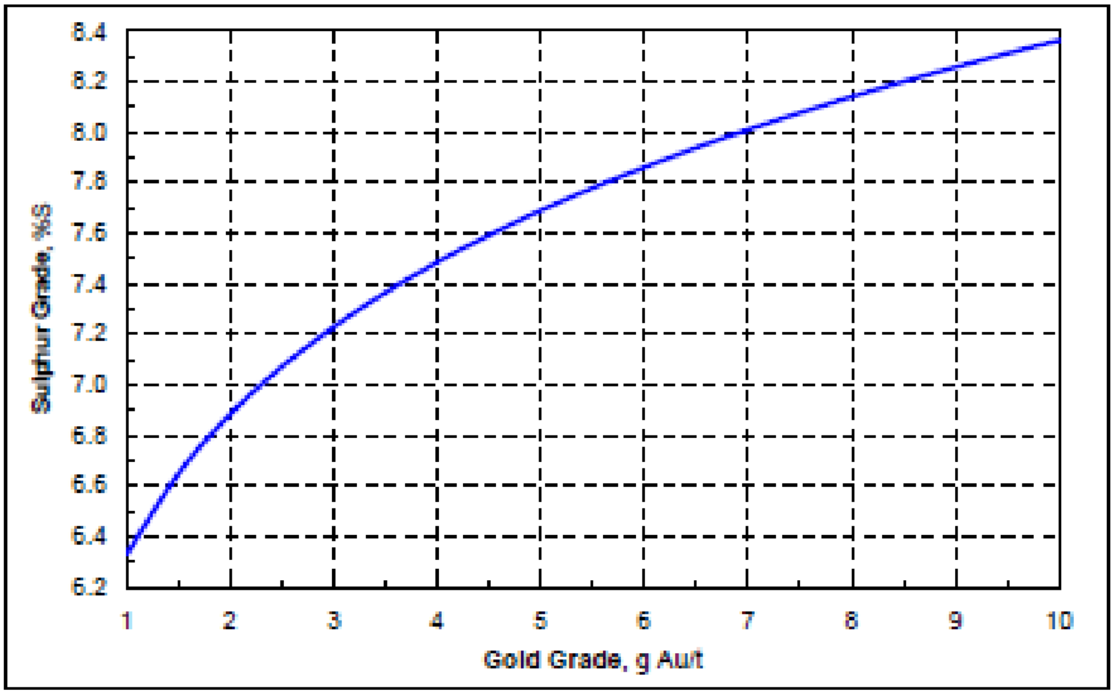
The relationship between sulphur grade and gold grade is illustrated in Figure 13-1, while the relationship between the gold to sulphur ratio and gold grade is given in Figure 13-2.

Based on these relationships, Placer concluded:

- For a fixed sulphur throughput, revenue can be increased by mining to an elevated cut-off grade during the early years of operation; and

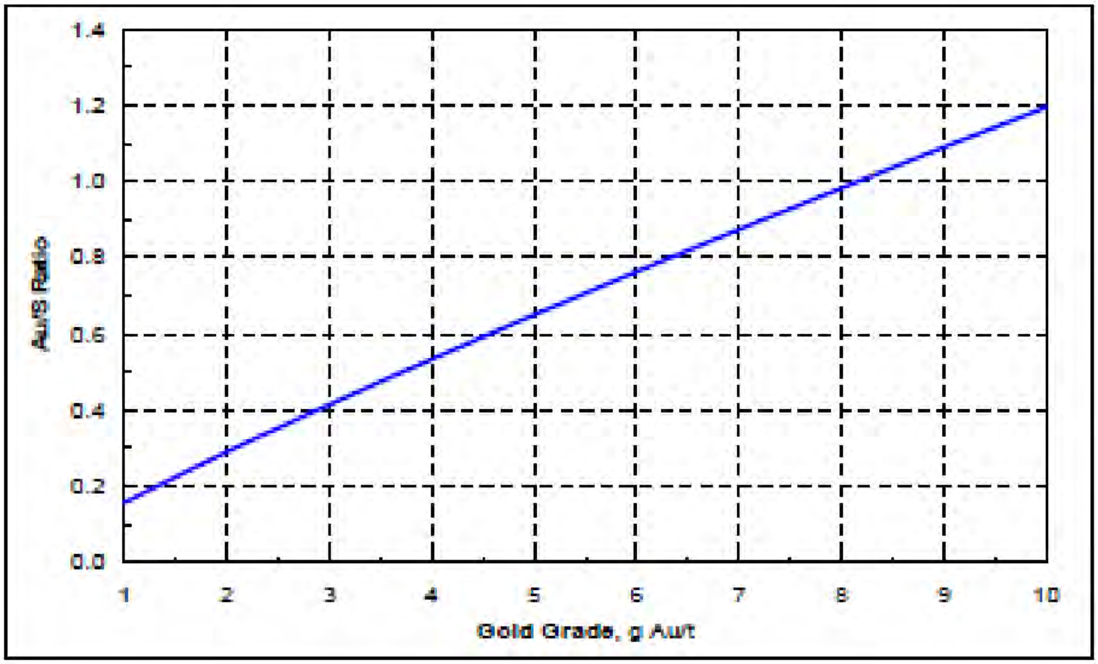
- Pre-concentration of the lower grade ore (1 g/t Au to 2 g/t Au) and treating the pyrite concentrate product in the autoclave circuit will not be economically viable because of the very high sulphur to gold ratio.

FIGURE 13-1 RELATIONSHIP BETWEEN SULPHUR AND GOLD GRADES



(Source: Barrick, 2007)

FIGURE 13-2 RELATIONSHIP BETWEEN GOLD TO SULPHUR RATIO AND GOLD GRADE



(Source: Barrick, 2007)

METALLURGICAL STUDIES

Metallurgical studies carried between 1973 and 2001, prior to Placer and Barrick (reported in earlier reports), showed that gold recoveries predicted from the testwork were in the range of 80% to 88%. Each of the concepts that were capable of yielding gold recoveries in this range involved expensive destruction of the sulphide minerals by either roasting or oxidative leaching.

After 2001, Placer investigated bio-oxidation of whole ore and flotation concentrate, and ultra-fine grinding of flotation concentrates, as alternative pre-treatment options prior to CIL cyanide leaching for gold and silver recovery. Ultimately, a fairly straightforward process based on POX of the whole ore followed by CIL cyanidation was selected for the recovery of gold and silver. Two innovations were incorporated into the process design:

- A hot cure of the slurry from the autoclave to reduce lime consumption by solid basic ferric sulphate in the CIL circuit.
- A lime boil process, involving heating the Counter Current Decantation (CCD) washed slurry to 80ºC to 85ºC with 35 kg CaO/t to release the silver in the jarosites formed in the autoclave for improved CIL silver recovery.

A number of ore samples from each of the five ore types were used for the initial metallurgical investigations. These samples were assayed in detail before being used in the various test programs. The following information is relevant to the processes considered:

- The gold content of the ore samples ranged from 2.10 g/t to 6.60 g/t.
- The sulphur content ranged from 6.9% to 9.7%.
- The ores contained insignificant amounts of elemental sulphur and sulphates.
- The black sedimentary ore types (MO-BSD and MN-BSD) contained from 0.5% to 0.7% organic and graphitic carbon, which caused preg-robbing in the later leaching tests. The other ore types have very weak or no preg-robbing ability.
- The carbonate content varied from 0.05% to 0.37% CO_2 but averaged 0.19% CO_2.
- The aluminum content ranged from 7% to 10%.
- The mercury content ranged from 8 g/t to 14 g/t. The extent of mercury dissolution during POX varied significantly according to the ore type.
- The arsenic content ranged from 260 g/t to 1,650 g/t. Most of the arsenic was dissolved and precipitated during POX.

Three ore types were used for the later metallurgical investigation.

- The gold content of the ore samples ranged from 5.3 g/t to 5.6 g/t.
- The silver content of the ore samples ranged from 19.6 g/t to 36.1 g/t.

Ongoing unit operation testwork was carried out, with overall results as shown in the following subsections.

COMMINUTION

Work index (Wi) measurements on the five main rock types undertaken in 2004 indicated that the Bond ball mill Wi of the ore varied from 12.8 kWh/t to 16.1 kWh/t (average 14.4 kWh/t), while the rod mill Wi varied from 14.9 kWh/t to 18.6 kWh/t. Supplementary testwork undertaken on 58 different samples in April 2006 for Semi-autogenous Grinding (SAG) Power Index (SPI) and Wi returned consistently higher Wi values (Table 13-3).

TABLE 13-3 COMMINUTION TESTWORK
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Ore Type	Modified Bond Wi BSD	SP	VCL	All Ore Types
Average	17.05	18.17	15.62	16.73
80th Percentile	18.37	18.97	17.92	18.28

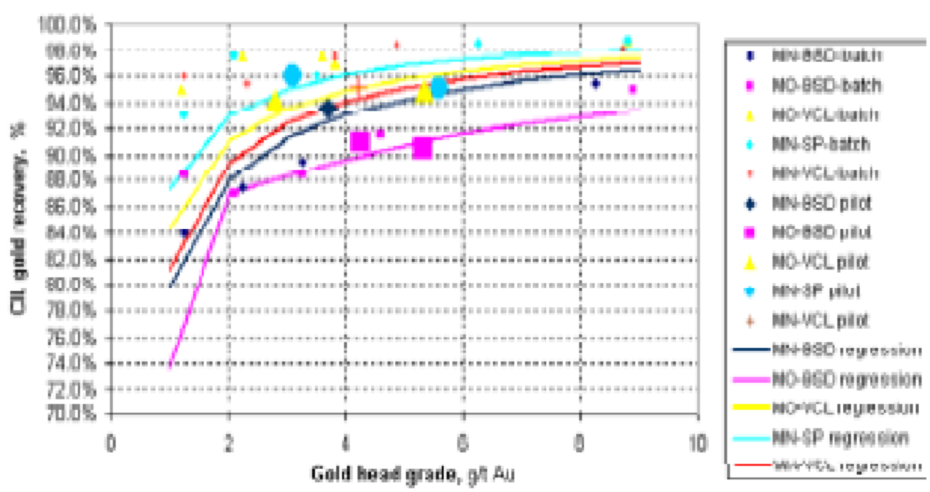
The Bond ball mill Wi used to size the grinding mills was the average Wi for the hardest of the five ore types (MN-SP) and approximately the 80th percentile Wi of all ore types.

WHOLE ORE PRESSURE OXIDATION

Whole ore POX followed by CIL was selected as the preferred process option in July 2003 after a reasonable power cost was assured.

The results of the testwork undertaken on whole ore at the design autoclave operating conditions and grind size P_{80} of 80 µm is summarized in Figure 13-3.

FIGURE 13-3 EFFECT OF GOLD HEAD GRADE ON GOLD RECOVERY



- Small points are the results from batch tests - 2 L autoclave, 30% pulp density, 230°C, 100 psi O_2 partial pressure, 60 min residence time and grind size P_{80} of 80 µm.
- Large points are the results from the continuous pilot plant operations in 2003, 2004 and in 2006, 35% pulp density, temperature 230 ^{0}C, 100 psi O_2 partial pressure, 55 to 70 min residence time and grind size $P_{80} \approx$ 80 µm.
- Continuous lines are the regression curves.

HOT CURE

The test program showed that by holding the autoclave flash discharge slurry for a period of 12 hours at 85°C to 100°C, the basic ferric sulphate solids formed in the autoclave re-dissolves to form ferric sulphate in solution. The formed ferric ions are washed away from the CIL feed in the three-stage CCD washing thickener circuit.

The addition of the hot cure made it possible to remove the effects of high lime consumption in CIL and concentrate on the optimization of the POX process.

COUNTER CURRENT DECANTATION (CCD)

Three-stage CCD washing was tested as part of the POX pilot plant operation in 2006. Based on this testwork, 99.3% wash efficiency was expected with an average thickener underflow density of 40% solids.

LIME BOIL

In 2006, a lime boil/CIL study was undertaken to improve the silver recovery.

Indications from the bench scale showed that the process was best carried out at as high a temperature as practical to minimize lime consumption and achieve the highest gold and silver extraction rates.

CARBON-IN-LEACH

CIL pilot plant runs were undertaken by PVDC in June 2006 on three ore types to determine maximum precious metal loadings on carbon and gold and silver extractions. Average gold recoveries ranged from 90.5% (MO-BSD) to 95.2% (MN-SP) and silver recoveries, 84.4% (MO-BSD) to 89.9% (MO-VCL). PVDC (2007) concludes that "the performance of the gold and silver loadings was considered above expectation for the three ore types" with total loadings of 12,000 g/t (gold plus silver) being achieved.

COPPER RECOVERY

Copper used in the design criteria is 97.5%.

Copper can be selectively precipitated as a copper sulphide (CuS) using hydrogen sulphide (H2S). The H2S is produced from the action of bacteria under anaerobic conditions fed with elemental sulphur, ethanol, and nutrients. The sulphide concentrates at a high grade can be sold to a third party smelter.

Pilot plant results showed that, after losses from POX, CCD, and iron precipitation are taken into account, recovery was excellent at more than 99% for the precipitation stage and 88.05% overall.

Copper concentrates analyzed 58.5% Cu, 26.7% S, and 0.26% Zn.

CYANIDE DESTRUCTION

Testwork was successful in reducing the residual weak acid dissociable cyanide to below 1.0 mg/L in the treated Pueblo Viejo Mine tailings slurry.

NEUTRALIZATION OF AUTOCLAVE ACIDIC LIQUORS

Significant amounts of sulphuric acid and soluble metal sulphate salts are produced during POX.

The pilot plant confirmed the effectiveness of limestone neutralization removing 92.5% of the sulphate, 99.9% of aluminum and copper, 100% of iron, and 86.8% of the zinc, with less than 1 mg/L of the metals left in solution. The sulphate level in the clarifier overflow was 1,800 mg/L for removal of 94%. Manganese removal was 89.8% at a final concentration of 1.6 mg/L.

LIMESTONE GRINDING, CALCINING AND SLAKING TESTWORK

The Bond Wi of the limestone deposit ranged from 8.4 kWh/t to 10.1 kWh/t (average 9.5 kWh/t).

Most of the samples tested assayed better than 96% $CaCO_3$.

Testwork results showed:

- The CaO content of the kiln product ranged from 94% to 96%.
- The burnt limestone had a high mechanical stability.
- The burnt lime was highly reactive.

OPERATIONAL IMPROVEMENTS

In 2017, PVDC carried out several operational improvements on the process plant to increase both throughput and recovery.

These improvements included:

- Reduction in grinding downtime due to grind outs.

- Increased carbon stripping efficiency.
- Carbon reactivity increase in carbon capability to adsorb gold.
- Increase in autoclave feed density and feed tank capacity.

Scoping studies were carried out in 2017, to determine the use of:

- An eight million tonne capacity pre-oxidation heap leach to reduce sulphide levels in the autoclave feed, allowing for increased throughput at equivalent recovery rates.
- A four million tonne capacity flotation plant to allow for sulphide ores to be concentrated, and the concentrate to be blended with autoclave feed. The flotation tail would be transferred around the autoclaves directly to tails. The overall effect is a significant increase in autoclave feed grade and nearly equivalent recovery.

Each project can increase productivity in the facility independently, however, the synergies of the two projects are significant, and operating a flotation plant with a throw away tail and feeding the concentrate into the autoclaves being fed primarily with pre-oxidized ores, can increase overall mine throughput by 50% to 12 million tonnes with minimal capital input. The Mine will be able to maintain an average annual production of 800,000 ounces after 2022.

The two projects have the potential to convert approximately seven million ounces of Measured and Indicated Resources into Proven and Probable Reserves.

In 2018, this work will be continued, followed by a prefeasibility study and onsite in-plant proof of concept testing including a 100 tph flotation plant and a 200,000 tpa bio-oxidation leach pad.

The metallurgical testwork is adequate to support the Mine and the recovery models are reasonable.

PRODUCTION

Production figures for the period 2012 to year-end 2017 are shown below in Table 13-4.

After start-up in 2012, throughput has increased steadily with daily throughput in 2017 being 21,875 tpd.

TABLE 13-4 PROCESS PLANT PRODUCTION
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Description	2012	2013	2014	2015	2016	2017
Tonnes Milled('000t)	740.2	4,429.3	6,712,2	6,917.1	7,545.4	7,984.4
Daily Tonnage (tpd)	4,023	12,135	18,390	18,951	20,616	21,875
Gold Produced (oz)	111,635	813,217	1,108,578	954,293	1,166,808	1,083,373
Gold Recovery (%)	92.85%	93.01%	92.91%	86.79%	91.01%	92.28%
Silver Produced (oz)	454,220	2,083,891	3,854,460	2,495,575	3,385,047	4,456,830
Silver Recovery (%)	48.09%	34.54%	56.33%	32.98%	63.36%	74.58%
Copper Produced (lb)	-	-	-	968,122	3,111,296	2,357,461
Copper Recovery (%)	-	-	-	7.48%	20.51%	11.60%
Copper Conc. Grade (% Cu)	-	-	-	56.6%	58.2%	63.3%

Pueblo Viejo has made significant improvements to the operation of the processing circuits over the past years. As a result, throughput and plant availability have increased.

In RPA's opinion, there are no processing factors or deleterious elements that could have a significant effect on potential economic extraction.

14 MINERAL RESOURCE ESTIMATE

INTRODUCTION

The EOY2017 Mineral Resources for the Pueblo Viejo Mine were estimated by PVDC staff and reviewed by RPA. The cut-off date for the drill data for the EOY2017 Mineral Resource and Mineral Reserve model was November 17, 2017.

Table 14-1 contains the Pueblo Viejo Mineral Resources exclusive of Mineral Reserves as of December 31, 2017. These Mineral Resources could not be converted to Mineral Reserves due to operational constraints or economics (i.e., Measured and Indicated Mineral Resources) or an insufficient level of confidence (i.e., Inferred Mineral Resources). Resources that were not converted into Mineral Reserves and that are situated in the EOY2017 reserve pit design have been excluded due to the reduced TSF capacity. The Qualified Person for this Mineral Resource estimate is Rosmery Cardenas, P.Eng. The Mineral Resource estimate conforms Canadian Institute of Mining, Metallurgy and Petroleum Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM (2014) definitions).

TABLE 14-1 SUMMARY OF MINERAL RESOURCES – DECEMBER 31, 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

	Tonnage		Grade			Contained Metal	
Classification	**(000)**	**(g/t Au)**	**(g/t Ag)**	**% Cu**	**(000 oz Au)**	**(000 oz Ag)**	**(000 lb Cu)**
Measured	12,955	2.39	14.25	0.067	997	5,935	19,199
Indicated	156,521	2.47	13.61	0.081	12,427	68,492	279,335
Total M&I	**169,476**	**2.46**	**13.66**	**0.080**	**13,424**	**74,428**	**298,534**
Total Inferred	**46,062**	**2.43**	**10.81**	**0.086**	**3,591**	**16,009**	**87,191**

Notes:
1. Mineral Resources are reported on a 100% basis. Barrick's and Goldcorp's attributable shares of the Mineral Resources are 60% and 40%, respectively.
2. CIM (2014) definitions were followed for Mineral Resources.
3. Mineral Resources are estimated based on an economic cut-off value.
4. Mineral Resources are estimated using a long-term price of US$1,500/oz Au, US$20.50/oz Ag, and US$3.50/lb Cu.
5. A minimum mining width (block size) of 5 m was used.
6. Mineral Resources are exclusive of Mineral Reserves.
7. Resources situated in the reserve pit are excluded due to TSF capacity constraints.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
9. Numbers may not add due to rounding.

RPA's review of, and conclusions regarding, the resource model applies not just to the Mineral Resources listed in Table 14-1, but also to the Mineral Resources that were converted to Mineral Reserves.

RPA reviewed the resource assumptions, input parameters, geological interpretation, and block modelling procedures and is of the opinion that the Mineral Resource estimate is appropriate for the style of mineralization and that the resource model is reasonable and acceptable to support the EOY2017 Mineral Resource and Mineral Reserve estimates.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other modifying factors that could materially affect the Mineral Resource estimates.

RESOURCE DATABASE AND VALIDATION

RPA received header, survey, assay, lithology, and solids for the Monte Negro, Monte Negro 10, Moore, Upper Mejita, and Cumba mineralized zones from PVDC. There are over 4,000 drill holes and trenches entered into the PVDC database for the entire property. The resource database provided to RPA has 2,816 drill holes totalling 349,266 m. The database contains 160,752 records with gold assays totalling 313,170 m for an average interval length of 1.95 m. Most of these records also have assays for silver, copper, zinc, and sulphur.

All drill core, survey, geological, geochemical, and assay information used for the resource estimation have been verified and approved by the PVDC geological staff and maintained as an acQuire database since 2007 by an on-site database administrator. The database has been extensively used in the past eleven years and has been corrected for errors. As well, low-confidence data have been removed from the resource database.

RPA completed a variety of validation queries and routines in Vulcan and Leapfrog. The database was found to be acceptable and no significant problems were noted.

RPA also verified a number of data records with original assay certificates in previous audits and no significant discrepancies were identified.

GEOLOGICAL INTERPRETATION AND DOMAINS

The geology of the deposits was reinterpreted by PVDC in 2009. The work consisted of the following items:

- Review of previous GENEL JV, Placer, and Barrick models
- Reinterpretation and recoding of historic drill logs where core no longer exists
- Relogging of all 395 Barrick drill holes with focus on lithology and structure
- Simplification of geological units to facilitate interpretation
- Sirovision imaging survey for structural data
- Interpretation on plans and sections
- Scanning of plans and sections and export to Vulcan for modelling

The main results of the 2009 geological reinterpretation were the recognition of growth faults in a faulted sedimentary basin. One new epiclastic volcanic unit was added to the revised stratigraphic column. The new geological model uses brecciated feeders to explain the higher grade mineralization. At depth, those feeder zones are steeply dipping and appear to be oriented in a similar attitude to the local structure, striking north-northwest for Monte Negro and almost due north for Moore. Near the surface, the breccias seem to flatten. In Moore, these flatter zones tend to follow lithology bedding, which dips west about 20°, while in Monte Negro, they seem to have a plunge of 10° to the south.

Changes were made to the oxide and overburden domains as pit mapping recognized remnant bodies of oxide material. The updated structural model, however, was not significantly revised and, similarly, the updated geometallurgical, alteration, and litho-structural models (Table 14-2) were essentially unchanged from the previous resource estimate.

TABLE 14-2 LITHOSTRUCTURAL DOMAINS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Litho-Structural Domain	Lithology	Comment
MO-1	PB PDTQ	
MO-2a	SKM VKSI	
MO-2b	VS VC	
MO-3a	SKM VKSI	East side of Polanco Fault
MO-3b	VS VC LA	 Upper LA at Moore
MO-4a	SKM VKSI	West side of Polanco Fault
MO-4b	VS VC LA	 Upper LA at Moore
MO-5	PDL LA PAL	Lower LA at Moore
MN-6	PB PDTQ	East side of Moore West Fault
MN-7	PB PDTQ	West side of Moore West Fault
MN-8a	SKM VKSI	
MN-8b	VS VC	
MN-9	PAL PDL	
MN-10	LA	

Domaining for resource estimation is based on major geological areas, lithology, alteration, oxidation boundary, and a grade indicator to define broad grade shells. The five main geological areas are Monte Negro, Monte Negro 10, Moore, Cumba, and Upper Mejita (Figure 14-1); some of them were grouped for modelling purposes. The four alteration zones are:

1. Quartz, alunite, dickite (main mineralized zone) – referred to as Qz, code = 10
2. Quartz, pyrite, dickite (main mineralized zone) – referred to as Qz, code = 20
3. Chlorite, illite, smectite, code = 30
4. Pyrophyllite, illite, kaolinite (argillic alteration), code = 40

The boundary between the oxide and sulphide mineralization is well defined. It was assumed that all oxide material had been mined by Rosario but relogging and pit mapping identified minor remnants of oxide and transitional material. The three main lithology domains are:

- Lithology 32 = PDTQ
- Lithology 80 = IA
- Lithology 100 = Cover

The principal controls for interpolation of grades are the alteration domains and the use of two probability indicators as discussed further on.

Figure 14-2 provides an isometric view of the PVDC block models.

RPA imported the mineralized models and reviewed them with respect to drilling. RPA notes that the mineral domain envelopes are reasonable.

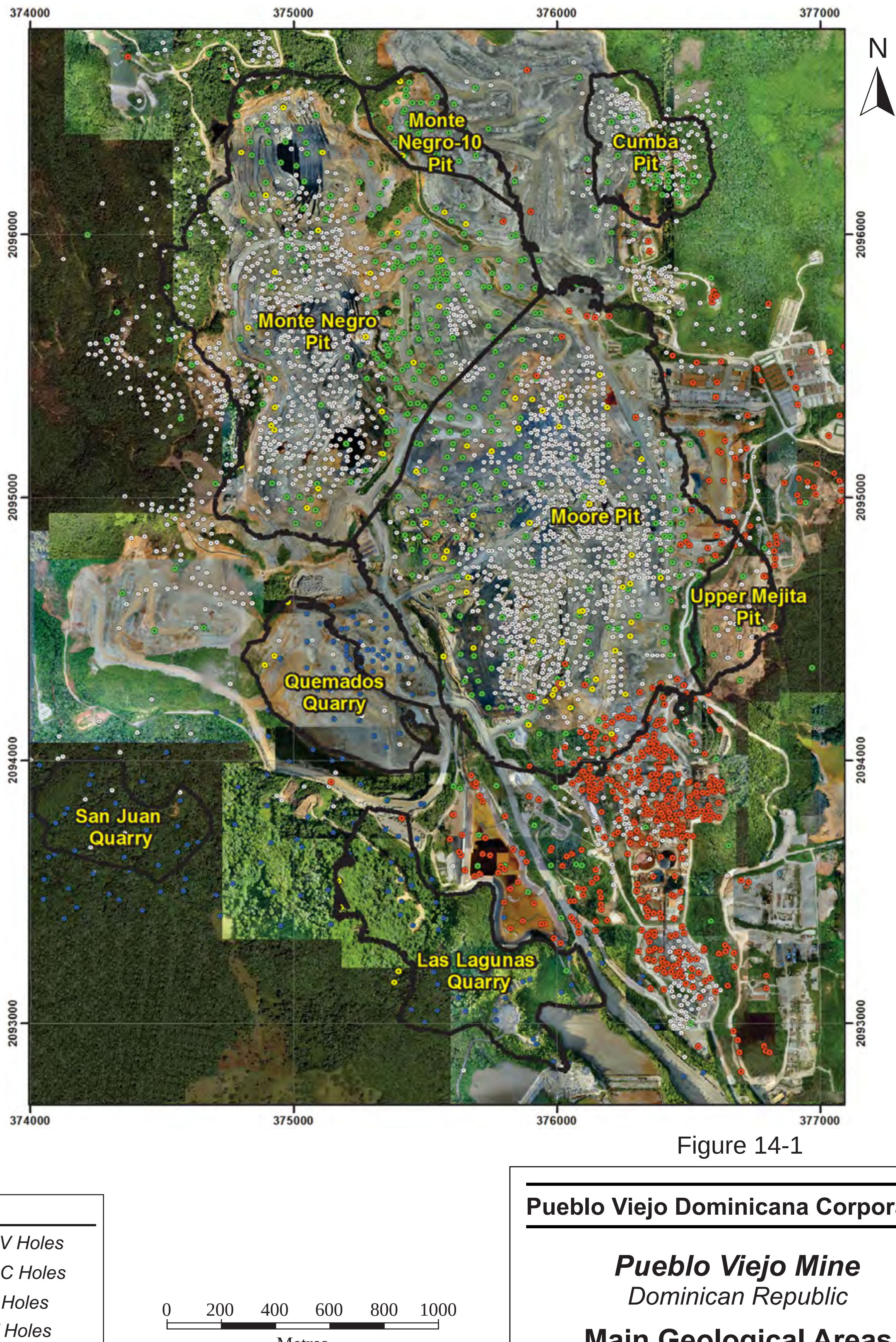


Figure 14-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

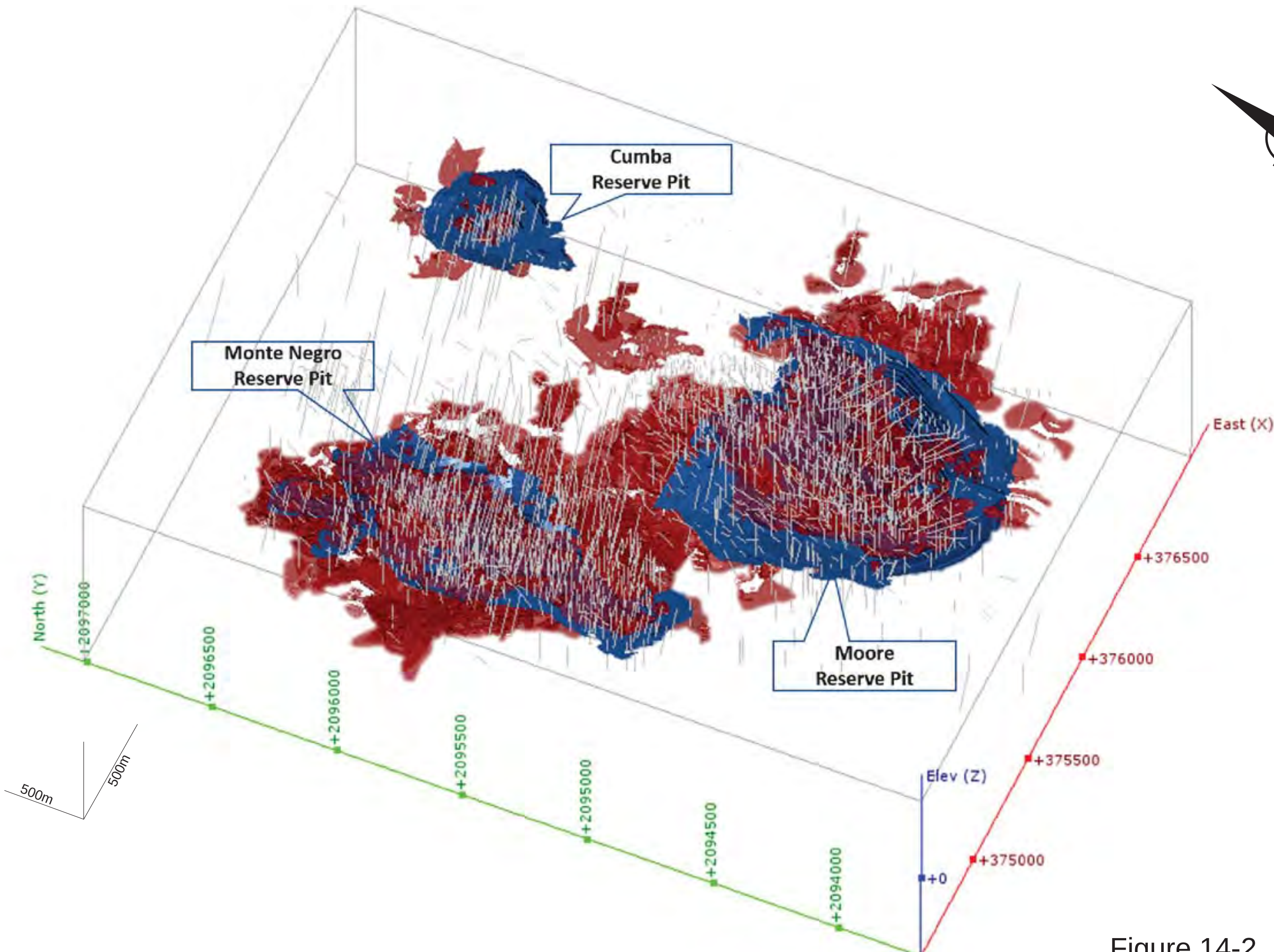
Main Geological Areas

Legend:

- *DPV Holes*
- *BGC Holes*
- *LS Holes*
- *GT Holes*
- *Other Holes*

March 2018

Source: Barrick Gold Corporation, 2018.



Legend:

- *>1 Au g/t gold grades*
- *Reserve Pit*

March 2018

Source: Barrick Gold Corporation, 2017.

Figure 14-2

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Isometric View of Block Model

DATA ANALYSIS

In order to understand and establish gold grade characteristics in the Mine area, an exploratory data analysis was conducted. Data within the individual alteration domains and main lithological domains were analyzed. Histograms and box plots of composite uncapped gold, silver, copper, and sulphur assays were generated using a standard Barrick in-house statistical analysis package.

Basic statistics for the assays are given in Table 14-3. The table shows that the Qz zones contain most of the metal and have relatively high coefficients of variation (CV) for gold, copper, and silver. The sulphur CVs are low.

TABLE 14-3 RAW ASSAY STATISTICS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Code	Description	Metres	% Metres	Mean	Std. Dev.	Min	Median	Max	CV
Alteration -Lithology Raw Data Au >0 g/t						**Gold Grade (g/t)**			
	All zones	313,170	100.00%	1.24	4.26	0.00	0.37	1,967.64	3.42
10	Qz,Al,Dk(Qz)	18,108	5.78%	1.6135	2.27	0.00	1.02	108.00	1.41
20	Qz,Py,Dk(Qz)	164,710	52.59%	1.9289	5.67	0.00	1.12	1,967.64	2.94
30	Ch,ill,Sm (Prop)	54,008	17.25%	0.1401	1.15	0.00	0.02	173.20	8.20
40	Pyr,ill,Ka	56,782	18.13%	0.1769	0.65	0.00	0.01	38.70	3.67
990	Unaltered	19,563	6.25%	1.2644	2.75	0.00	0.15	77.50	2.17
Alteration -Lithology Raw Data Cu >0 %						**Copper Grade (%)**			
	All zones	297,310	100.00%	0.0546	0.27	0.00	0.01	37.35	5.01
1	Oxide	14,024	4.72%	0.0359	0.58	0.00	0.01	37.35	16.02
10	Qz,Al,Dk(Qz)	17,819	5.99%	0.0977	0.27	0.00	0.03	7.63	2.76
20	Qz,Py,Dk(Qz)	152,098	51.16%	0.0794	0.31	0.00	0.02	15.30	3.86
30	Ch,ill,Sm (Prop)	51,695	17.39%	0.0174	0.13	0.00	0.01	11.20	7.63
40	Pyr,ill,Ka	49,417	16.62%	0.0157	0.05	0.00	0.01	3.14	3.48
990	Unaltered	12,258	4.12%	0.0192	0.13	0.00	0.01	7.58	6.73
Alteration -Lithology Raw Data Ag >0 %						**Silver Grade (g/t)**			
	All zones	311,505	100.00%	8.6508	28.25	0.00	1.90	2,690.00	3.27
10	Qz,Al,Dk(Qz)	18,108	5.81%	8.7850	20.22	0.00	4.20	1,156.80	2.30
20	Qz,Py,Dk(Qz)	163,873	52.61%	13.7127	38.29	0.00	5.10	2,690.00	2.79
30	Ch,ill,Sm (Prop)	53,948	17.32%	0.9763	2.99	0.00	0.30	218.00	3.06
40	Pyr,ill,Ka	56,460	18.12%	1.8766	6.91	0.00	0.60	852.00	3.68
990	Unaltered	19,117	6.14%	6.7969	20.55	0.00	0.60	674.90	3.02

Code	Description	Metres	% Metres	Mean	Std. Dev.	Min	Median	Max	CV
Alteration -Lithology Raw Data S >0 %						**Sulphur Grade (%)**			
	All zones	226,952	100.00%	6.02	4.06	0.00	3.97	45.51	0.67
1	Oxide	10,629	4.68%	1.30	2.38	0.00	0.03	23.50	1.82
10	Qz,Al,Dk(Qz)	14,284	6.29%	10.56	3.63	0.01	9.50	45.30	0.34
20	Qz,Py,Dk(Qz)	132,771	58.50%	7.07	3.74	0.00	5.94	43.40	0.53
30	Ch,ill,Sm (Prop)	28,809	12.69%	3.44	2.88	0.01	0.33	33.53	0.84
40	Pyr,ill,Ka	34,378	15.15%	4.04	2.81	0.01	1.75	24.05	0.69
990	Unaltered	6,080	2.68%	3.99	3.90	0.01	0.00	45.51	0.98

Qz – quartz, Al – alunite, Dk – dickite, Py – pyrite, Ch – chlorite, ill – illite, Sm – smectite, Ka – kaolinite

GRADE CAPPING

The assay database was statistically examined for the presence of local high grade outliers, which could potentially bias the resource grade estimate. Once these outliers were identified, criteria used to determine capping grades include the cumulative distribution function, the uncapped CV, and the percentage of metal loss at various capping levels. Capping grade is primarily determined by a sudden deviation of the cumulative distribution curve. The percent metal loss is determined at this capping grade. The alteration domains were examined for each metal individually and the final decision on the capping levels was made by the resource geologist. The capping levels for gold, silver, copper, and sulphur are shown in Table 14-4. RPA concurs with the capping levels chosen by PVDC.

TABLE 14-4 ASSAY CAPPING STATISTICS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Code	Description	Metres	% Metres	CV	Capping Level	CV Capped	GT Lost	Percentile
Alteration -Lithology Raw Data Au >0 g/t								
	All zones	313,170	100.00%	3.42	25	1.69	1.69%	99.88%
10	Qz,Al,Dk(Qz)	18,108	5.78%	1.41	22	1.25	0.71%	99.89%
20	Qz,Py,Dk(Qz)	164,710	52.59%	2.94	25	1.28	1.79%	99.82%
30	Ch,ill,Sm (Prop)	54,008	17.25%	8.20	3.6	2.44	14.51%	99.55%
40	Pyr,ill,Ka	56,782	18.13%	3.67	9	3.07	2.77%	99.89%
990	Unaltered	19,563	6.25%	2.17	22.5	1.95	1.91%	99.73%
Alteration -Lithology Raw Data Cu >0 %								
	All zones	297,310	100.00%	5.01	6	3.96	2.22%	99.97%
1	Oxide	14,024	4.72%	16.02	0.3	0.86	57.99%	98.72%
10	Qz,Al,Dk(Qz)	17,819	5.99%	2.76	2.5	2.25	3.24%	99.78%
20	Qz,Py,Dk(Qz)	152,098	51.16%	3.86	4	3.11	3.29%	99.88%
30	Ch,ill,Sm (Prop)	51,695	17.39%	7.63	1	2.92	14.20%	99.83%
40	Pyr,ill,Ka	49,417	16.62%	3.48	1	2.72	2.40%	99.94%
990	Unaltered	12,258	4.12%	6.73	0.13	0.79	35.71%	98.62%

Code	Description	Metres	% Metres	CV	Capping Level	CV Capped	GT Lost	Percentile
Alteration -Lithology Raw Data Ag >0 %								
	All zones	311,505	100.00%	3.27	600	2.61	1.86%	99.95%
10	Qz,Al,Dk(Qz)	18,108	5.81%	2.30	98	1.43	4.98%	99.36%
20	Qz,Py,Dk(Qz)	163,873	52.61%	2.79	600	2.18	2.15%	99.93%
30	Ch,ill,Sm (Prop)	53,948	17.32%	3.06	60	2.63	2.21%	99.85%
40	Pyr,ill,Ka	56,460	18.12%	3.68	90	2.32	3.36%	99.92%
990	Unaltered	19,117	6.14%	3.02	200	2.34	5.09%	99.65%
Alteration -Lithology Raw Data S >0 %								
	All zones	226,952	100.00%	0.67	38	0.67	0.01%	99.99%
1	Oxide	10,629	4.68%	1.82	0.35	0.10	84.75%	63.37%
10	Qz,Al,Dk(Qz)	14,284	6.29%	0.34	25	0.33	0.23%	99.56%
20	Qz,Py,Dk(Qz)	132,771	58.50%	0.53	38	0.53	0.00%	99.98%
30	Ch,ill,Sm (Prop)	28,809	12.69%	0.84	20	0.83	0.13%	99.90%
40	Pyr,ill,Ka	34,378	15.15%	0.69	16	0.69	0.10%	99.82%
990	Unaltered	6,080	2.68%	0.98	20	0.94	0.62%	99.57%

In general, the gold and sulphur resource models are relatively insensitive to capping. Capping high assays reduces the contained gold by less than two percent and the contained sulphur by less than one percent. Silver and copper are more sensitive to capping with slightly higher metal loss values, which are still reasonable in RPA's view.

COMPOSITING

The average length of samples within the mineralized domains is 1.94 m. A 2.5 m down hole composite length was used by PVDC in the current estimations. This coincides with the bench height of 2.5 m that has been changed from previous estimates to preserve the gold variability and to improve the classification of the mine material type. Composite assay intervals were flagged by domain for further statistical analyses and to allow for composite selection during estimation. High assay grades were capped prior to compositing.

VARIOGRAPHY

A complete variographic analysis was carried out by PVDC on 2.5 m composite data. Three-dimensional relative-by-pair variograms were generated using Vulcan to look for preferential directions of continuity.

Correlograms (omni and multi-directional) are established using the 2.5 m capped composite file. Search orientations are selected from the multi-directional correlograms, but are checked against the geological interpretation to ensure proper matching. Search distances are determined from omni-directional correlograms using ranges at approximately 80% and 90% of the total sill variance (Figure 14-3). For example, the range at 90% of the sill is approximately 120 m. Volcanic rocks are showing less continuity and shorter ranges than the sedimentary rocks, which has been considered during the estimation and classification process.

In RPA's opinion, the variography analysis by PVDC is very good.

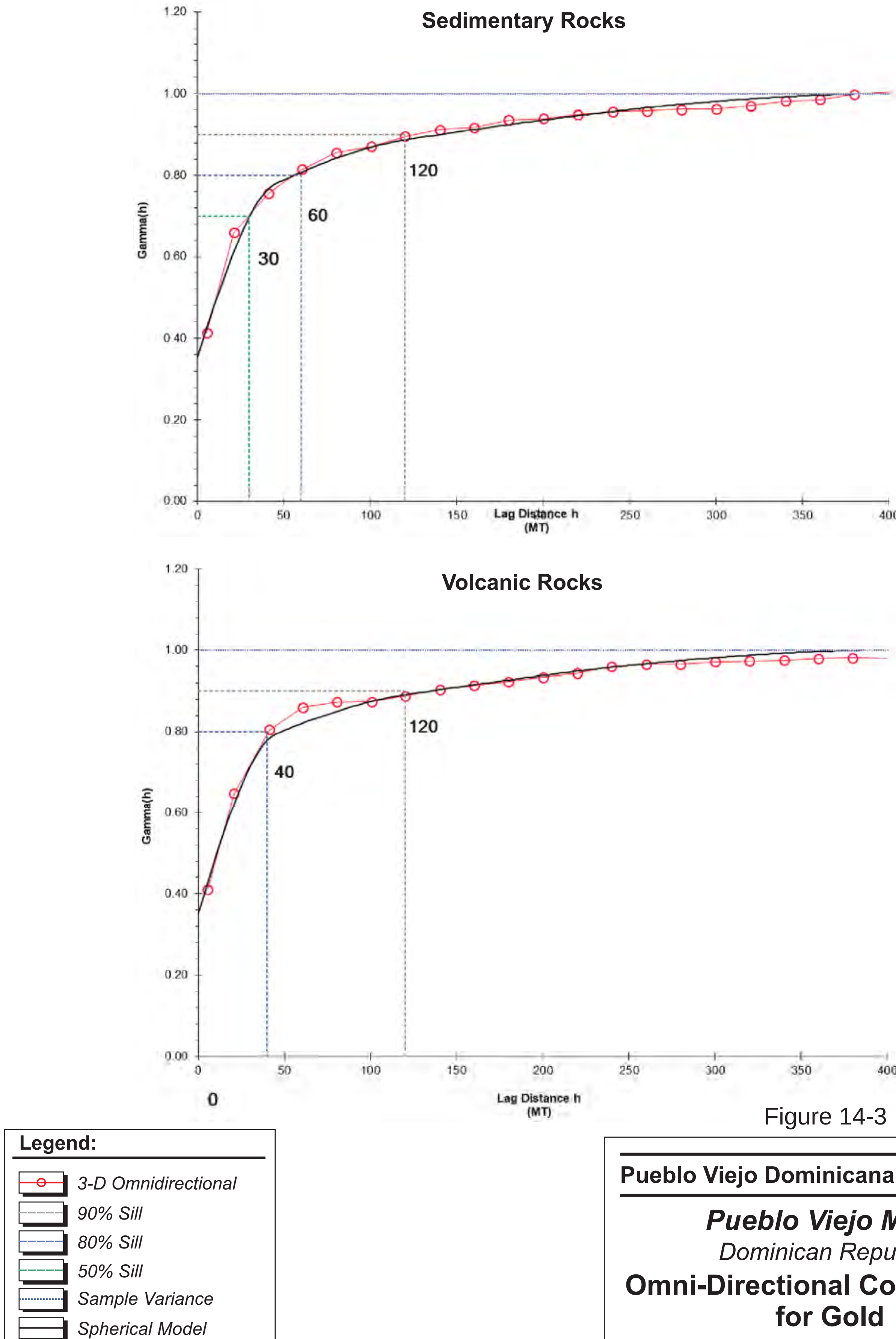


Figure 14-3

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Omni-Directional Correlogram for Gold

March 2018

Source: Barrick Gold Corporation, 2017.

BULK DENSITY

The main bulk densities are listed in Table 14-5. Amax derived a linear regression formula (density = (0.0322 * sulphur %) + 2.617) for density based on 152 pairs of density and sulphur samples from diamond drill holes drilled in 1985. AMEC (2005) compiled all of the newer density data from Rosario and the GENEL JV and confirmed the above equation. This regression curve was used to assign density values to every block in the resource model.

TABLE 14-5 BULK DENSITY
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Rock Type	Monte Negro (t/m^3)			Moore (t/m^3)		
	Average	Min	Max	Average	Min	Max
Black Sediments	2.83	2.62	3.27	2.81	2.62	3.31
Volcaniclastic	2.78	2.62	3.21	2.83	2.62	3.21
Spilite	2.83	2.62	3.21	-	-	-

Further studies were undertaken to review this formula in 2008 (Macassi, 2008). As a result, it was changed to (0.0237 * S%) + 2.675. The effect on bulk densities for the major mineralized units was insignificant, but the variability in values was reduced.

RPA's opinion is that the sulphur-based density regression equation is reasonable and acceptable for estimating tonnage factors.

CUT-OFF GRADE

Mineral Resources are reported at a break-even economic cut-off value based on a gold price of $1,500/oz, a silver price of $20.50/oz, and a copper price of $3.50/lb. A Vulcan script is run that estimates the revenue and incremental operating cost for each block. Blocks with positive values are flagged as resource blocks. The comprehensive script accounts for variable recoveries, variable process costs, incremental mining costs, re-handling costs, general and administrative (G&A) costs, royalties, refining and other costs. RPA has confirmed that the script inputs are reasonable and independently confirmed that the script is working properly. A similar script using the reserve metal prices is run to flag the reserve blocks

BLOCK MODEL

A single block model is defined, encompassing the Monte Negro, Monte Negro 10, Moore, Cumba, and Upper Mejita areas. Blocks size is set at 2.5 m by 2.5 m by 2.5 m, no sub-celling is employed, and the model is not rotated. Table 14-6 shows the block model geometry.

TABLE 14-6 BLOCK MODEL GEOMETRY
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Parameter	X (m)	Y (m)	Z (m)
Minimum	373,700.5	2,092,005	-150
Maximum	377,007.0	2,097,005	500
Extent	3,300	5,000	650
Block Size	2.5	2.5	2.5
Number of blocks	1,320	2,000	260

Geology and alteration solids were used to populate the lithology and alteration block models, respectively. The density model was populated based on the 2008 sulphur regression equation. The five metallurgical type model codes are assigned based on the main carbonaceous and volcanic lithology units at Moore and Monte Negro (Table 14-7).

TABLE 14-7 METALLURGICAL ROCK TYPES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Metallurgical Rock Type (Met. Domain)	Lithology Rock Type	Lithology Code	Metallurgical Domain Code (Mettype)	Mettype Value
Moore Carbonaceous Mudstone-Sandstone (MO-BSD)	Carbonaceous Mst Sediments	SKM	MO-BSD	1
	Volcanogenic Carbonaceous Sst/Mst	VKSI		
Moore Volcanic Rocks (MO-VCL)	Volcanogenic Sandstone	VS	MO-VCL	2
	Volcanogenic Conglomerate	VC		
	Pyroclastic Andesitic	PAL		
	Tuff Breccias	PB		
	Pyroclastic Dacitic	PDL		
	Upper Pyroclastic Dacitic	PDTQ		
	Andesite Flow	LA		
Monte Negro Carbonaceous Sandstone-Mudstone (MN-BSD). Eastward Placer Monte Negro Fault, until hard boundary Monte Negro-Moore	Carbonaceous Mst. Sediments	SKM	MN-BSD	4
	Volcanogenic Carbonaceous Sst/Mst	VKSI		

Metallurgical Rock Type (Met. Domain)	Lithology Rock Type	Lithology Code	Metallurgical Domain Code (Mettype)	Mettype Value
Monte Negro Sandstone - minor Carbonaceous mudstone (MN-VCL). Westward Placer Monte Negro Fault Between 5900-4800	Volcanogenic Carbonaceous Sst/Mst	VKSI	MN-VCL	5
	Minor Carbonaceous Mst. Sediments	SKM		
Monte Negro Volcanics Rocks (MN-SP)	Volcanogenic Sandstone	VS	MN-SP	6
	Volcanogenic Conglomerate	VC		
	Pyroclastic Andesitic	PAL		
	Tuff Breccias	PB		
	Pyroclastic Dacitic	PDL		
	Andesite Flow	LA		

Notes: “Sst” is sandstone and “Mst” is mudstone

INDICATOR GRADE SHELLS

Indicator values and threshold limits used to outline broad gold grade shells are determined from the same curves used to determine capping levels. A 0.2 g/t Au low grade indicator and 1.0 g/t Au high grade indicator were selected to define low, medium, and high grade blocks. In addition, a 3.6% S indicator was used to flag low grade and high grade sulphur blocks and interpolate them separately.

All 2.5 m composites were assigned either 1, 0, or -9, depending on the composite indicator threshold value being greater than or equal, or not available, respectively. The 0 and 1 indicators were then estimated by domains, using inverse distance squared (ID^2) interpolation. The indicator interpolations assign probabilities to each block. A 50% probability rule is used to categorize the blocks into the low, medium, and high grade domains.

A minimum of four composites, maximum of 13, and maximum of two composites per hole were required for an estimate to be made. This condition ensures that at least two holes were within the search range for a block to be estimated. Only composites within the same domain as the block being estimated were considered. The gold indicator estimation parameters for Moore and Monte Negro are shown in Table 14-8.

TABLE 14-8 ESTIMATION PARAMETERS FOR GOLD INDICATORS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Estimation Pass	Search Orientation			Search Distance (m)			Sample Selection		
	Bearing (°)	Plunge (°)	Dip (°)	Major	Semi-major	Minor	Min	Max	Max per DH
Moore 1.0 g/t Indicator	350	0	10	180	180	10	4	13	2
Moore 0.2 g/t Indicator	350	0	10	180	180	10	4	8	2
Monte Negro 1.0 g/t Indicator	335	0	-20	180	180	10	4	13	2
Monte Negro 0.2 g/t Indicator	335	0	-20	180	180	10	4	8	2

GRADE INTERPOLATION

Two major estimation areas were defined for gold interpolation:

1. Moore and Upper Mejita (MO)
2. Monte Negro, Monte Negro 10 and Cumba (MN)

Preferential directions of continuity were defined for MO (Area =2) and MN (Area = 1 and 3). Two major lithology group domains were incorporated during estimates after variography analyses: volcanic rocks (50, 51, 60, 70, and 71) and sedimentary rocks (30, 31, 40, and 41). Five estimation domains (UG) were defined based on alteration intensity and barren to low grade lithology units as follows:

1. UG1 = Alteration types 1 and 2 (Qz)
2. UG2 = Alteration type 3 (propylitic)
3. UG3 = Alteration type 4 (argillitic)
4. UG4 = Dacite (lithology code = 32)
5. UG5 = Dike (lithology code = 80)

The initial pass uses a 2.5 m x 2.5 m x 2.5 m box search that assigns composite grades directly to all blocks intersected by drill holes and these blocks are classified as Measured. This initial pass is done for all blocks at once. A five pass system is then used to interpolate the blocks in each of the five estimation domains, which are treated as hard boundaries. The UG1 or Qz estimation domain represents most of the economic mineralization and has been sub-divided into low, medium, and high grade sub-domains using indicators. The same five pass system is run separately for the three UG1 sub-domains at MO and MN. These five passes are numbered one to five in Table 14-9 and are described below as passes one through four even though the box search is done first.

The first pass 60 m x 60 m x 10 m search radii are based on the range at 80% of the omni-directional variogram sill. The first pass requires a minimum of two drill holes and a maximum of three composites. The second pass uses 30 m x 30 m x 10 m search radii and requires only one drill hole. The third pass uses 120 m x 120 m x 10 m search radii based on the range at approximately 90% of the omni-directional variogram sill and requires a minimum of two drill holes. The fourth pass uses 60 m x 60 m x 10 m search radii and remove the two hole minimum requirement. The fifth and final pass uses 180 m x 180 m x 10 m search radii and requires a minimum of two drill holes.

Gold grades are estimated using inverse distance weighting cubed (ID^3). Sulphur and silver grades are estimated using alteration domains in the same way as gold, while copper is estimated using ordinary kriging (OK) for sulphide domain (>0.5% S Total) and UG1 to UG3 and ID^2 for UG4 and UG5, and for oxide domain (<0.5% S Total).

The grade estimation domain codes are back flagged to composites directly from the block model. The gold indicator probabilities are used to select the composites and to assign weights that are used to interpolate low, medium, and high grade blocks in the UG1 sub-domains.

TABLE 14-9 PARAMETERS FOR GOLD GRADE ESTIMATES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Pass	Composite Selection UG Dom.	Block Selection				Search Orientation			Search Distance (m)			Sample Selection		
		UG Dom.	Area	Grade Dom.	Litho Dom.	Bearing (°)	Plunge (°)	Dip (°)	Maj	Semi Maj	Min	Min	Max	Max per Hole
all_box	All	All	All	All	All	0	0	0	2.5	2.5	2.5	1	99	1
au_da1	4	4	All	All	All	350	0	0	60	60	10	2	3	1
au_da2	4	4	All	All	All	350	0	0	30	30	10	1	3	1
au_da3	4	4	All	All	All	350	0	0	120	120	10	2	3	1
au_da4	4	4	All	All	All	350	0	0	60	60	10	1	3	1
au_da5	4	4	All	All	All	350	0	0	180	180	10	2	3	1
au_di1	5	5	All	All	All	335	0	-20	60	60	10	2	3	1
au_di2	5	5	All	All	All	335	0	-20	30	30	10	1	3	1
au_di3	5	5	All	All	All	335	0	-20	120	120	10	2	3	1
au_di4	5	5	All	All	All	335	0	-20	60	60	10	1	3	1

Pass	Composite Selection UG Dom.	Block Selection				Search Orientation			Search Distance (m)			Sample Selection		
		UG Dom.	Area	Grade Dom.	Litho Dom.	Bearing (°)	Plunge (°)	Dip (°)	Maj	Semi Maj	Min	Min	Max	Max per Hole
au_di5	5	5	All	All	All	335	0	-20	180	180	10	2	3	1
auprm1	2	2	1,3	All	All	350	0	0	60	60	10	2	3	1
auprm2	2	2	1,3	All	All	350	0	0	30	30	10	1	3	1
auprm3	2	2	1,3	All	All	350	0	0	120	120	10	2	3	1
auprm4	2	2	1,3	All	All	350	0	0	60	60	10	1	3	1
auprm5	2	2	1,3	All	All	350	0	0	180	180	10	2	3	1
mn_hg1	1	1	1,3	HG	30,31,40,41	335	0	-20	60	60	10	2	3	1
mn_hg2	1	1	1,3	HG	30,31,40,41	335	0	-20	30	30	10	1	3	1
mn_hg3	1	1	1,3	HG	30,31,40,41	335	0	-20	120	120	10	2	3	1
mn_hg4	1	1	1,3	HG	30,31,40,41	335	0	-20	60	60	10	1	3	1
mn_hg5	1	1	1,3	HG	30,31,40,41	335	0	-20	180	180	10	2	3	1
mn_mg1	1	1	1,3	MG	30,31,40,41	335	0	-20	60	60	10	2	3	1
mn_mg2	1	1	1,3	MG	30,31,40,41	335	0	-20	30	30	10	1	3	1
mn_mg3	1	1	1,3	MG	30,31,40,41	335	0	-20	120	120	10	2	3	1
mn_mg4	1	1	1,3	MG	30,31,40,41	335	0	-20	60	60	10	1	3	1
mn_mg5	1	1	1,3	MG	30,31,40,41	335	0	-20	180	180	10	2	3	1
mn_lg1	1	1	1,3	LG	30,31,40,41	335	0	-20	60	60	10	2	3	1
mn_lg2	1	1	1,3	LG	30,31,40,41	335	0	-20	30	30	10	1	3	1
mn_lg3	1	1	1,3	LG	30,31,40,41	335	0	-20	120	120	10	2	3	1
mn_lg4	1	1	1,3	LG	30,31,40,41	335	0	-20	60	60	10	1	3	1
mn_lg5	1	1	1,3	LG	30,31,40,41	335	0	-20	180	180	10	2	3	1
mn_ar1	3	3	1,3	All	30,31,40,41	335	0	-20	60	60	10	2	3	1
mn_ar2	3	3	1,3	All	30,31,40,41	335	0	-20	30	30	10	1	3	1
mn_ar3	3	3	1,3	All	30,31,40,41	335	0	-20	120	120	10	2	3	1
mn_ar4	3	3	1,3	All	30,31,40,41	335	0	-20	60	60	10	1	3	1
mn_ar5	3	3	1,3	All	30,31,40,41	335	0	-20	180	180	10	2	3	1
mnvhg1	1	1	1,3	HG	50,51,60,70,71	335	0	-20	40	40	10	2	3	1
mnvhg2	1	1	1,3	HG	50,51,60,70,71	335	0	-20	20	20	10	1	3	1
mnvhg3	1	1	1,3	HG	50,51,60,70,71	335	0	-20	120	120	10	2	3	1
mnvhg4	1	1	1,3	HG	50,51,60,70,71	335	0	-20	60	60	10	1	3	1
mnvhg5	1	1	1,3	HG	50,51,60,70,71	335	0	-20	180	180	10	2	3	1
mnvmg1	1	1	1,3	MG	50,51,60,70,71	335	0	-20	40	40	10	2	3	1
mnvmg2	1	1	1,3	MG	50,51,60,70,71	335	0	-20	20	20	10	1	3	1
mnvmg3	1	1	1,3	MG	50,51,60,70,71	335	0	-20	120	120	10	2	3	1
mnvmg4	1	1	1,3	MG	50,51,60,70,71	335	0	-20	60	60	10	1	3	1
mnvmg5	1	1	1,3	MG	50,51,60,70,71	335	0	-20	180	180	10	2	3	1
mnvlg1	1	1	1,3	LG	50,51,60,70,71	335	0	-20	40	40	10	2	3	1
mnvlg2	1	1	1,3	LG	50,51,60,70,71	335	0	-20	20	20	10	1	3	1
mnvlg3	1	1	1,3	LG	50,51,60,70,71	335	0	-20	120	120	10	2	3	1
mnvlg4	1	1	1,3	LG	50,51,60,70,71	335	0	-20	60	60	10	1	3	1
mnvlg5	1	1	1,3	LG	50,51,60,70,71	335	0	-20	180	180	10	2	3	1
mnvar1	3	3	1,3	All	50,51,60,70,71	335	0	-20	40	40	10	2	3	1

Pass	Composite Selection UG Dom.	Block Selection				Search Orientation			Search Distance (m)			Sample Selection		
		UG Dom.	Area	Grade Dom.	Litho Dom.	Bearing (°)	Plunge (°)	Dip (°)	Maj	Semi Maj	Min	Min	Max	Max per Hole
mnvar2	3	3	1,3	All	50,51,60,70,71	335	0	-20	20	20	10	1	3	1
mnvar3	3	3	1,3	All	50,51,60,70,71	335	0	-20	120	120	10	2	3	1
mnvar4	3	3	1,3	All	50,51,60,70,71	335	0	-20	60	60	10	1	3	1
mnvar5	3	3	1,3	All	50,51,60,70,71	335	0	-20	180	180	10	2	3	1
au_pr1	2	2	2	All	All	335	0	0	60	60	10	2	3	1
au_pr2	2	2	2	All	All	335	0	0	30	30	10	1	3	1
au_pr3	2	2	2	All	All	335	0	0	120	120	10	2	3	1
au_pr4	2	2	2	All	All	335	0	0	60	60	10	1	3	1
au_pr5	2	2	2	All	All	335	0	0	180	180	10	2	3	1
mo_hg1	1	1	2	HG	30,31,40,41	350	0	10	60	60	10	2	3	1
mo_hg2	1	1	2	HG	30,31,40,41	350	0	10	30	30	10	1	3	1
mo_hg3	1	1	2	HG	30,31,40,41	350	0	10	120	120	10	2	3	1
mo_hg4	1	1	2	HG	30,31,40,41	350	0	10	60	60	10	1	3	1
mo_hg5	1	1	2	HG	30,31,40,41	350	0	10	180	180	10	2	3	1
mo_mg1	1	1	2	MG	30,31,40,41	350	0	10	60	60	10	2	3	1
mo_mg2	1	1	2	MG	30,31,40,41	350	0	10	30	30	10	1	3	1
mo_mg3	1	1	2	MG	30,31,40,41	350	0	10	120	120	10	2	3	1
mo_mg4	1	1	2	MG	30,31,40,41	350	0	10	60	60	10	1	3	1
mo_mg5	1	1	2	MG	30,31,40,41	350	0	10	180	180	10	2	3	1
mo_lg1	1	1	2	LG	30,31,40,41	350	0	10	60	60	10	2	3	1
mo_lg2	1	1	2	LG	30,31,40,41	350	0	10	30	30	10	1	3	1
mo_lg3	1	1	2	LG	30,31,40,41	350	0	10	120	120	10	2	3	1
mo_lg4	1	1	2	LG	30,31,40,41	350	0	10	60	60	10	1	3	1
mo_lg5	1	1	2	LG	30,31,40,41	350	0	10	180	180	10	2	3	1
mo_ar1	3	3	2	All	30,31,40,41	350	0	10	60	60	10	2	3	1
mo_ar2	3	3	2	All	30,31,40,41	350	0	10	30	30	10	1	3	1
mo_ar3	3	3	2	All	30,31,40,41	350	0	10	120	120	10	2	3	1
mo_ar4	3	3	2	All	30,31,40,41	350	0	10	60	60	10	1	3	1
mo_ar5	3	3	2	All	30,31,40,41	350	0	10	180	180	10	2	3	1
movhg1	1	1	2	HG	50,51,60,70,71	350	0	10	40	40	10	2	3	1
movhg2	1	1	2	HG	50,51,60,70,71	350	0	10	20	20	10	1	3	1
movhg3	1	1	2	HG	50,51,60,70,71	350	0	10	120	120	10	2	3	1
movhg4	1	1	2	HG	50,51,60,70,71	350	0	10	60	60	10	1	3	1
movhg5	1	1	2	HG	50,51,60,70,71	350	0	10	180	180	10	2	3	1
movmg1	1	1	2	MG	50,51,60,70,71	350	0	10	40	40	10	2	3	1
movmg2	1	1	2	MG	50,51,60,70,71	350	0	10	20	20	10	1	3	1
movmg3	1	1	2	MG	50,51,60,70,71	350	0	10	120	120	10	2	3	1
movmg4	1	1	2	MG	50,51,60,70,71	350	0	10	60	60	10	1	3	1
movmg5	1	1	2	MG	50,51,60,70,71	350	0	10	180	180	10	2	3	1
movlg1	1	1	2	LG	50,51,60,70,71	350	0	10	40	40	10	2	3	1
movlg2	1	1	2	LG	50,51,60,70,71	350	0	10	20	20	10	1	3	1
movlg3	1	1	2	LG	50,51,60,70,71	350	0	10	120	120	10	2	3	1

Pass	Composite Selection UG Dom.	Block Selection				Search Orientation			Search Distance (m)			Sample Selection		
		UG Dom.	Area	Grade Dom.	Litho Dom.	Bearing (°)	Plunge (°)	Dip (°)	Maj	Semi Maj	Min	Min	Max	Max per Hole
movlg4	1	1	2	LG	50,51,60,70,71	350	0	10	60	60	10	1	3	1
movlg5	1	1	2	LG	50,51,60,70,71	350	0	10	180	180	10	2	3	1
movar1	3	3	2	All	50,51,60,70,71	350	0	10	40	40	10	2	3	1
movar2	3	3	2	All	50,51,60,70,71	350	0	10	20	20	10	1	3	1
movar3	3	3	2	All	50,51,60,70,71	350	0	10	120	120	10	2	3	1
movar4	3	3	2	All	50,51,60,70,71	350	0	10	60	60	10	1	3	1
movar5	3	3	2	All	50,51,60,70,71	350	0	10	180	180	10	2	3	1

RESOURCE CLASSIFICATION

The resource model was classified using a combination of estimation pass number, number of composites used to assign the block grade, and the distance to nearest composite. Ranges for Indicated and Inferred Resources are derived from the gold omni-directional correlogram, with the 40 m range for volcanic rocks and with 60 m range for sedimentary rocks at approximately 80% of the sill defining Indicated Mineral Resources and the 180 m range at approximately 90% of the sill defining Inferred Mineral Resources. A block is classified as Measured only if it is intersected by an assayed drill hole during the box search. A block was considered Indicated if it had two composites within 40 m (volcanic rocks) or within 60 m (sedimentary rocks), or at least one composite within 20 m (volcanic rocks) or within 30 m (sedimentary rocks). Passes one and two defined the Indicated blocks. In order to classify a block as Inferred, two composites had to be located within 180 m of the block. Passes three, four, and five defined the Inferred blocks.

A post-processing, resource clean-up script was not applied to the classification model. In general, the classification model already has large continuous areas of Indicated and Inferred and running a clean-up script would not make a significant difference. Overall, RPA is of the opinion that the resource classification criteria developed by Barrick are reasonable and acceptable for the mineralization at Pueblo Viejo. Figures 14-4 and 14-5 illustrate the distribution of grade and resource classification at the Monte Negro and Moore deposits.

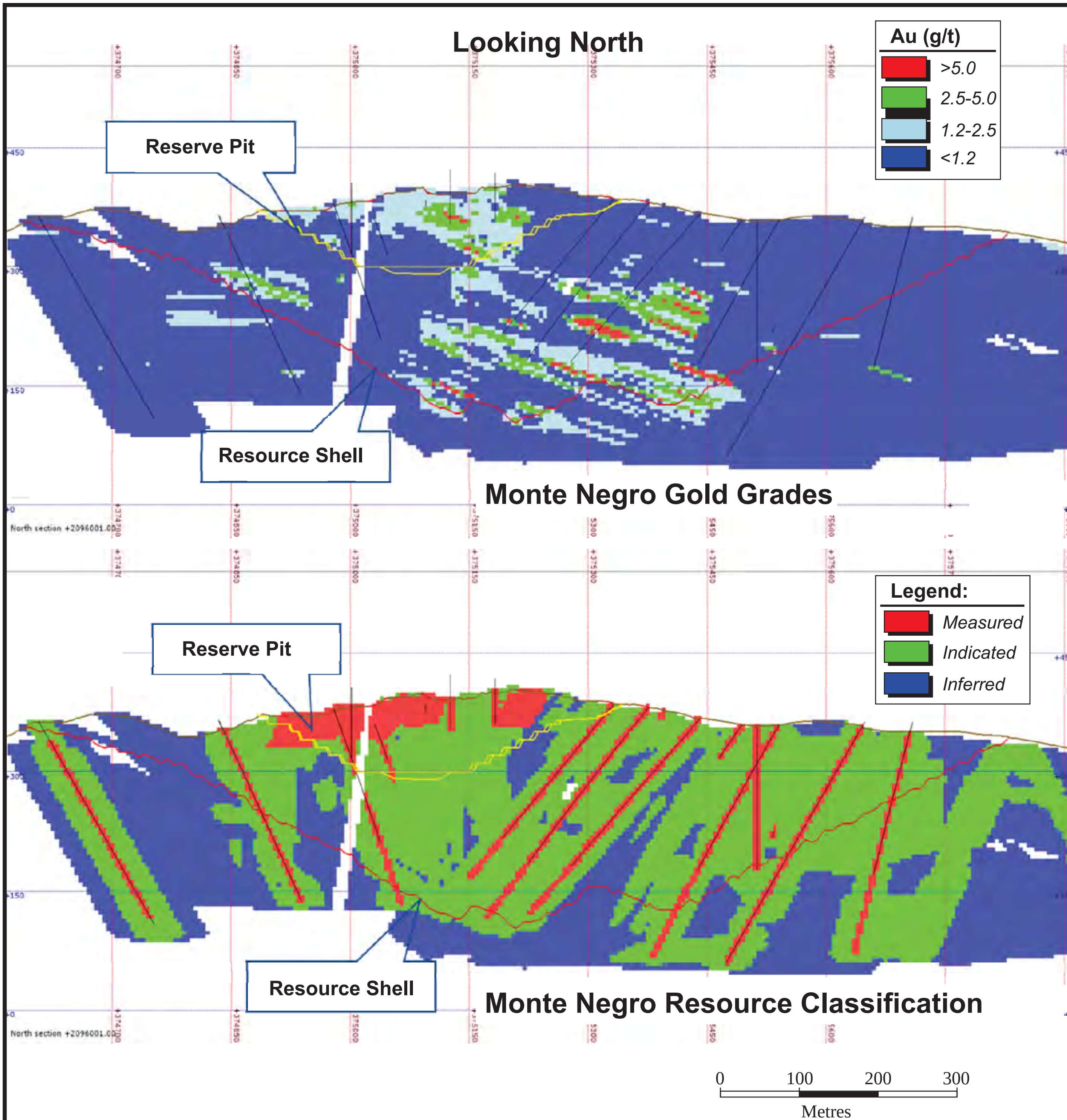


Figure 14-4

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Cross Section-
Monte Negro Deposit

March 2018

Source: Barrick Gold Corporation, 2018.

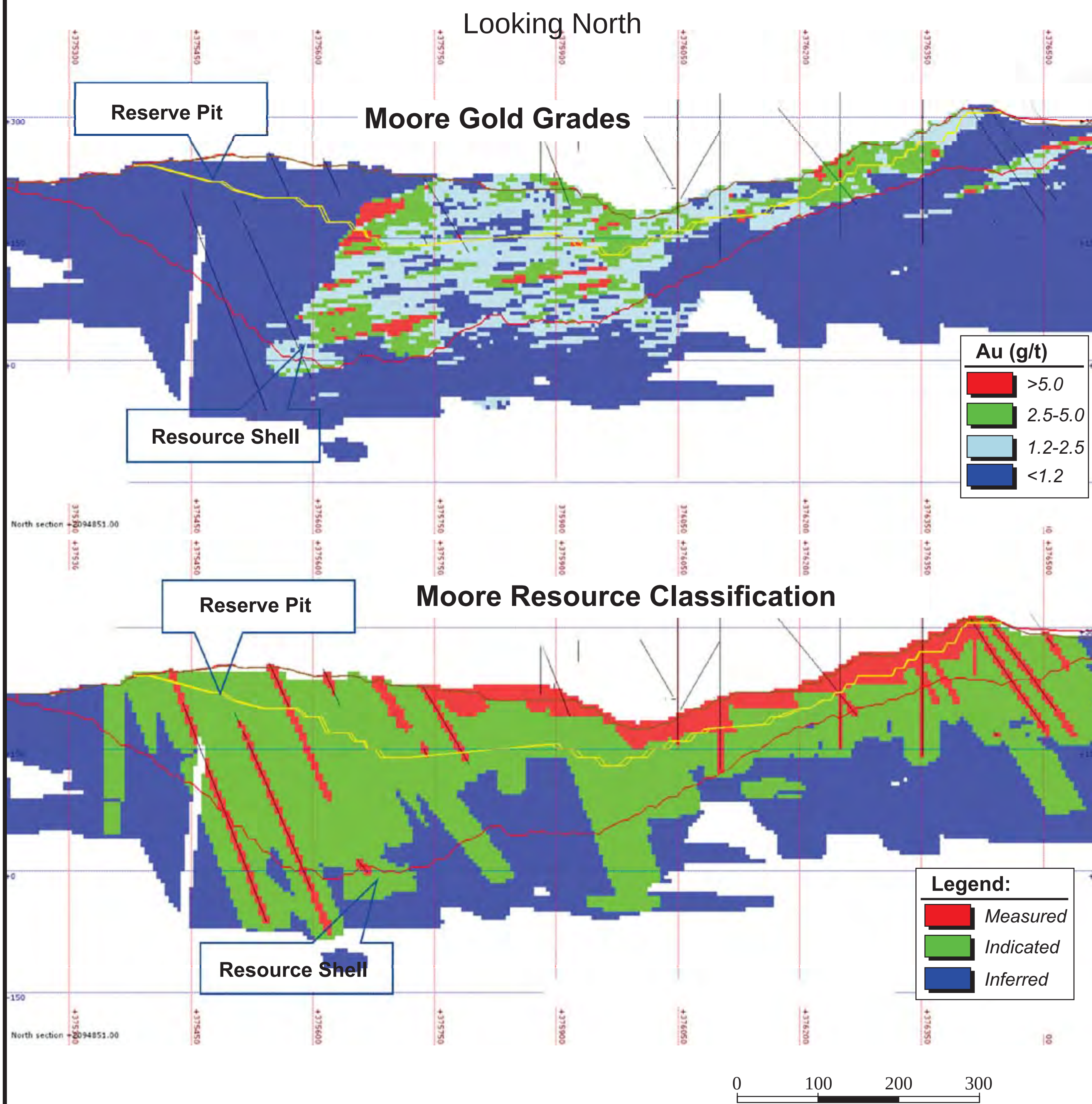


Figure 14-5

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Cross Section- Moore Deposit

March 2018

Source: Barrick Gold Corporation, 2018.

The classification of Measured, Indicated, and Inferred Mineral Resources conform to the CIM (2014) definitions.

RE-BLOCKING TO FINAL RESOURCE ESTIMATE

The 2.5 m by 2.5 m by 2.5 m were re-blocked into the final resource model, which has 5 m by 5 m by 5 m blocks. The re-blocked grades were assigned based on tonnage weighting the original block grades and the geology and other codes were assigned based on majority rules.

For the open pit benches with production data, the grade control data was incorporated into the model.

Over time, PVDC has developed a sophisticated multi-pass interpolation process that works well. RPA is of the opinion that the Pueblo Viejo resource estimation methodology is reasonable and acceptable.

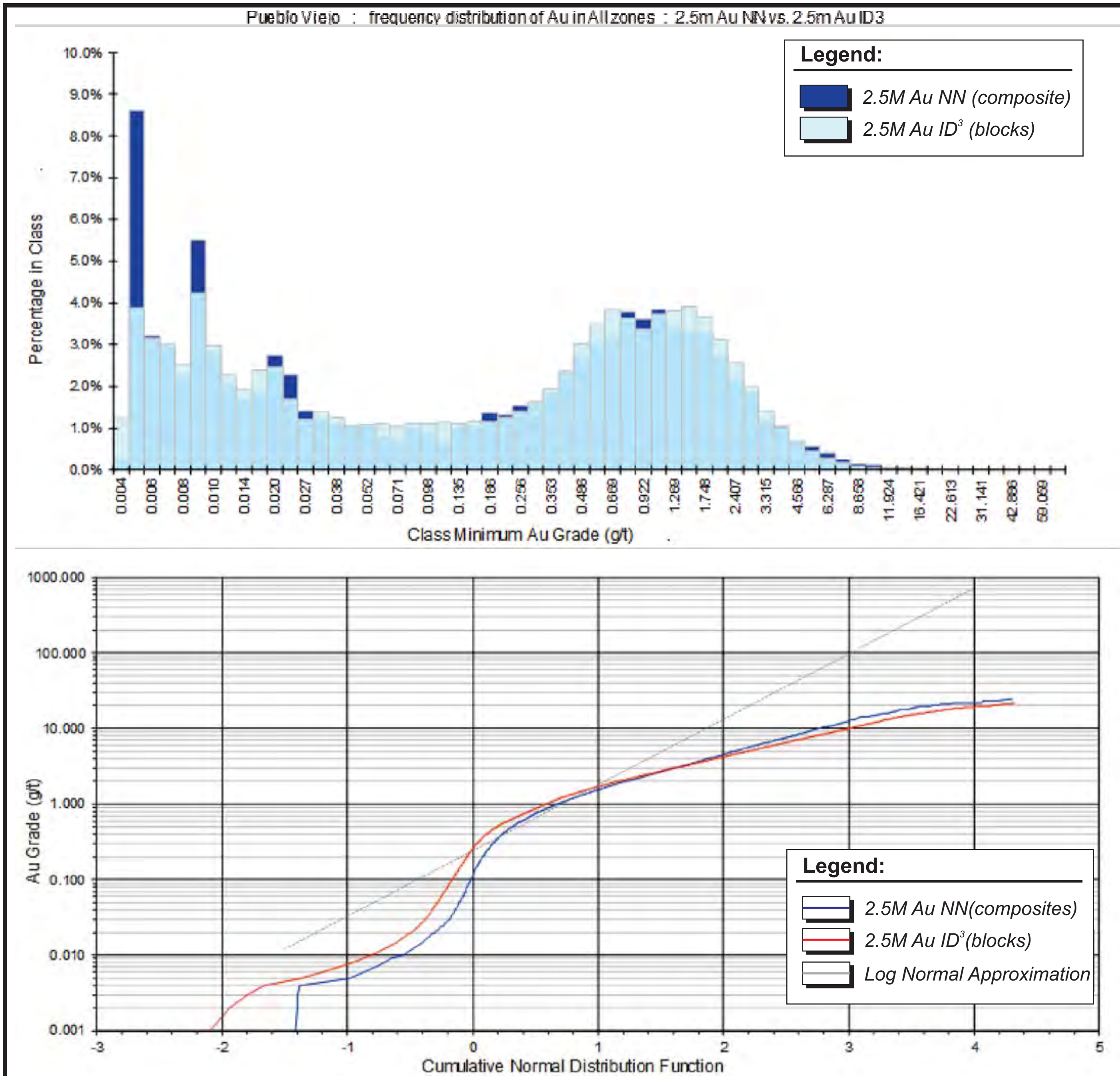
BLOCK MODEL VALIDATION

PVDC has validated the resource block model using five separate validation procedures. The results are provided in Barrick (2017a) and some examples of the validation results are included below.

1. Visual inspection of block and composite values on sections and plans
2. Reconciliation with the ore control model
3. Comparisons of block versus composite grade statistics, histograms, and cumulative frequency curves
4. ID^3 versus polygonal swath plots
5. Comparison with previous estimates

PVDC and RPA visually compared the composite and block grades on plans and sections and found that they correlate very well spatially (Figures 14-4 and 14-5).

Graphs that compare the composite and block gold grades show that the two populations have similar distributions with not much grade smoothing evident (Figure 14-6).



	Au cutoff = 0.000 g/t			Au cutoff = 0.500 g/t			Au cutoff = 3.000 g/t			Au cutoff = 5.000 g/t		
	meter	Au (g/t)	Au (GT)	meter	Au (g/t)	Au (GT)	meter	Au (g/t)	Au (GT)	meter	Au (g/t)	Au (GT)
2.5m Au NN(All zones)	641,241,284	0.744	476,797,609	242,815,153	1.846	448,256,461	33,976,559	5.070	172,259,861	11,662,893	7.600	88,634,860
incr. % and grade	62.1%	0.072	6.0%	32.6%	1.321	57.9%	3.5%	3.748	17.5%	1.8%	7.600	18.6%
2.5m Au ID3(All zones)	641,241,284	0.790	506,698,074	272,336,147	1.747	475,722,430	33,829,730	4.605	155,776,389	8,924,599	7.037	62,800,660
incr. % and grade	57.5%	0.084	6.1%	37.2%	1.342	63.1%	3.9%	3.734	18.3%	1.4%	7.037	12.4%

Figure 14-6

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Gold Block Versus Composite Graphs

March 2018

Source: Barrick Gold Corporation, 2018.

The resource model reconciles well with production as discussed in the following subsection.

MINERAL RESOURCE RECONCILIATION

PVDC has completed a significant amount of RC grade control (GC) drilling at the Monte Negro and Moore deposits. This GC drilling was carried out at a 10 mE by 15 mN spacing in high grade areas and at wider drill hole spacings in lower grade areas. Two metre samples were collected using a rotating cone splitter, prepared on site, and most samples were sent to ALS Chemex in Lima until early 2013 when the mine began assaying the samples directly at the PVDC laboratory for Au, Ag, Cu, Zn, and S (Leco). The drill holes are oriented at -60° east or west depending on the mineralization dip. The Barrick operated RC drills are equipped with Progradex sampling systems that minimize the loss of fines and improve overall sample quality.

The GC models are prepared using sequential Gaussian simulation. For 2016, the GC model delineated 98% of the total resource model tonnage and 97% of the gold grade for 95% of the total ounces of gold. For 2017, the GC model delineated 98% of the total tonnage and 92% of the gold grade for 90% of the total ounces of gold. PVDC adjusted the capping level based on reconciliation results, improving the resource model since mid-year 2017. For the third and fourth quarters of 2017, the GC model delineated 102% of the total resource model tonnage and 94% of the gold grade for 95% of the total ounces of gold, showing a good performance of the resource model. In RPA's opinion, the resource model reconciles well with the GC model.

CONCLUSIONS

In RPA's opinion, the EOY2017 Mineral Resource estimates are completed to industry standards using reasonable and appropriate parameters and are acceptable for conversion to Mineral Reserves.

The classification of Measured, Indicated, and Inferred Mineral Resources conform to the CIM (2014) definitions.

The overall resource estimation processes and procedures in use at the time of the audit were found to be of a high standard. PVDC have highly experienced professionals who have developed detailed and complex methods and procedures appropriate for a complex operation.

The geology, sampling, assaying, QA/QC, and data management procedures are of high quality and generally exceed industry standards. The resource and grade control models are reasonable and acceptable. The detailed lithology, alteration, structural interpretation, and other work have contributed to a very good overall geological understanding of the mine.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate at the time of this report.

15 MINERAL RESERVE ESTIMATE

MINERAL RESERVE STATEMENT

The Mineral Resource estimates discussed in Section 14 were prepared using standard industry methods and provide an acceptable basis for estimation of Mineral Reserves. RPA reviewed the reported Mineral Reserves, production schedules, and cash flow analysis to determine if the Mineral Reserves met the CIM (2014) definitions. Based on this review, it is RPA's opinion that the Measured and Indicated Mineral Resource within the final pit design at Pueblo Viejo can be classified as Proven and Probable Mineral Reserves. The Qualified Person for this Mineral Reserve estimate is Hugo Miranda, MBA, ChMC (RM).

Mineral Reserves for the Mine, contained in the two adjacent Moore and Monte Negro pits, as well as a small satellite pit referred to as Cumba, are listed in Table 15-1.

TABLE 15-1 PUEBLO VIEJO MINERAL RESERVES – DECEMBER 31, 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Area/Category	Tonnage	Grade			Contained Metal		
	(000 t)	(g/t Au)	(g/t Ag)	(% Cu)	Gold (000 oz)	Silver (000 oz)	Copper (000 lb)
Monte Negro Pit							
Proven	11,475	2.61	18.34	0.058	961	6,765	14,648
Probable	11,555	3.03	14.82	0.069	1,126	5,506	17,466
Monte Negro P&P	**23,030**	**2.82**	**16.57**	**0.063**	**2,088**	**12,271**	**32,115**
Moore Pit							
Proven	15,180	2.86	14.29	0.126	1,398	6,973	42,258
Probable	19,483	2.93	15.17	0.111	1,837	9,502	47,591
Moore P&P	**34,663**	**2.90**	**14.79**	**0.118**	**3,235**	**16,475**	**89,849**
Cumba Pit							
Proven	55	6.48	43.17	0.339	11	77	412
Probable	1,000	5.72	31.47	0.259	184	1,012	5,708
Cumba P&P	**1,055**	**5.76**	**32.09**	**0.263**	**195**	**1.088**	**6,120**
Stockpiles – Proven	**76,852**	**2.64**	**18.63**	**0.096**	**6,521**	**46,034**	**163,130**

Area/Category	Tonnage (000 t)	Grade (g/t Au)	(g/t Ag)	(% Cu)	Contained Metal Gold (000 oz)	Silver (000 oz)	Copper (000 lb)
Totals							
Proven	103,562	2.67	17.97	0.097	8,891	59,848	220,448
Probable	32,037	3.06	15.55	0.100	3,148	16,019	70,765
Proven + Probable	**135,599**	**2.76**	**17.40**	**0.097**	**12,039**	**75,868**	**291,213**

Notes:

1. Proven and Probable Mineral Reserves are reported on 100% basis. Barrick's and Goldcorp's attributable shares of the Mineral Reserves are 60% and 40%, respectively.
2. CIM (2014) definitions were followed for Mineral Reserves.
3. No cut-off grade is applied. Instead, the profit of each block in the Mineral Resource is calculated and included in the reserve if the value is positive.
4. Mineral Reserves are estimated using an average long-term price of US$1,200/oz Au, US$16.50/oz Ag, and US$2.75/lb Cu.
5. Assumed 100% mining recovery and no dilution.
6. Totals may not add due to rounding.

RPA is not aware of any mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimates.

CLASSIFICATION CRITERIA

To estimate the Mineral Reserves and to develop the associated mining schedule, the value for each block in the Mineral Resource model was calculated, which takes into account metal grade, sulphur content, processing plant recoveries, and costs in determining the value of a given block.

Value = Revenue – Costs, in $/t.

> Unit Revenue = [Gold grade (oz/t) x Gold Rec. (%) x Gold price ($/oz) x (1 – 0.032) x Payable Metal – Gold TC&RC($/t)] + [Silver grade (oz/t) x Silver Rec. (%) x Silver price ($/oz) x (1 – 0.032) x Payable Metal – Silver TC&RC($/t] + [Cu grade (lb/t) x Cu Rec. (%) x Copper price ($/lb) x (1 – 0.032) x Payable Metal – Copper TC&RC($/t)]

It should be noted that the cost for each block considers all operating and sustaining costs – mining, processing, and G&A - plus the incremental sustaining capital associated with the El Llagal and La Piñita tailings storage facilities. Accordingly, any block showing a value higher than zero at the specified gold price, is a block of ore, i.e., eligible to be fed to the plant.

Measured and Indicated Mineral Resource blocks are treated as potential mill feed, while Inferred Mineral Resource and unclassified blocks are treated as waste and assigned a zero value.

16 MINING METHODS

SUMMARY

The Pueblo Viejo property was the site of gold mining operations under the ownership of Rosario until March 2002. The operations of Rosario were based on exploitation of the oxide zone in two principal mineralized areas, Monte Negro and Moore. Mining in the Moore deposit stopped early in the 1990s owing to ore hardness and high copper content, which resulted in high cyanide consumption. In the Monte Negro deposit, mining ceased in 1998 and stockpile mining continued until July 1999, when the operation was shut down. In 24 years of production, the Pueblo Viejo Mine produced a total of 5.5 Moz of gold and 25.2 Moz of silver.

Suspension of the operations of Rosario was directly related to exhaustion of oxide zone resources and the need to develop suitable technology for commercial exploitation of the underlying sulphide mineralization.

During 2000, the Dominican Republic invited international bids for the leasing and mineral exploitation of the Pueblo Viejo sulphide deposits. Placer won the bid and negotiated the SLA for the Montenegro Fiscal Reserve. The SLA became effective on July 29, 2003.

In March 2006, Barrick acquired control of Placer and in December 2007 prepared the FSU. Mine development began in August 2010. Current mine activity is in the Monte Negro 2 and Moore 2 phases. Mining is by conventional truck and shovel method.

The EOY2017 Mineral Reserves as reported in Table 15-1 are the basis for this Technical Report. Whittle analysis has been used for pit optimization.

The small satellite Cumba pit was added to the Mineral Reserves in 2017. The pit contains only 1.1 million tonnes of high grade ore but is conveniently located on the east side of the low-grade stockpile.

The ore stockpiles are classified as high grade, medium grade, and low grade material. At December 2017, the total ore on stockpile was 76.9 Mt and will reach the maximum of approximately 103.6 Mt by 2021. The waste to ore ratio was 0.73:1.0 for 2017.

The pit stages have been designed to optimize the early extraction of the higher grade ore. Notwithstanding, the driver of the mine schedule is the sulphur blending requirement. Sulphur grade is as important as the gold grade, because the metallurgical aspects of the processing operation, the recoveries achieved, and the processing costs, all strongly depend on a very consistent, low-variability sulphur content in the plant feed.

Potentially acid generating (PAG) waste rock from the Moore and Monte Negro pits is hauled to the El Llagal tailings area and submerged in the tailings facility. An eight kilometre haul road has been constructed to link the pit area to the TSF.

The processing method requires a significant amount of limestone slurry and lime derived from high quality limestone. Limestone quarries, located approximately two kilometres from the Mine, have been in production since 2009 to supply material for construction and for the plant.

The remaining mine life is projected to be just over four years, with processing of low-grade ore stockpiles continuing for over 12 years until 2034. The Life of Mine (LOM) plan total material movement, including limestone, will range from approximately 59 Mtpa to 64 Mtpa during the next four years of mining. The limestone mining and processing will continue for just over 16 years. Higher grade ore is processed in the early years, while lower grade ore is stockpiled for later processing in order to maximize the project economics.

Pueblo Viejo and Barrick corporate personnel are assessing a number of improvements that have potential to materially increase profitability through lower operating costs and extended mine life.

OPEN PIT OPTIMIZATION

The Lerchs-Grossmann algorithm contained in the Whittle software package has been used for pit optimization, with a set of nested pit shell surfaces being generated by varying the Revenue Factor (RF). Results presented in the following sections correspond to the latest work completed by PVDC in December 2017.

The December 2017 topographic surface of the site was used in the analysis. Pit shell generation was largely unconstrained by infrastructure as most major facilities will be outside the ultimate pit design and area of influence.

It should be noted that most of the parameter values have been based on 2017 cost information and corporate guidance. In particular, the mine operating costs used have been taken from the 2017 Actual LOM costs and correspond to an operation designed for processing 24,000 tpd and mining approximately 107,000 tpd run of mine (ROM) total material in 2017 (excluding re-handle and limestone mining).

RESOURCE MODEL

The Mineral Resource block model used was the “pv050m_201711_LTP-Official_vF.bmf”, released for long term planning purposes in November 2017.

Grades relevant to the economic value calculation for each block are gold, silver, copper, and sulphur.

Only Measured and Indicated Resources have been used for revenue estimation in the pit optimization and mine design work. Inferred Resources within the mine design have been considered as waste.

GEOTECHNICAL INPUT - SLOPE ANGLES

Geotechnical domains and recommended inter-ramp pit slope angles were originally designed by Piteau Associates Engineering Ltd. in 2005.

Geotechnical slope parameters for the Monte Negro Phase and the Moore Phases are based on the recommended parameters provided in SRK (2011). The 2017 Piteau reports and the subsequent Moore Geotechnical Domain model and Monte Negro Geotechnical Domain model reports were also considered for phase designs. Pit slope sections have been assessed and meet Barrick’s design Factor of Safety (FOS) >1.3.

Geotechnical design parameters for Monte Negro Phase 5, Moore Phase 6, Cumba, and Las Lagunas Phase 1 will be updated after completion of a specific site investigation program during the first quarter of 2018.

Hydrological conditions are well managed and considered in the pit slope stability analysis for the LOM.

ECONOMIC INPUTS

Commodity prices used for pit optimization runs upon which the Mineral Resource and Mineral Reserve estimates are based are summarized in Table 16-1.

TABLE 16-1 METAL PRICES USED FOR PIT OPTIMIZATION
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Metal Prices	Reserves	Resources
Gold	$1,200.00/oz	$1,500.00/oz
Silver	$16.50/oz	$20.50/oz
Copper	$2.75/lb	$3.50/lb

Mining costs for ore, waste, and ore re-handling were based on EOY2017 actual and LOM average mining costs (Table 16-2). All operating cost estimates are based on an ore processing rate of 24,000 tpd.

TABLE 16-2 MINING AND PROCESSING COSTS USED FOR PIT OPTIMIZATION
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

	Mineral Reserve	Mineral Resource
Mine Cost		
Ore	$2.93/t	$2.93/t
Waste	$3.31/t	$3.31/t
Re-handle	$1.97/t	$1.97/t
Process Cost	S < 7.5%, PC = 23.84 + 90.6*P + 487.1*(S/100)*P + 0.9488*(Cu/100) * 2204.6 S >= 7.5%, PC = 7.48 + 12.2*P + 217.3*(S/100) + 1529*(S/100)*P + 0.9488*(Cu/100)*2204.6 Where: PC = Processing cost ($/t) P = Power costs ($/kWh) S = Sulphur grade (%) Cu = Copper (%)	

Smelting, refining costs, and royalties included in the analysis were updated to October 2017 Corporate Guidance. The 3.2% royalty was applied against the metal sales. The payable metals are presented in Table 16-3.

TABLE 16-3 PAYABLE METALS USED FOR PIT OPTIMIZATION
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Payable Metals (%)	Reserves	Resources
Gold	99.975	99.975
Silver	99.850	99.850
Copper	96.750	96.750

G&A costs were estimated as part of the LOM at US$6.75/t processed. A sustaining capital cost for LOM of $2.53/t and a G&A cost of $9.28/t were included in the mine plan analysis. A 100% mining recovery factor and no dilution were used in the pit optimization analysis.

Operating costs associated with the construction of the TSFs have been allocated as capital costs to Lower Llagal and La Piñita, by material type, as follows:

- Lower Llagal cost per ore tonne US$3.45
- Lower Llagal cost per waste tonne US$1.30
- La Piñita cost per ore tonne US$7.40
- La Piñita cost per waste tonne US$2.79
- All limestone mining costs have been allocated to the process plant per tonne processed US$2.87

METALLURGICAL INPUTS

A new model was developed based on the process plant data from October 1, 2014 through August 21, 2016. The new model is summarized in Table 13-2 in Section 13 of this report.

The recovery equation is as follows:

Recovery=1-(Intercept + (C Co-efficient*C Grade) + (Au Co-efficient * Gold(Au) Grade)) / (1.15453673 * Gold(Au) Grade)

Minimum 88%

OPTIMIZATION RESULTS

Table 16-4 lists the global rock tonnages for the series of nested pit shells obtained in optimization runs including Monte Negro, Moore, and Cumba deposits. Constrained by the total tailings and waste dump capacity, the US$900 per troy ounce gold pit was selected for the EOY2017 Mineral Reserves as the most economic.

TABLE 16-4 PUEBLO VIEJO PIT OPTIMIZATION RESULTS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Gold Price ($/oz)	Total Tonnes (000)	Ore Tonnes (000)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade %	Contained Gold Moz
600	21,606	6,985	4.90	31.52	0.14	1,064
650	44,670	12,237	4.61	27.89	0.14	1,755
700	67,510	18,723	4.30	25.43	0.13	2,506
750	111,960	29,366	4.06	22.69	0.12	3,704
800	164,711	42,437	3.83	21.04	0.11	5,050
816	179,346	46,410	3.76	20.67	0.11	5,431
850	194,571	52,666	3.64	20.04	0.11	5,969
900	294,679	73,658	3.47	19.21	0.10	7,961
950	377,951	92,305	3.34	18.41	0.10	9,598
1,000	547,267	123,905	3.22	17.60	0.09	12,408
1,050	587,115	138,885	3.12	17.08	0.09	13,477
1,100	637,735	154,662	3.03	16.67	0.09	14,583
1,150	704,727	171,654	2.95	16.32	0.09	15,776
1,200	719,185	183,185	2.88	15.98	0.09	16,420
Stockpile		**76,852**	2.64	18.63	**0.10**	6,521

FINAL (ULTIMATE PIT) SELECTION AND DESIGN

The capacity of the TSF available at the end of 2017 was lower than the total ore contained in the $1,200 per ounce gold price optimum pit shell. Accordingly, pit shell selection is driven by the TSF capacity. In general, one tonne of ore will produce approximately 1.54 t of mixed tailings - CIL and high density sludge (HDS) precipitate (see Section 13). Tailings will have an overall LOM average dry density of 1.26 t/m^3. For the current assessment, the waste dumps generally do not advance over tailings and a uniform density of 2.1 t/m^3 has been assumed for the waste rock. Therefore, the tailings plus waste storage capacity required for a given amount of ore and waste is defined by:

Volume of Tailings plus Waste Storage (m^3) = Ore tonnes *(1.54/1.26) + Waste tonnes / 2.1

With the 2017 storage capacity of 216.6 Mm^3 that is currently available, the maximum pit size is limited to the US$900 per ounce gold pit, which requires approximately 213.1 Mm^3 of storage capacity for its tailings plus waste. There are 22.8 Mt non-acid generating (NAG) waste tonnes included in the final pit, of which only 5.2 Mt are planned to be sent to the TSF area and the remainder will be sent to the NAG waste dumps.

The current final pit design is based on the design parameters as follows:

- Bench height is 10 m for pits, single and double-benching by sectors. This is appropriate for the mining method and equipment size.
- Main roads are designed with 35 m width and 9% gradient. The bottom three benches have a limit of 20 m at 10% gradient.

The resulting final pit design is shown in Figure 16-1. The comparison of this design with respect to US$900 per troy ounce gold pit shell is presented in Table 16-5 including Monte Negro, Moore, and Cumba deposits.

TABLE 16-5 FINAL PIT DESIGN VERSUS PIT SHELL COMPARISON
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Item	Unit	Whittle Pit Shell (US$900/oz)	Pit Design	% Variation
Ore	000 t	73,658	58,748	-27
Au Grade	g/t	3.47	2.92	-16
Ag Grade	g/t	19.21	15.80	-18
Cu Grade	%	0.10	0.10	0
Au Contained	000 oz	7,961	5,518	-31
Waste	000 t	221,021	102,064	-54
Total	**000 t**	**294,679**	**160,812**	**-45**

The final pit design was based on the US$900 gold price pit optimization geometry, and the US$1,200 gold price block value cut-off grade was used for classification of ore and waste resulting in higher gold, silver, and copper grade.

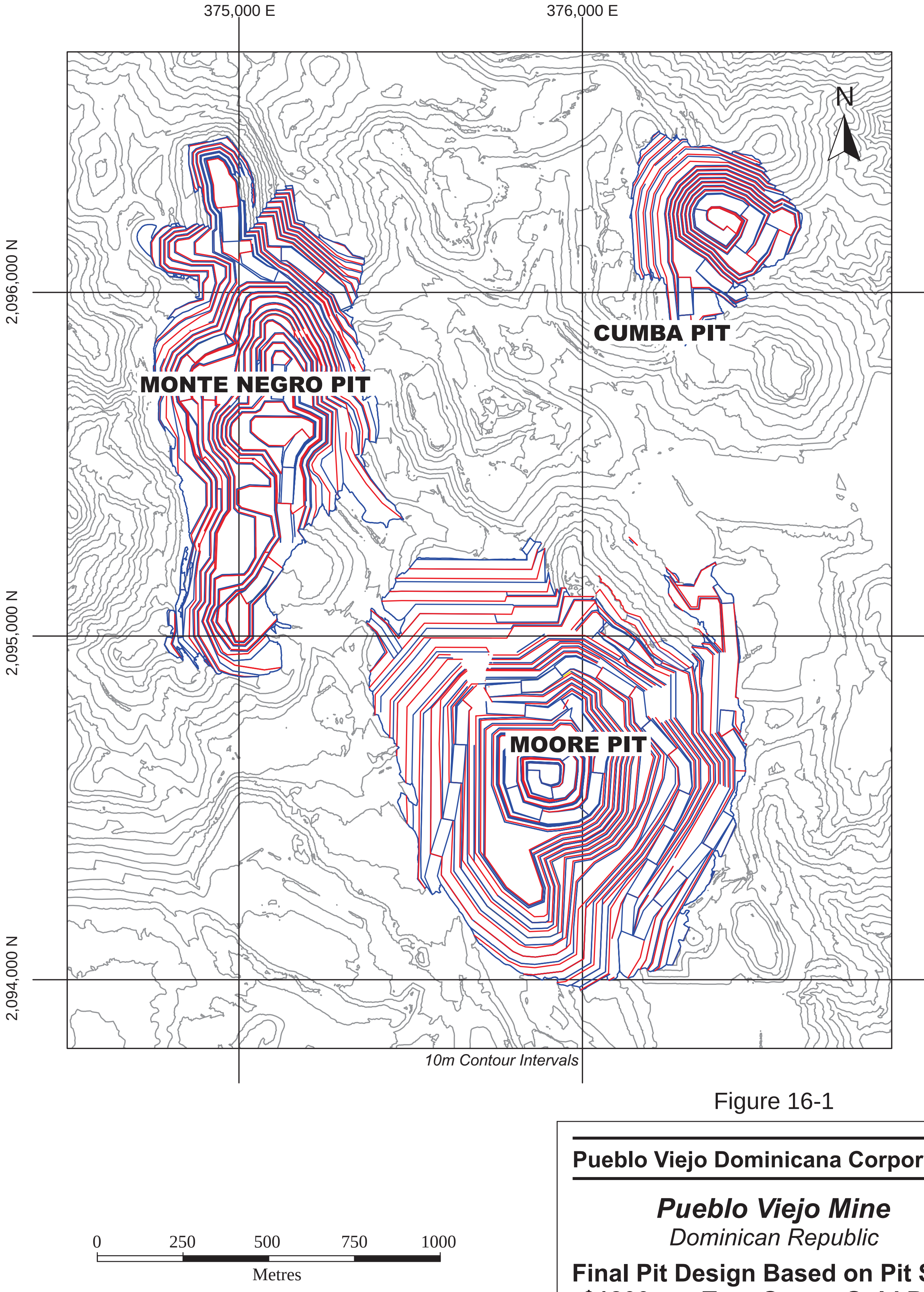


Figure 16-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Final Pit Design Based on Pit Shell $1200 per Troy Ounce Gold Price

March 2018

Source: RPA, 2018.

MINE DESIGN FACTORS

ORE PROCESSING RATE – SULPHUR DEPENDENCY

The ore processing rate and the nominal plant capacity for the Mine is set at 24,000 tpd. The capacity of the processing plant is limited by the rate at which the four autoclaves can process sulphur, which is constrained by oxygen availability.

The processing rate is flexible based on the sulphur content of the ore and will not always achieve 24,000 tpd since the average sulphur grade of the reserves varies.

METALLURGICAL RECOVERY

The ore has been divided into five metallurgical domains by PVDC (see Section 13 of this report) with gold recovery equations based on the results of metallurgical testwork. The weight average recovery of each metallurgical ore type has been used to predict the average metallurgical recovery of the stockpiles by keeping a block model tracking the ore information. The recovery for the ore in the stockpile is calculated by block using a block model.

SLOPE STABILITY ANALYSIS AND DESIGN - GEOTECHNICAL PARAMETERS

In 2013, SRK was retained to provide a Pit Slope Stability Evaluation for Monte Negro and Moore pits. The recommendations provided as a result of this study were included in the pit optimization analysis and the final pit design.

For SRK's design, information was gathered from an investigation program that included geotechnical drilling and mapping, documentation of existing slopes, geomechanical core logging, field point load index testing, and sampling for laboratory rock mechanics testing (direct shear and uniaxial compressive strength). Field data included structural information, rock mass quality and estimated blast damage.

The SRK set of slopes is based on eight zones and the VKSI contact surface, as detailed in Table 16-6. The pit optimization analysis was based on the slopes angles with ramp in order to allow space for ramp access in the final pit design.

TABLE 16-6 PIT SLOPE ZONES
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Zone	Code	Zone Name	IRA	BWT	BHT	BFA	Pit Optimization With Ramp (Degrees)
1	10	Moore (outside of VKSI)	49	10	20	70	40.7
	11	Above VKSI Contact	31	12	10	65	22.7
	12	Below VKSI Contact	49	10	20	70	40.7
2	20	Moore(outside of VKSI)	49	10	20	70	40.7
	21	Above VKSI Contact	31	12	10	65	22.7
	22	Below VKSI Contact	49	10	20	70	40.7
3	30	MNNW adjusted (outside of VKSI)	39.5	8.5	10	70	31.8
	31	MNNW adjusted	39.5	8.5	10	70	31.8
	32	MNSW	52	10	20	75	44.3
4	40	Bearing Indicator(outside of VKSI)					31.3
	41			300-30=39.5 120-210=39.5			31.3
	42			30-120=46 210-300=46			38.3
5	50	MNN2 SW Wall(outside of VKSI)	52	10.3	20	75	44.3
6	60	MNN2 NE Wall(outside of VKSI)	51	9	20	70	43.3
7	70	MNNE(outside of VKSI)	49	10	20	70	41.3
	71	MNNE	49	10	20	70	41.3
	72	MNN2 NE Wall	51	9	20	70	43.3
8	80	(outside of VKSI)	46	7	10	75	38.3
	81	MNSE	25	15.5	10	60	17.3
	82	MNSE	46	7	10	75	38.3

Figure 16-2 shows the pit slope zones and the final pit outline including the VKSI surface limit.

Inter-ramp slope angles of 38º to 52º are deemed reasonable for the rock types to be encountered.

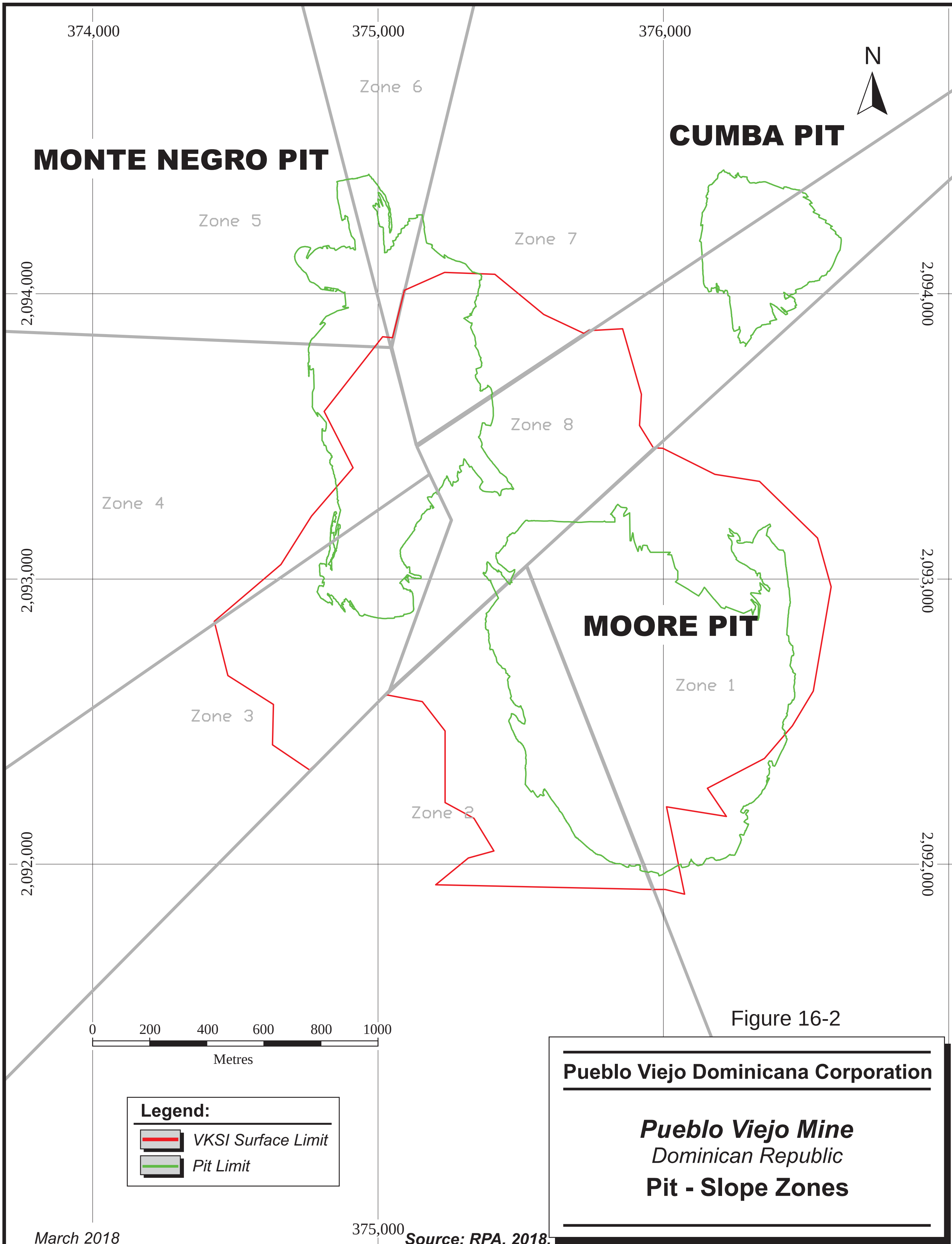


Figure 16-2

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Pit - Slope Zones

MINE PRODUCTION AND TOTAL MATERIALS HANDLING SCHEDULE

MINE PHASE (PUSHBACK) DESIGN PARAMETERS AND SEQUENCING

Design Parameters: The final pit and intermediate phase designs consider the following parameters:

- Bench height: 10 m
- Minimum phase floor width: 70 m (at working bench)
- Road width: 35 m
- Maximum road gradient: 9% in-pit

Pit internal and external roads were designed at 35 m width, adequate for medium-size trucks. In general, ramp slopes were designed at 9%.

SULPHUR BLENDING AND ORE STOCKPILING

The pit stages have been chosen to facilitate the early extraction of the most profitable ore. The driver of the mine schedule is the sulphur blending requirement. Sulphur grade is important because the metallurgical aspects of the processing operation, the recoveries achieved, and the processing costs, all strongly depend on a very consistent, low-variability sulphur content in the plant feed.

The combination of direct feed and stockpile re-handle is the current short term blending strategy at the mine.

BASIC CRITERIA FOR MINE TO STOCKPILE SCHEDULING

Ore mined is taken to the low, medium, and high grade stockpile locations shown in Figure 16-3. Volumes and tonnages are calculated from the survey monthly surfaces and verified with dispatch truck counts. Grades are obtained from the grade control model.

- Low grade cut-off is variable but less than 3.0 g/t Au. There are three bins separating 0% to 7% S (L1), 7% to 8.5% S (L2), and greater than 8.5%S (L3).

- Medium grade is 3.0 g/t Au to 3.6 g/t Au, using the same three grades of sulphur. There are three bins separating 0% to 7% S (M1), 7% to 8.5% S (M2), and greater than 8.5% S (M3).

- High grade is greater than 3.6 g/t Au, split into 0% to 7.8% S (H1) and greater than 7.8% S (H2).

CUT-OFF GRADE STRATEGY

The block value is used to classify the ore and waste and cut-off grades for each category of high, medium, and low sulphur content.

ORE CONTROL

Ore blending for sulphur content, and early processing of high grade ore are key to maximizing NPV. Stockpile management and ore control practices, are a prime consideration.

The stockpile grade control is based on a detailed block model created to cover the stockpile area which is updated using the monthly survey and mine truck dispatch database information.

The short term planning is based on a short term block model created using grade control drilling and MP3 software.

In RPA's opinion, grade control procedures being used are reasonable.

TABLE 16-7 PUEBLO VIEJO STOCKPILES – DECEMBER 31, 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Stockpile	Total Tonnes (000)	Au Grade (g/t)	Ag Grade (g/t)	Cu Grade %	Contained Gold Moz	Contained Silver Moz	Contained Copper Mlb
HG	-	-	-	-	-	-	-
MG	22,610	3.56	23.39	0.108	2.59	17.00	53.61
LG	54,242	2.26	16.65	0.092	3.93	29.03	109.52
Total Stockpile	**76,852**	**2.64**	**18.63**	**0.096**	**6.52**	**46.03**	**163.13**

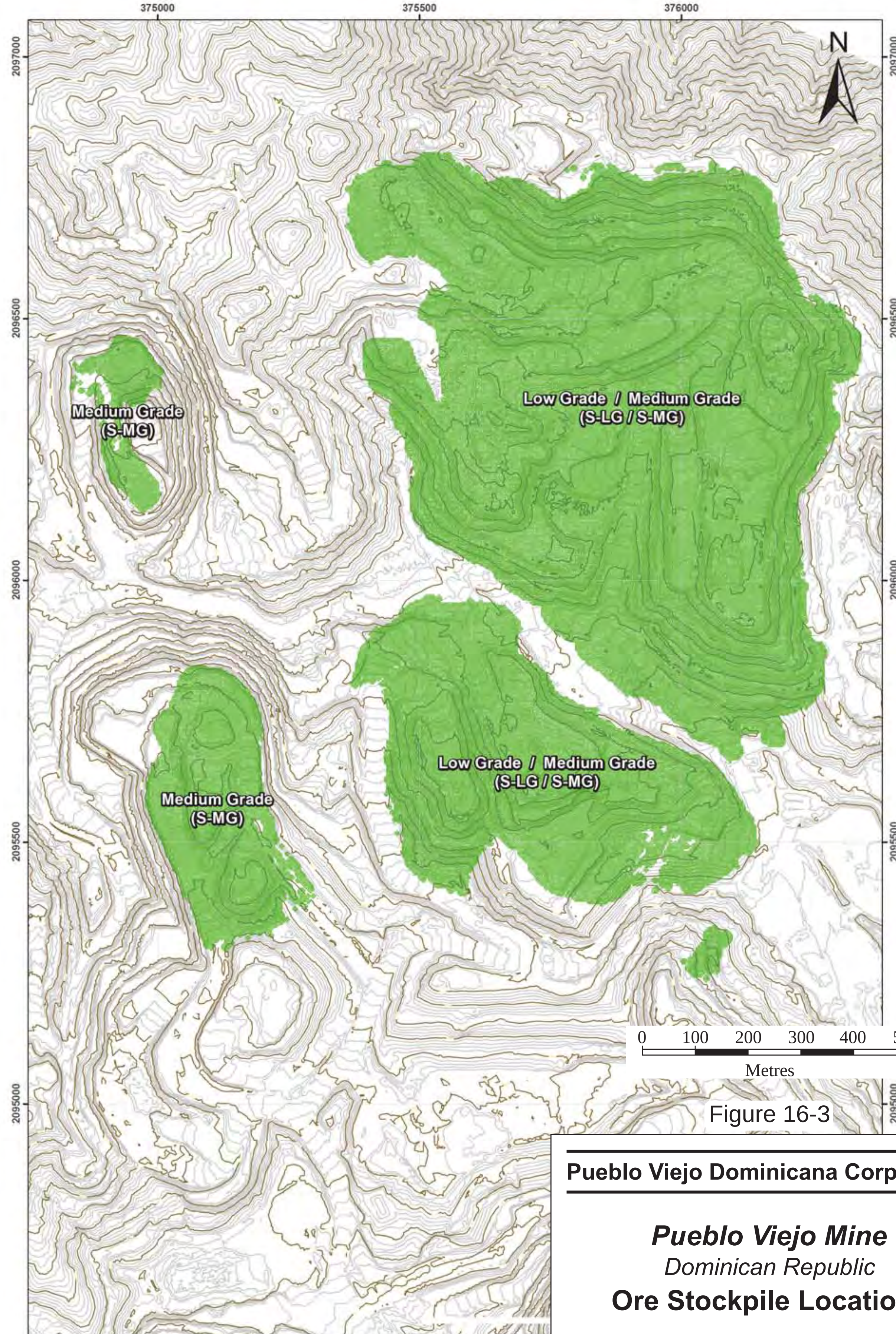


Figure 16-3

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Ore Stockpile Locations

March 2018

Source: Barrick Gold Corporation, 2018.

MINE LIFE AND MATERIAL MOVEMENT

The mine is scheduled for just over four years of operation and process life is just over 16 years. Higher grade ore is processed in the early years, while lower grade ore is stockpiled for later processing in order to maximize the project economics. In the steady state mining years, total material movement, including limestone, ranges from 57 Mtpa to 64 Mtpa.

The maximum ore stockpile capacity requirement is approximately 103.6 Mt by 2021.

A major item with respect to gold production is the ability of the mine to produce ore at the metal grade and sulphur content levels required to satisfy the processing schedule. A good understanding of high grade areas and their extent, together with very selective mining practice and a disciplined stockpiling process, is necessary to achieve the scheduled mill feed, and it has been well developed by PVDC personnel. The RC grade control drilling undertaken in the mining areas of Moore and Monte Negro is designed to achieve this objective.

As part of the mine operation initiative, PVDC is working on selective mining (flitch mining) by half bench mining to reduce mining dilution and to increase mining recovery with a resultant increase in gold grade and ounces. The smaller equipment size at the Mine should allow mining selectivity improvement on shallow angle attitude of the orebody in certain areas based on flitch mining.

SHORT-TERM PLANNING

The short term planning activities are particularly important in terms of setting up the mining process and then delivering early high grade ore to satisfy the processing plant ore quality requirements. The short term planning includes well prepared daily, weekly, and three month mine production schedule documents. This forecast schedule the material type by loading equipment including the Moore and Monte Negro pits and Quemados quarry.

LONG-TERM PLANNING

Only Mineral Reserves were included in the production scheduling. A mine production schedule was developed from the mine design including Monte Negro, Moore, and Cumba deposits.

The mining schedule includes 58.7 Mt of ore at a stripping ratio of 1.5:1.0.

LIMESTONE PRODUCTION

Pueblo Viejo operations require significant amounts of limestone for:

- Processing (MQ).
- TSF wall construction for the Lower Llagal and La Piñita facilities (LQ1).
- Construction, such as internal roads, diversion channels, and additional dams (LQ2 and LQ3).

According to LOM plans, limestone classification is as shown in Table 16-8.

TABLE 16-8 LIMESTONE CLASSIFICATION
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Description	Type	
MQ (Lime)	Metallurgical Rock	% CaO > 54.9
LQ1	Construction Clean Rock	No Clay 100% < 1,000 mm
LQ2	Road Base	Clay < 10%
LQ3	Rock Fill	Clay < 20%
W1	All Other	Clay > 20%

The Quemados quarry produced 7.3 Mt of MQ quality limestone in December 2017.

The mining of the quarries is conducted by the sharing of haul roads and mining equipment.

The limestone quarry production schedule was based on the processing plant requirements and the material requirement for TSF construction activities.

WASTE DUMP SEQUENCING

All PAG designated waste will be deposited within the TSF area. Tailings will cover the waste rock shortly after its deposition to help minimize acid rock drainage. The waste rock is to be deposited in five metre lifts, with the level of tailings generally maintained close to the advancing crest level of the waste dump.

All waste rock is planned to be deposited in the Lower Llagal dam.
In RPA's opinion, the methodology used by PVDC for pit limit determination, cut-off grade optimization, production sequence and scheduling, and estimation of equipment/manpower requirements is in line with good industry practice.

MINE EQUIPMENT

Equipment planning has considered mine design production of approximately 57 Mtpa to 64 Mtpa total material movement, including limestone. This includes mill feed of 24,000 tpd, reclamation from stockpiles, and simultaneous mining in the limestone quarries and several operating pit phases. The drilling and loading equipment has been working with the aim of combining high productivity and low cost with high mobility to allow maximum flexibility and selectivity.

Estimates of truck speeds were based on measured actual values from 2017, with correction factors to allow for slower speeds at the benches and at the dumps, and for weather conditions. Ancillary equipment includes bulldozers, wheel-dozers, graders, and water trucks.

Table 16-9 shows the units of mobile equipment working at the end of 2017.

PVDC is working on the truck utilization improvement initiative, to increase truck and shovel utilization to 86% in 2018-2020, and to 88% for the remainder of LOM. PVDC identified areas where time loss was most significant and targeted these areas to improve utilization. This initiative has been successful, as there is a positive trend through the last years on utilized hours. Improvements to fleet utilization increased the production capacity of the fleet from 66% in 2014 to 75% in 2015, and to 79% in 2016.

TABLE 16-9 OPEN PIT MOBILE EQUIPMENT
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

	2017 Units
Hitachi EX3600 Hydraulic Shovel	2
Cat 994F Front-End Loader	3
Haul Truck Cat 789C (17) / 789D (17)	34
Sandvik D45KS Drill	2
Sandvik D55SP Drill	3
Sandvik DX780 Drill	2
Grade Control Drill – Schramm T450GT	1
Cat D10T Track Dozer	5
Cat D9T Track Dozer	2
Cat 834H Wheel Dozer	2
Cat 854K Wheel Dozer	2
Cat 16M Grader	4
Cat 777F Water Truck	2
Cat C322 Hydraulic Excavator	1
Cat C336 Hydraulic Excavator	3
Cat 349D Hydraulic Excavator	1
Hitachi X1200 Hydraulic Excavator	1
Cat 962 Support Loader	2
Cat 938 Support Loader	1
Small Water Truck	3

PVDC is also working on initiatives to improve the drill and blast process as it was identified in previous years to be the bottleneck of the operation. It is planned to increase the drill hole diameter from 7 $^7/_8$" to 8 ¾" and to use a higher drilling rate. This initiative has been implemented and successful.

In RPA's opinion, the equipment used at the Mine and the estimates of equipment requirements are generally appropriate for the combined mining operations and follow industry standards.

LABOUR

Operations workforce requirements have been estimated as a function of the estimated equipment operating hours and in consideration of ancillary mining activities.

The PVDC personnel work in mine, quarries, control, planning, and management areas. Mine operators work rotation shifts on a 4 day x 4 day basis. Most staff work on a five-day work week.

A summary of current manpower is shown in Table 16-10.

TABLE 16-10 TOTAL MINE LABOUR 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Description	Operation	Maintenance	Eng./Geol./Adm.	TOTAL
Overhead Staff Salary		70	100	170
Hourly		210	26	236
Drill	22		5	27
Blasting	1			1
Loading	26			26
Truck	162			162
Support Equipment	115			115
Total	**326**	**280**	**131**	**737**

17 RECOVERY METHODS

PROCESS PLANT DESCRIPTION

INTRODUCTION

The Board approval to build the PVDC project was obtained on February 20, 2008, and the formal Notice to Proceed was given on February 26, 2008.

The process plant is designed to process approximately 24,000 tpd of ROM refractory ore. The plant bottleneck is the supply of oxygen. If the ROM feed has a low sulphide content, the plan can process 30,000 tpd. The design basis for the oxygen plant is to provide the oxygen required to oxidize approximately 80 tonnes per hour (tph) of sulphide sulphur. This is equivalent to 1,200 tph of feed containing 6.79% sulphide sulphur, assuming a design factor of 2.2 tonnes O_2 per tonne sulphide sulphur. The overall facility consists of the following unit operations:

- Primary crushing
- SAG mill and ball mill grinding with pebble crushing (SABC circuit)
- POX
- Hot curing
- CCD washing
- Iron precipitation
- Copper sulphide precipitation and recovery
- Neutralization
- Solution cooling
- Lime boiling for silver enhancement
- CIL circuit
- Carbon acid washing, stripping and regeneration
- Electrowinning (EW)
- Refining
- Cyanide destruction
- ARD treatment
- Limestone crushing, calcining, and lime slaking

A simplified block flow sheet of the process plant design is provided as Figure 17-1.

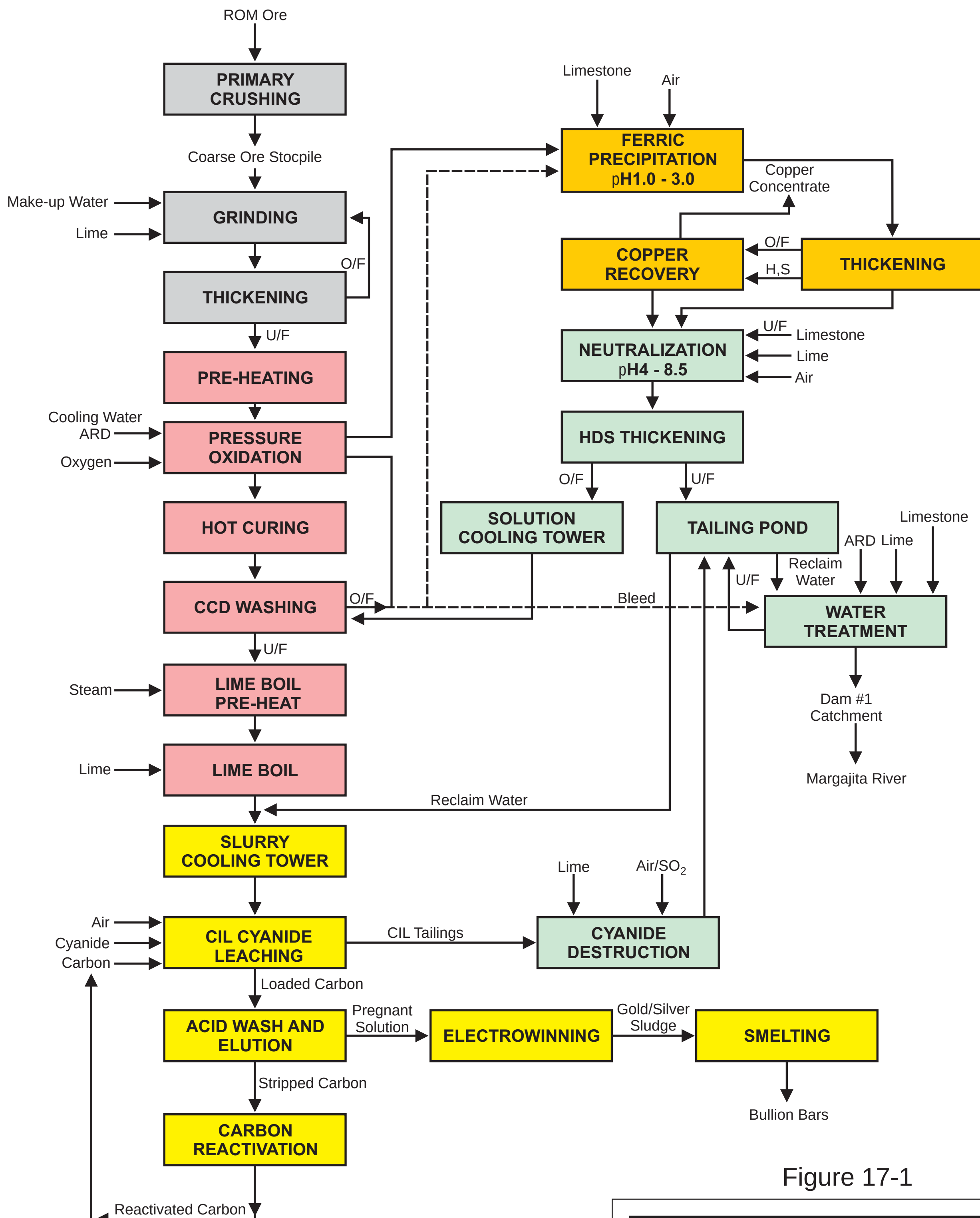


Figure 17-1

Pueblo Viejo Dominicana Corporation

Pueblo Viejo Mine

Dominican Republic

Process Flow Sheet

March 2018

Source: Barrick Gold Corp., 2011.

FLOW SHEET DESCRIPTION SUMMARY

The ore is ground to an optimum size of 80% passing 80 µm to120 µm and oxidized in autoclaves at a temperature of 210°C to 230°C and a pressure of 3,100 kPa to 3,450 kPa for 60 minutes to 75 minutes. The product from each autoclave is discharged to a flash vessel where heat is released, cooling the slurry to approximately 106°C. It then flows by gravity to the hot cure circuit where the slurry temperature is maintained between 100°C and 105°C for 12 hours in order to dissolve the basic ferric sulphate (BFS) that forms during the pressure oxidation process. This process overall temperature will be deliberately lowered in 2018 to approximately 96°C to protect equipment. The resulting BFS dissolution will essentially be the same.

The next step in the process is to separate the base metal rich acidic liquors from the oxidized solids within the slurry. This is accomplished in a three-stage CCD wash thickener circuit to remove more than 99% of the sulphuric acid and the dissolved metal sulphates. The washed thickened slurry is then contacted with steam from one of the autoclave flash vessels to heat the slurry to 95°C ahead of a two-stage lime boil treatment. Adding milk of lime slurry to the oxidized slurry effectively raises the pH to the 10.5 to 10.8 range breaking down the silver jarosites, making it possible to recover the silver minerals in the CIL circuit. Following the lime boil circuit, the slurry is diluted with reclaimed water and cooled to 40°C in cooling towers. The cooled slurry is pumped to the CIL circuit.

The addition of lime to the lime boil circuit provides sufficient protective alkalinity in the CIL circuit. No further addition of lime is required in this circuit. In the CIL circuit, cyanide is added to solubilize the gold and silver into solution which is contacted with activated carbon to adsorb the gold and silver cyanide complexes. Retention time in this circuit varies from 18 hours to 22 hours, depending on the processing rate.

The acidic liquor overflow from CCD thickener #1 is sent to the autoclave plant to quench flash steam. The quench vessel underflow is treated with limestone in the iron precipitation circuit to remove ferric iron. From there, the overflow from the iron precipitation thickener is forwarded to the hydrogen sulphide (H_2S) precipitation plant to recover the copper. H_2S gas is added to the solution to precipitate the copper as CuS. The precipitate is thickened and filtered to produce market grade copper concentrate. Neutralizing the thickener overflow solution is accomplished first with limestone and then with the introduction of slaked lime in the HDS circuit where most of the remaining metal sulphates are precipitated. After neutralization, the slurry is dewatered in a high rate thickener. The thickener underflow (sludge) is pumped to the tailings pond while the overflow is cooled and recycled to the process water tank for re-distribution, including use as wash water in the CCD circuit.

Loaded carbon from the CIL circuit is forwarded to the refinery for acid washing and stripping. The resulting pregnant strip solution proceeds to the EW circuit for gold and silver recovery while the barren carbon travels to the reactivation kiln. A combined gold and silver sludge from the EW cells is filtered, dried, retorted to remove the mercury from the sludge, and smelted to produce bullion bars. The reactivated carbon is returned to the CIL circuit.

The tailings from the CIL circuit flow by gravity across the carbon safety screens and are pumped to the cyanide destruction circuit. The conventional SO_2/air process reduces the cyanide content of the CIL tailings to less than 5 mg/L cyanide. The detoxified slurry is mixed with the HDS and pumped to the TSF.

PRIMARY CRUSHING

The primary crushing circuit consists of a primary gyratory crusher equipped with a hydraulic rock breaker to reduce oversize rocks in the dump pocket. Water sprays are provided at the truck dump pocket and an ADS (fogging dust suppression) system is deployed at the feeder to conveyor transfer point to comply with the dust emission standards.

The ore is transferred from the gyratory crusher, by an apron feeder onto a stacking conveyor that discharges the ore onto a 16,000 t live capacity stockpile. A belt scale monitors the material flow rate from the crusher to the stockpile.

A dust control system positioned at the reclaim tunnel below the stockpile services the material transfer locations. Two variable speed apron feeders under the coarse ore stockpile reclaim the ore and feed a common SAG mill feed conveyor. The feed rate to the SAG mill is monitored by a belt scale installed along the SAG mill feed conveyor.

The limestone primary crusher is exactly the same size as the ore primary crusher, which is more than adequate for the 12,000 tpd rate.

GRINDING

Ore grinding consists of a 9.76 m x 4.90 m 9 MW (32' x 16' 12,000 hp) SAG mill with blended 4.5" and 5" balls, and a 7.93 m x 12.40 m 16.4 MW (26' x 40' 22,000 hp) single ball mill with 2" balls.

To counteract critical size build-up in the mill, the SAG mill is equipped with pebble ports. Oversize pebbles are screened from the discharge and transferred onto a conveyor recirculation loop feeding the material to the pebble crusher, or alternatively bypassing the pebble crusher if it is not in service. The pebble crusher product is conveyed back to the SAG mill feed conveyor. The undersize material is pumped to the cyclone feed pump box.

The ball mill is operated in closed circuit with a cluster of fifteen cyclones, with ability to expand to eighteen. The cyclone underflow flows via gravity back to the ball mill feed chute. The cyclone overflow flows by gravity over two vibrating trash screens. The underflow from the trash screens is dewatered to approximately 50% solids in the 70 m diameter high rate grinding thickener. The thickener underflow is pumped to one of four autoclave feed storage tanks while the overflow is recycled to the grinding circuit.

PRESSURE OXIDATION

The POX facility is comprised of four autoclave circuits, with minimal interconnections to achieve high capacity utilization. Each autoclave circuit includes a high pressure slurry feed system, slurry pre-heater, autoclave vessel and agitators, flash vessels, and gas handling system. The operation of the autoclaves are supported by agitator seal systems, a steam boiler (for start-up), and a high pressure cooling water system for autoclave temperature control.

The autoclave vessels are refractory lined with approximate process dimensions of 4.9 m inside diameter and an overall length of 37 m. The autoclaves will operate at 210ºC to 230ºC and 3,100 kPa to 3,450 kPa, with a retention time between 60 minutes and 75 minutes depending upon the sulphur grade and feed density.

Oxygen required for the oxidation reactions in the autoclaves is provided from two on-site oxygen plants.

Two of the three autoclave circuit preheating systems are used for slurry feed heating, while the third pre-heating system is used for heating washed CCD underflow slurry prior to the lime boil process. The design incorporates slurry piping interconnections between these preheating systems to allow for maintenance and de-scaling while maintaining capacity utilization. The gas handling design will adopt a solution spray quench process providing over 90% condensation of the flash steam. Depending on the preheating requirements, a portion of the flash steam will be used to preheat autoclave feed slurry or lime boil feed slurry with the remaining steam reporting to the gas handling system. The quenching of the excess flash steam and autoclave vent gas is accomplished with CCD overflow solution. The hot CCD overflow solution then reports to the partial neutralization circuit.

OXYGEN PLANT

The oxygen plant is an air separation unit (ASU) that supplies gaseous oxygen and trickle liquid oxygen to support the pressure oxidation process.

The ASU plant design is based on machinery that is widely used in the cryogenic gas industry and will adopt a double column cryogenic distillation process. This is a conventional process for the air separation industry.

HOT CURING

Oxidized slurry produced from the 24,000 tpd capacity rate is held in six cascading tanks that operate in series to provide a total residence time of 12 hours to ensure dissolution of ferric sulphate. The slurry fed to the hot cure circuit arrives at approximately 105°C and exits at approximately 100°C. Following curing, the slurry flows by gravity to the first CCD thickener.

CCD WASHING

A three-stage CCD circuit is utilized to wash the slurry from the last hot cure tank. Each thickener is 70 m in diameter and constructed of 316 L stainless steel. The purpose of this circuit is to wash and separate acid and soluble metal salts from the gold-bearing pressure oxidation residue. The slurry is gravity fed to the CCD thickener No. 1 feed tank where it is diluted with wash solution. The underflow from CCD Thickener No. 1 is pumped to CCD Thickener No. 2 feed tank and the underflow from CCD Thickener No. 2 is pumped to the CCD Thickener No. 3 feed tank. The wash solution is advanced in a counter current flow to the slurry. That is fresh wash solution is added to the CCD Thickener No. 3 feed tank. The overflow solution from CCD Thickener No. 3 flows by gravity to the CCD Thickener No. 2 feed tank and the overflow from CCD Thickener No. 2 flows by gravity to the CCD Thickener No. 1 feed tank.

Overflow solution from CCD Thickener No. 1 flow by gravity to the CCD wash thickener overflow tank. From there a portion of the solution is pumped to the autoclave flash steam quench vessels where it is used to condense and scrub excess steam before proceeding to the ferric precipitation reactors. The balance of the overflow solution is pumped to the iron precipitation circuit. The underflow from CCD Thickener No. 3 is pumped to the slurry heater vessels in the pressure oxidation circuit for heating prior to processing in the lime boil circuit.

The nominal wash ratio in the CCD circuit is designed to yield a wash efficiency of 99.0% to 99.5%.

IRON PRECIPITATION AND COPPER RECOVERY

The copper recovery circuit uses hydrogen sulphide to precipitate the copper contained in the CCD wash solution. Hydrogen sulphide is produced by bacteria that convert elemental sulphur to H_2S gas, which then reacts with the copper ions that are in solution to precipitate CuS.

Prior to copper recovery, limestone slurry is added to a series of mechanically agitated, stainless steel tanks works to partially neutralize the CCD overflow solution. The pH is closely controlled in the iron precipitation tanks to precipitate ferric iron from the solution while minimizing the amount of copper co-precipitation. The discharge from the iron precipitation tanks is gravity fed to the iron thickener. The thickener underflow sludge is pumped to the neutralization circuit for completion of the neutralization process.

The iron thickener overflow solution is pumped to the mechanically agitated copper contactors. Hydrogen sulphide is added to closed-top tanks where the copper precipitation process will take place. The tank design ensures adequate mixing and gas liquid mass transfer. H_2S gas is produced by sulphur reducing bacteria that convert elemental sulphur into H_2S under anaerobic conditions. Two bioreactors are gas-lift loop type reactors that allow the generated H_2S gas to be drawn off the head space of the bio-reactor unit and compressed by gas blowers. The compressed gas stream, containing 8% to 10% H_2S by volume, is sparged into the copper contactor vessels. The barren H_2S gas returning from the contactors, saturated with water is dewatered in a condensate knockout stage and returned to the bio-reactor.

The solution that contains the precipitated copper sulphide is degassed and fed to a 50 m diameter clarifier that is designed to facilitate solids removal. The underflow from the clarifier is pumped to the copper filter. The sulphide filter cake from the copper filter is discharged onto a conveyor that delivers the copper sulphide precipitate to a bagging facility. Bagged concentrate is containerized and delivered by flatbed trucks from the plant site to a port near Santo Domingo.

The copper clarifier overflow solution is pumped to the HDS neutralization circuit.

All of the tank head spaces containing H_2S are connected to a common header to effectively capture and control fugitive emissions. The vapour passes through a condensate trap and emergency scrubber unit. It is then compressed by the blower and re-introduced into the bio-reactor vessel.

HIGH DENSITY SLUDGE NEUTRALIZATION CIRCUIT

Neutralization of remaining acidity and the precipitation of metals and sulphate in the CCD overflow solution are accomplished in the HDS neutralization circuit. The HDS neutralization circuit is comprised of four stages of limestone addition followed by three stages of slaked lime treatment.

The limestone and lime reactor tanks are arranged in a staggered, cascading fashion that allow flow by gravity from one stage to the next. Limestone slurry is metered into a mix tank where it is blended with recycled HDS thickener underflow to condition the recycled material and promote the HDS precipitation seeding process. The mix tank overflows into the first neutralization tank and mixes with the cooled copper clarifier overflow solution and iron thickener underflow product stream.

The neutralized slurry is gravity fed from the final lime neutralization tank to the HDS thickener. The HDS thickener underflow is pumped to the tailings pond via the cyanide destruction tailings pump box. The HDS thickener overflow solution is directed to the HDS thickener overflow tank and pumped to the HDS solution cooling towers.

HDS SOLUTION COOLING

HDS thickener overflow solution is pumped to a bank of eight cooling towers to allow for temperature reduction. The actual cooling requirements are determined by the heat balance. The cooled solution is pumped to the process water tank. It is then distributed for use as CCD wash water, limestone grinding and flocculant dilution.

SILVER ENHANCEMENT LIME BOIL PROCESS

The CCD circuit thickener underflow is pumped to the lime boil preheating vessel. Using steam from the autoclave flash tanks, the slurry is reheated to a design temperature of 95°C. The reheated slurry is treated with lime to effectively break down the silver jarosites formed during the POX and hot cure processing stages. This allows for maximum silver extraction in the CIL circuit.

The lime boil circuit consists of two agitated tanks. The lime boil slurry is cooled to approximately 40°C in five slurry cooling towers. The cooled slurry is pumped to the CIL circuit where gold and silver are extracted using cyanide and activated carbon.

CARBON-IN-LEACH

A CIL circuit was selected to maximize gold and silver extraction from preg-robbing carbonaceous ore contained in the deposits.

The cooled slurry that discharges from the lime boil circuit is screened to remove trash and fed to the first of 11 agitated tanks that provide a total retention time of approximately 20 hours.

The carbon advance rate is designed for 72 tpd to achieve a nominal carbon loading of 2,000 g/t Au.

The slurry advances by gravity from CIL Tank No. 1 to CIL Tank No. 2, CIL Tank No. 3, sequentially through all of the CIL tanks until it reaches CIL Tank No. 11. The discharge from CIL Tank No. 11 is part of the tailings from the process. The slurry advances to the cyanide destruction circuit. Activated carbon is advanced in the CIL circuit using carbon transfer pumps in a flow that is counter current to the slurry flow. Carbon that has been reactivated is added to CIL Tank No. 11. New, make-up carbon may also be added to the circuit in CIL Tank No. 11. Periodically, the carbon transfer pumps move the carbon from CIL Tank No. 11 to CIL

Tank No. 10, etc., until it reaches CIL Tank No. 1. Loaded carbon is transferred from CIL Tank No. 1 to the loaded carbon screens. A bypass is also installed that allows loaded carbon to be transferred to the loaded carbon screens from CIL Tank No. 2 to provide additional flexibility in the operation.

Cyanide is added into the CIL feed tank. The average cyanide addition is approximately 1.0 kg/t of CIL feed.

CYANIDE DESTRUCTION

The average total cyanide concentration in the CIL tailings is approximately 150 mg/L. The SO_2/air process is utilized to reduce the weak acid dissociable (WAD) cyanide and total cyanide concentrations in the treated effluent to acceptable levels.

CARBON ACID WASHING AND STRIPPING

Twelve tonne batches of loaded carbon from CIL Tank No. 1 are acid washed with diluted nitric acid and rinsed with water before being stripped using the pressure Zadra elution process in one of two strip vessels. The pregnant solution gravity-flows to the pregnant solution tank and is then pumped at a controlled rate to the EW circuit.

The stripped carbon is thermally reactivated at a temperature of 700°C in two of three electrically fired horizontal furnaces at a rate of 1,000 kg/h. The kiln exhaust gases vent through a wet scrubber followed by passage through columns packed with sulphur-impregnated carbon designed to remove mercury.

The reactivated carbon is screened to remove carbon fines before being returned to CIL Tank No. 11. The fine carbon is transferred to a settling pond and periodically recovered and bagged for sale.

ELECTROWINNING

The pregnant solution or eluate is pumped from the pregnant solution tank to two parallel EW circuits. All EW cells are provided with a gas extraction system connected to a mercury capture system.

Gold and silver, along with trace impurities (mainly copper and mercury), are recovered from the solution as EW sludge. The barren solution from the EW circuits flows by gravity to barren solution tanks in the elution circuit where it is reused.

The EW sludge is washed from the EW cells. Periodically the cells are taken offline. The resulting gold and silver sludge is filtered in plate and frame filter presses and placed in mercury retorts to remove and recover the mercury from the sludge prior to refining.

REFINING

The mercury-free sludge is mixed with fluxes and smelted in an induction furnace. The furnaces have a dust collection system. The collection system recovers gold- and silver-laden dust generated during smelting and cleans the furnace off-gases before discharge in the atmosphere.

LIMESTONE AND LIME PLANT DESCRIPTION

DESIGN BASIS

The limestone and lime plant design is based on the following estimated reagent requirements as shown in Table 17-1.

TABLE 17-1 LIMESTONE AND LIME PLANT DESIGN BASIS
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Item	Limestone (tpd)	Lime (tpd)
Process including neutralization	4,965	1,245
ARD (1 in 200-Year Event)	1,649	146
Tailings Effluent		19
Sub-total (Uncorrected for Purity)	6,614	1,410
Limestone Feed to Kiln	2,300	
Total (Corrected for Purity)	**8,914**	**1,484**
Design		
Limestone Crushing	9,240	
Limestone Grinding	9,000	
Lime Slaking		1,484

FLOW SHEET

Ground limestone and lime are required to neutralize acidic liquors and to control the pH in the CIL circuit. Lime is also used to adjust the pH of the effluent after water treatment. Satisfying the 24,000 tpd ore process requirement includes grinding 9,070 tpd of limestone to 80% passing 60 µm and calcining 2,785 tpd of limestone in vertical kilns to produce 1,484 tpd of lime, all of which will be slaked in a ball mill slaker. The limestone plant consists of: primary crushing and screening, grinding, calcining, and lime slaking.

PRIMARY CRUSHING AND SCREENING

ROM limestone is crushed to minus 85 mm (P80) in a gyratory crusher (1,067 mm x 1,650 mm) that is equipped with a rock breaker to break oversize rocks in the dump pocket. A dust control system at the primary crushing station is provided to reduce fugitive dust emission. The configuration of the limestone crusher is similar to that for the ore. The crusher product is screened and the +50 mm -110 mm intermediate fraction is sent to the kiln circuit for calcination. The balance of the crusher product reports to the limestone SAG mill feed stockpile.

GRINDING

The limestone grinding circuit consists of a SAG mill (6.70 m dia. x 3.65 m effective grinding length, EGL) driven by a 2,610 kW synchronous motor with a variable frequency drive (VFD) and a ball mill (4.88 m dia x 9.80 m EGL) driven by a 3,540 kW synchronous motor. The SAG mill operates in open circuit while the ball mill will operate in closed circuit with a cluster of hydrocyclones. The limestone slurry is pumped to three agitated storage tanks holding approximately 6,500 t of limestone. This provides 22 hours of storage capacity at peak limestone demand.

LIMESTONE CALCINING AND LIME SLAKING

The lime calcining plant is designed to process 2,785 tpd of limestone to produce 1,484 tpd of lime required for the ore production rate of 24,000 tpd. The high lime requirement and the availability of high quality limestone deposits near the mine justify the installation of the lime plant.

Three 550 tpd vertical twin-shaft parallel flow regenerative (PFR) lime kilns are used to calcine the lime. The kilns are fed with +50 mm -110 mm intermediate screen product produced from the screening circuit.

Lime is slaked at a rate of 1,484 tpd in a ball mill operating in closed circuit with a hydrocyclone to produce hydrated lime slurry. The lime slurry is pumped to four agitated storage tanks and is distributed from these tanks via lime loops to the lime boil and neutralization circuits, and to the effluent treatment plant.

The fuel for the limestone kilns is currently diesel fuel, although the kilns are designed to operate on HFO as well.

There are studies underway to convert fuel for the kilns to LNG, lowering carbon footprint and dependency on oil.

18 PROJECT INFRASTRUCTURE

The main road from Santo Domingo to within about 22 km of the mine site is a surfaced, four-lane, divided highway in generally good condition. Access from the main road to the site is via a two-lane, paved road. In order to transport the autoclaves, which weigh over 700 t each, a road from the north coast was upgraded instead of the route from Santo Domingo. Upgrading included road and bridge improvements, clearing of overhead obstructions, erosion control, bypass route construction, and clearing utility interferences. Gravel surfaced, internal access roads provide access to the mine site facilities. A network of haul roads are being built to supplement existing roads so that mine trucks can haul ore, mine overburden, and limestone from the various quarries.

As well as the existing access roads, current site infrastructure includes accommodation, offices, a truck shop, a medical clinic and other buildings, water supply, and old tailings impoundments with some water treatment facilities. Some of these facilities are being upgraded or renovated.

The process plant site is protected by double and single fence systems. Within the plant site area, the freshwater system, potable water system, fire water system, sanitary sewage system, storm drains, and fuel lines are buried underground. Process piping is typically left above ground on pipe racks or in pipe corridors.

The distance between the process plant and the tailings storage area is approximately four kilometres.

POWER SUPPLY

The Pueblo Viejo Mine is supplied with electric power from two sources via two independent 230 kV transmission circuits. The operational power requirements are generally less than 130 mW at a process rate of 18,000 tpd and up to 150 mW at 24,000 tpd.

The primary source of electric power for the mine is the Quisqueya 1 power plant, which is located near the city of San Pedro de Macoris. A single 114 km long 230 kV circuit directly connects the Quisqueya 1 power plant to the Pueblo Viejo Mine Substation. A second 138 km long 230 kV circuit connects the Quisqueya 1 power plant with Piedra Blanca Substation, which is then connected to the Pueblo Viejo Mine Substation via another 27 km long 230 kV circuit. The Pueblo Viejo Mine Substation is connected to the mine.

The secondary source of electric power for the mine is the Dominican Republic's national power grid, referred to as the "Systema Electrico Nacional Interconectado" (SENI). The Pueblo Viejo Mine is interconnected to the SENI via the 250 MVA rated Piedra Blanca Substation step-up transformer. The SENI interconnection is capable of serving the full electric power requirements of the mine.

As the Mine peak load to date is 129.7 MW and the average load at full production is approximately 115 MW, the Quisqueya 1 power plant's capacity exceeds the mine load. Thus, excess power from the Quisqueya 1 power plant is transmitted to Piedra Blanca Substation and sold to various SENI customers at the grid marginal price. Selling excess power to the grid provides additional revenue and allows the power plant to operate at closer to its peak efficiency. Presently, the Quisqueya 1 power plant operates at approximately 60% of full capacity to meet the electrical needs of the Mine.

There are ongoing studies to convert the Quisqueya 1 power plant from HFO to LNG, in order to reduce carbon footprint and decrease dependence on oil.

RPA is of the opinion that the power supplies to the site are adequate.

SITE ELECTRICAL SYSTEM

Power is distributed through the site from the mine main substation via a single 230 kV bus system. In addition, four main transformers provide power for all site loads, with two being dedicated to the oxygen plants.

In case of interruption, the plant will operate on emergency feed. This is provided by 15 MW of diesel generation that connects to the main substation for distribution to critical areas such as lighting, communication, and computer and process equipment.

TAILINGS DISPOSAL AND TAILINGS RECLAIM WATER

Tailings and waste rock from the mine are deposited in the El Llagal valley, a tributary of the Rio Maguaca. The detoxified leach residue is combined with the sludge recovered from the neutralization circuit and mixed with waste from the open pit mines for disposal in the TSF. The waste is trucked from the mine to the TSF by way of a haul road. Storage of tailings and waste rock under a permanent water cover will prevent the onset of ARD. The TSF is constructed using limestone material supplied by the limestone quarries. The rock fill dams are being constructed with a compacted saprolite core to provide an impermeable barrier to seepage and appropriate filter zones are being provided. Granular filter material is imported from off-site or manufactured from quarried diorite rock that is available on site.

Design criteria for static and seismic stability meet the minimum safety factors for the high to very high consequence of failure classification as recommended by the Canadian Dam Association Dam Safety Guidelines. Flood storage and spillway design have been developed based on extreme precipitation events.

Annual raises in the walls of the TSF are designed and were being constructed at the time of the site visit to provide storage for subsequent years.

A tailings pipeline from the plant to the TSF and a return tailings pond decant water pipeline are installed. The pipelines have secondary containment where they cross the river to minimize environmental damage in the unlikely event of a rupture at this location. Excess runoff from the TSF is treated and released to the Arroyo Margajita.

Reclaim barge pumps send the reclaim water to the reclaim water tank. The water is distributed as CCD wash water, dilution to the lime boil circuit, for use in limestone grinding and lime slaking, and to the grinding water tank.

Seepage from the TSF is collected in a small pond in front of the main containment embankment. A pumping and pipeline system returns any seepage to the impoundment.

Currently, the El Llagal TSF is the only one permitted and approved for construction. As discussed in earlier sections with respect to Mineral Reserve estimates, the current mine life is constrained by the TSF availability. PVDC is investigating other alternatives for storage of tailings and acid-generating mine waste rock.

PROCESS CONTROL FACILITIES

The plant wide distributed control system (DCS) uses Ethernet communication links, fibre optics, Foundation Fieldbus for analogue devices, conventional controls for discrete devices, and radio-links for remote sites. Three main control rooms, 13 satellite control rooms, and three maintenance workstations are located throughout the site.

A single main control room was added in 2017 in the autoclave area, and plant operation has improved considerably.

COMMUNICATION FACILITIES

A redundant fibre communication backbone system of approximately 40 km links and manages the data transmission of the DCS, third party PLCs, motor controls, fire detection system, Vo-IP telephone system, and computers around the mine site.

FUEL

Two permanent fuelling stations feed the fleet of mine vehicles. A permanent diesel storage supplies the lime kilns.

WATER SUPPLY

The Hatillo and Hondo Reservoirs supply fresh water to the site. Reclaimed water from the TSF sites is used as a supplementary water supply under drought and flood situations. Barge-mounted pumps at the larger Hatillo Reservoir pump fresh water to the Hondo Reservoir for make-up purposes. Fresh water is then pumped to a fresh water/fire water tank at 400 m level and a freshwater pond, and from there it is distributed throughout the site for process, fire protection, and potable needs. The potable water is a treated system.

Initial water for earthworks and construction is being supplied largely from the Rio Maguaca, but also from the pipeline that connects the Hondo Reservoir and the fresh water pond.

RPA is of the opinion that the water supply to the site is adequate for operation.

STORM WATER

The plant site is located on a ridge between two drainage catchments. Where possible, runoff from the process plant is directed to the Margajita drainage area to separate it from the storm water runoff from the old facilities. Otherwise, a collection pond captures the runoff before it is returned to the process plant to serve as make-up water.

WASTE MANAGEMENT

Domestic waste water from the various sites is collected through an underground gravity sewer system. Separate, underground, gravity systems serve the construction and operations camps. The clean effluent is discharged to the local river system. Non-hazardous domestic solid waste is sent by truck to a central handling facility. An incinerator is installed at the non-hazardous waste dump to burn the solid waste.

SEWAGE TREATMENT

The sewage treatment configuration is based on three 280 m^3/d plants at the construction camp, one 280 m^3/d plant at the plant site, and one 61 m^3/d plant for the houses. All three plants utilize the same three-part modular arrangement concept: primary settlement tank, biological treatment unit with biological rotating contactor, and final settling tank.

FIRE PROTECTION

Fire protection throughout the site is provided by a variety of measures, including fire walls, hose stations, automatic sprinkler systems, and fire hydrants. A fresh water/fire water tank supplies fire water to the site. The fire water is distributed to the protected areas through an underground water pipe network.

DUST CONTROL

Water sprays, fogging systems, and scrubbers are used as required on the site as dust control measures depending on specific needs.

Dust control on roads includes watering and use of brine solutions.

LANDFILL

Non-hazardous material is stored in an area south of the Mejita TSF for removal at a later date. Landfills for historical hazardous waste which are the responsibility of the Dominican Republic Government are proposed to be located east of the Mejita TSF.

19 MARKET STUDIES AND CONTRACTS

MARKETS

Gold and silver doré is the principal intermediary product at Pueblo Viejo, as well as a copper precipitate concentrate produced as a by-product. These intermediary products are sent to refineries for further processing to convert them into refined gold, silver, and copper metal. PVDC's intermediary products are sold under contracts linked to exchange-traded, international, metal prices that are freely traded, at prices that are widely known, so that prospects for sale of any production are virtually assured. Metal prices are quoted in US dollars per troy ounce for gold and silver and US dollars per pound for copper.

All sales and refining contracts are within industry norms.

CONTRACTS

Pueblo Viejo is a large modern operation and Barrick and Goldcorp are major international firms with policies and procedures for the letting of contracts. The contracts for smelting and refining are normal contracts for a large producer.

There are numerous contracts at the mine including project development contracts to provide services to augment Barrick's efforts.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

The following description of environment studies, permitting, and social/community impact is largely taken from AMC's 2011 Technical Report.

ENVIRONMENTAL LEGACY

The Rosario mine operated prior to June 1999. Previous development included the mining of two main pits (Monte Negro and Moore) and several smaller pits, construction of a plant site, and construction of two tailings impoundments (Las Lagunas and Mejita). Waste rock dumps and low grade ore stockpiles from these operations are located throughout the pit areas. When the Rosario mine shut down, proper closure and reclamation was not undertaken. The result was a legacy of polluted soil and water and contaminated infrastructure.

The major legacy environmental issue at the Mine was ARD. It developed from exposure of sulphides occurring in the existing pit walls, waste rock dumps, and stockpiles to air, water, and bacteria. Untreated and uncontrolled ARD contaminated local streams and rivers has led to deterioration of water quality and aquatic resources both on the mine site and offsite.

In addition to ARD and associated degradation of the water quality in the streams, large amounts of hazardous waste materials were present on the mine site, including rusting machinery, hydrocarbon contaminated soils, mercury contaminated materials, asbestos, and tailings that had escaped into neighbouring watersheds.

Under the SLA, environmental remediation within the mine site and its area of influence is the responsibility of PVDC, while the Dominican government is responsible for historic impacts outside the Mine development area and for the hazardous substances located at the Rosario plant site. However, an agreement was reached in 2009 that PVDC would donate up to $37.5 million, or half of the government's total estimated cost of $75 million, for its clean-up responsibilities. PVDC will also finance the remaining amount, allowing the government to repay the debt with revenues generated by the mine. In December 2010, PVDC agreed to contribute the remaining $37.5 million on behalf of the government towards these clean-up activities. The agreement was signed in June 2016.

PVDC built a water treatment plant larger than would otherwise be required for mining operations. This made it possible for the plant to capture and process water in both PVDC's and the government's areas of responsibility.

At the time of the site visit, the hazardous materials and contaminated infrastructure located at the Rosario plant site were removed from the site and significant improvements in the water quality of the streams had been accomplished through the efforts and management of ARD by PVDC.

EnviroGold Limited is developing an operation to re-treat the Las Lagunas tailings. It is understood that, upon completion of the Mine operations, PVDC should have no liability with regard to the Las Lagunas project area. However, because of the proximity of the area to PVDC's operations and the uncertainty of the political and social environment in seven or more years, there is some risk that PVDC may become involved. RPA does not believe that any involvement would represent a material risk to the Mine.

ENVIRONMENTAL STUDIES

A number of consultants were employed to collect background data and baseline information on the existing biophysical and human environments from 2002 through 2007. The baseline studies covered the immediate Mine areas and also areas beyond the mine site. The studies included:

- ARD studies
- Air quality baseline studies
- Archaeology study
- Aquatic biology studies
- Terrestrial biology vegetation and fauna baseline studies
- Geological and geochemical studies
- Hydrology and hydrogeological studies
- Surface water and sediment characterization baseline studies
- Wetland characterization studies

The completed environmental studies were sufficient for the granting of various permits required for operations.

PROJECT PERMITTING

The principal agencies from which permits, licences, and agreements are required in order to operate a mining project in the Dominican Republic are:

- Ministerio de Energía y Minas (Ministry of Energy and Mines)
- Ministerio de Medio Ambiente y Recursos Naturales – MIMARENA (Ministry of Environment).
- Instituto Nacional de Recursos Hidráulicos – INDRHI (Water Resources)
- Ministerio de Industria y Comercio – SEIC (Ministry of Industry and Commerce)
- Subsecretaria de Recursos Forestales – SFR (Sub-secretary of Forestry Resources)
- Ministerio de Salud Pública – MSP (kitchens, clinics)
- Instituto Nacional de Aguas Potables y Alcantarillados – INAPA (potable water)
- Ministerio de Estado de la Fuerzas Armadas – MIFA (explosives)
- Ministerio de Obras Públicas y Comunicaciones – MOPC (public works)
- Ministerio de Trabajo – MT (Health & Safety)
- Dirección General de Mineria -DGM (General Mining Agency)
- Ayuntamiento (municipalities)
- Ministerio de Cultura (Ministry of Culture)

The full list of obligations arising from the various permits, licences, and agreements total some 1,600, of which 90% relate to the mine site and the remaining 10% relate mainly to the power transmission line and other aspects of power supply.

SPECIAL LEASE AGREEMENT

The SLA is the main agreement covering the Mine. The first amendment to the SLA became effective in November 2009. A second amendment to the SLA became effective on October 5, 2013.

RESETTLEMENT ACTION PLAN

A Resettlement Action Plan (RAP), prepared for the government with the support of PVDC and with assistance from expert technical personnel, local consultants, and local personnel, was developed in accordance with World Bank Standards. The RAP was approved and signed on September 25, 2007, by representatives of the three local communities affected by the plan, the Dominican state, PVDC, and the Catholic Church.

MEMORANDUM OF UNDERSTANDING

PVDC and the Dominican state signed a Memorandum of Understanding (MOU) on November 30, 2007, that covers funding for resettlement of households under the RAP, acquisition of land, and mitigation of the various historical environmental liabilities. The MOU facilitates the advance of funds by PVDC to resolve the historic environmental and social liabilities that under the SLA are the government's responsibility and requires the government to reimburse PVDC for the funds advanced. According to the Second Amendment to the SLA, PVDC will no longer be advancing funds to the Dominican government under the MOU.

ENVIRONMENTAL LICENCE

An Environmental and Social Impact Assessment (ESIA) was submitted to the government on November 21, 2005. Following various meetings and workshops, and upon conclusion of the government process of review and evaluation, the ESIA and the environmental management plan (EMP) were approved by the Secretariat of State for the Environment and Natural Resources on December 26, 2006, and Environmental Licence No. 0101-06 was issued on January 2007. Conditions of the Environmental Licence require submission of detailed designs for the TSFs, installation of monitoring stations, and submission for review of the waste management plan and incineration plant design. Other changes have been submitted to the authorities for additional facilities. An environmental licence modification for project process expansion was submitted to authorities in late 2008 and approved in September 2010. The last amendment to the Environmental Licence was issued on June 29, 2017, which authorized the expansion of development area No.1, with a surface area of 16.68 ha.

SOCIAL OR COMMUNITY REQUIREMENTS

The results of a socio-economic baseline study showed poverty and low levels of literacy in the towns and local communities around the mine site, together with significant unemployment. Potable water, energy, and sewage systems are non-existent. Elementary and high school education is available in local towns, as well as basic medical facilities. The studies found that communities were concerned about the reopening of the mine but realized the environmental and social benefits. The study identified the communities most concerned about mining activities and provided a means to address their concerns through a community relations program.

The Manager of Corporate Social Responsibility and staff are responsible for public consultation and disclosure, community development, and social monitoring.

Consultation with the local communities is done with formal and informal meetings, hearings, and focus groups. The objective of the public consultation undertaken by PVDC is to have open dialogue with local communities, which allows for information sharing and feedback between the parties regarding relevant issues.

Community development is done by identifying projects in consultation with the local authorities and communities and prioritizing which projects are to be done and providing in-kind contribution and technical expertise for the selected projects.

The focus of the community development programs is on education, training, and development of new businesses and improved practices. There is also a focus on development of critical infrastructure including roads, bridges, aqua ducts, power supplies, and reforestation. PVDC provides support to a local business incubation unit that provides technicians to offer advice, support, and financing for new businesses.

A grievance management system is in place to deal with complaints from local communities.

Community surveys are conducted twice each year. The most recent survey conducted between November and December 2017 indicates that the community support level is at 79%, up from 76% in the prior survey in Q2 2017.

WATER AND WASTE MANAGEMENT

WATER MANAGEMENT

The following guidelines are used to develop the water management designs for the Mine:

- International Cyanide Management Code
- Dominican Republic Water Quality Standards
- International Finance Corporation (IFC) Water Quality Guidelines

- Barrick Water Conservation Standard
- Barrick Principles for Tailings Management

Mine development is designed to treat the majority of surface water that has been impacted by historical mining activity, and to control water quality during mine operation and post closure so that the water released to the receiving environment will meet water quality standards established by the Dominican Republic government and the World Bank. The process treated water is discharged to the Arroyo Margajita. The point for water quality monitoring is the outfall of the Effluent Treatment Plant. A secondary point located at the confluence of the Arroyo Margajita and the Hatillo Reservoir serves as a reference point for a better understanding of water quality interaction of discharged water and the reservoir.

Within the PVDC development area, two dams were constructed to collect and store ARD contaminated water prior to treatment. Contaminated water from the proposed mining areas is captured at Dam 1, located in the headwaters of Arroyo Margajita. ARD runoff from the low grade ore stockpile area is captured at Dam 3 adjacent to the Moore pit in the upper Mejita drainage.

Water levels behind Dam 1 and Dam 3 are maintained at the lowest possible level at all times to provide sufficient storage for the calculated 200 year return period storm event. The pond behind Dam 1 is designed with a geomembrane liner to limit seepage. Both dams are constructed with spillways designed to pass the probable maximum flood resulting from the 24-hour Probable Maximum Precipitation.

Limestone and lime requirements for the water treatment plant were estimated based on the results of testwork at the HDS pilot plant. The pH discharge criterion used for the test was 8.5 to 9.0, which meets the Dominican Republic Standards for Mining Effluents and Receiving Water Quality applicable to mining effluents discharged to surface water (pH 6.0 to 9.0).

CYANIDE TREATMENT

Cyanide in the tailings stream is routed to the cyanide-detoxification process to destroy most of the cyanide. The effluent from the process is blended with mill neutralization sludge prior to pumping to the TSF. Further cyanide degradation is expected to occur in the TSF to a level that will meet discharge criteria. The treatment process in the detoxification plant can be adjusted if necessary to reduce levels of cyanide.

LOW GRADE STOCKPILE

Up to 80 Mt of low grade ore will be stockpiled for treatment after both open pits have been mined. PVDC is assuming that all stockpiles (excluding limestone) will be potentially acid generating and is implementing procedures to collect and treat all runoff.

MINE CLOSURE REQUIREMENTS

The current mine closure plan (Rehabilitation Management Plan) was prepared by SRK in June 2011; the update of this management plan was submitted to the government, being approved in August 2016. Updated information on development of the mine in 2017 resulted in improved closure cost calculations. The Rehabilitation Management Plan is one of the Environmental Management Plans (EMP) which forms part of the Environmental Management System (EMS) for Pueblo Viejo. This plan is complimentary to and considers the commitments made within the other EMPs. The other operational EMPs which are relevant to this Plan are as follows:

- Air Management Plan;
- Archaeology Management Plan;
- Cyanide Management Plan;
- El Llagal Greenbelt Management Plan;
- Hazardous Materials Management Plan;
- Integrated Pest Management Plan;
- Soils Management Plan;
- Vegetation Management Plan;
- Waste Management Plan;
- Water Management Plan; and
- Wildlife and Effects Management Plan.

The design of the Rehabilitation Management Plan considers a number of interrelated components. Among these are legal and other obligations, closure objectives, environmental and social considerations, technical design criteria, closure assumptions, health and safety hazards, and relinquishment conditions. The Plan was prepared in accordance with the following Barrick environmental standards or guidelines:

- Barrick Mine Closure Guidelines;
- Barrick Mine Closure Cost Estimate Guideline;

- Barrick Social Closure Guidance;
- Barrick Biodiversity Standard; and
- Barrick Water Conservation Standard.

The overall, long term post-closure land use objective for the site is to return it to a self-sustaining condition suitable to support pre-mining land use activities such as small scale agriculture, hunting, artisanal forestry.

PVDC plans to progressively reclaim the mine site as sections of the site become available.

BOND

The Environmental Licence requires a compliance bond that corresponds to 10% of the amount of the updated Environmental Adjustment and Management Plan (PMAA) defined for the operational phase. At the end of the operational phase, PVDC will provide the corresponding bond at 10% of the total amount of the PMAA for the closure and post-closure phases.

Based on government communications, PVDC is required to establish bonds in the amount of US$90 million to cover closure and post-closure costs, which shall be completed in 2018. PVDC is also required to establish an Environment Reserve Fund to cover closure and post-closure costs.

To the best of RPA's knowledge, there are no environmental issues that could materially impact Barrick's ability to extract the Mineral Resources or Mineral Reserves at this time.

21 CAPITAL AND OPERATING COSTS

The Pueblo Viejo Mine is an open pit gold mine in the production phase. Commercial production was achieved in January 2013 and the Mine completed its ramp-up to full design capacity in 2014. The current closure cost estimate is $174 million based on current and future disturbance included in LOM plans.

CAPITAL COSTS

Total sustaining capital for the major categories over the LOM are summarized in Table 21-1. Mine pre-stripping costs have been treated as an operating cost for the purpose of this report, and mine site exploration capital has been excluded as that capital should be expended against future mineral resources.

TABLE 21-1 LIFE OF MINE CAPITAL COST ESTIMATE
Pueblo Viejo Dominicana Corporation - Pueblo Viejo Mine

CAPEX (2018-2034)	$ (millions)
Open Pit	161.0
Processing	351.1
G&A	935.2
Total	**1,447.4**

The following is excluded from the LOM capital cost estimate:

- Permits, fees and process royalties
- Insurance during construction
- Taxes
- Import duties and custom fees
- Sunk costs
- Pilot Plant and other testwork
- Exploration drilling
- Costs of fluctuations in currency exchanges
- Relocation of any facilities, if required
- All facilities outside Process Plant layout battery limit

OPERATING COSTS

The 2017 total open pit operating cost was $2.51/t mined including pit and limestone re-handle. Over the same time period, the total material moved was 51.6 Mt including 39.1 Mt mined from Moore and Monte Negro, and 12.6 Mt pit re-handle. The limestone quarry material movement was 11.8 Mt mined including 1.5 Mt limestone re-handle.

Table 21-2 displays the actual open pit operating costs for 2017 and Table 21-3, the actual total operating costs as of December 31, 2017.

TABLE 21-2 ACTUAL OPEN PIT OPERATING COSTS – 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Categories	$/t mined
Admin/Overhead	0.71
Drill	0.19
Blast	0.34
Load	0.10
Haul	0.44
Support	0.14
Dewatering	0.12
Maintenance	1.48
Limestone Mining Allocation (in process costs)	-1.15
Total Ore Mining Cost	**2.58**
Total Waste Mining Cost	**2.84**
Total Rehandle Cost	**1.72**

The mining cost parameters presented in Section 16 are $3.31/t for waste and $2.93/t for ore for LOM. The mining cost estimates are comparable to the 2017 actual mining costs. In RPA's opinion, the LOM cost parameters used are appropriate.

TABLE 21-3 ACTUAL TOTAL OPERATING COSTS – FOR 2017
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Area	2017 $/t milled
Mining Cost Per Tonne Milled	11.68
Process Cost Per Tonne Milled	41.01
Dewatering Per Tonne Milled	0.58
G & A Cost Per Tonne Milled	10.23
Total Direct Operating Cost Per Tonne Milled	**63.51**
2017 All In Sustaining Cost Per Oz Au Sold	**525**

In 2017, 7.98 Mt were processed, which is slightly below the 2018 target of 8.16 Mt.

The 2017 actual G&A cost was $81.7 million. Table 21-4 presents the cost assumptions for the Pueblo Viejo LOM.

TABLE 21-4 OPERATING COSTS – LIFE OF MINE
Pueblo Viejo Dominicana Corporation – Pueblo Viejo Mine

Area	Unit	Value
Mining Cost Ore	$/t mined	2.93
Mining Cost Waste	$/t mined	3.31
Mining Cost Waste Existing Tailing	$/t mined	1.39
Mining Cost Waste New Tailing	$/t mined	2.90
Mining Cost Ore Existing Tailing	$/t mined	3.68
Mining Cost Ore New Tailing	$/t mined	7.69
Mining Cost Rehandle	$/t milled	1.97
Process Cost	$/t milled	39.45
G&A Cost	$M/year	78.9

22 ECONOMIC ANALYSIS

Under NI 43-101 rules, producing issuers may exclude the information required in Section 22 - Economic Analysis on properties currently in production, unless the Technical Report includes a material expansion of current production. RPA notes that Barrick is a producing issuer, the Pueblo Viejo Mine is currently in production, and a material expansion is not included in the current LOM plans. RPA has carried out an economic analysis of the Mine using the estimates presented in this report and confirms that the outcome is a positive cash flow that supports the statement of Mineral Reserves.

23 ADJACENT PROPERTIES

PanTerra Gold Limited, formerly EnviroGold Limited (EnviroGold), an Australian-based gold producer with Latin American operations headquartered in Santo Domingo, is exploiting tailings from the Rosario era at Las Lagunas (the Las Lagunas Gold Tailings Project) through its subsidiary EnviroGold (Las Laguna) Limited. The company signed a development agreement with the Dominican government in 2004 to reprocess the tailings deposit under a profit sharing arrangement. The project involves the reclamation and concentration of gold bearing sulphides through flotation, followed by sulphide oxidation using the Albion Process Technology, prior to extraction of gold and silver using standard CIL cyanidation.

At the completion of the project, the property is to become the responsibility of the Dominican government and no liability should impact on PVDC. However, because of the location immediately next to PVDC's operations, there is some risk that PVDC may become involved. RPA does not believe that any involvement would represent a material risk.

There are two additional mining operations in the general vicinity of the Pueblo Viejo Mine:

- Falcondo Nickel Project, operated by Xstrata Nickel, located approximately 15 km from the Pueblo Viejo Mine (currently under care and maintenance), and
- Cerro de Maimon Copper-Gold Project, operated by Perilya, also located approximately 15 km away.

Neither project impacts materially on the Pueblo Viejo Mine.

24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading

25 INTERPRETATION AND CONCLUSIONS

Based on RPA's site visit, interviews with Pueblo Viejo personnel, and subsequent review of gathered information, RPA offers the following conclusions:

GEOLOGY AND MINERAL RESOURCES

- The overall resource estimation processes and procedures are of a high standard. PVDC has highly experienced professionals who have developed detailed methods and procedures appropriate for a complex operation.

- The sampling, sample preparation, analyses, and sample security are appropriate for the style of mineralization and Mineral Resource estimation.

- The geology, sampling, assaying, QA/QC, and data management procedures are of high quality and generally exceed industry standards.

- The detailed lithology, alteration, structural interpretation and other work has contributed to a good overall geological understanding of the Mine.

- The EOY2017 Mineral Resource estimates are completed to industry standards using reasonable and appropriate parameters and are acceptable for conversion to Mineral Reserves. The resource and grade control models are reasonable and acceptable.

- The classification of Measured, Indicated, and Inferred Resources conform to the CIM (2014) definitions.

- RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other modifying factors which could materially affect the open pit Mineral Resource estimates.

- Mineral Resources are reported exclusive of Mineral Reserves and are estimated effective December 31, 2017.

- On a 100% basis, Measured and Indicated Mineral Resources (including stockpiles) total 169.5 Mt grading 2.46 g/t Au, 13.66 g/t Ag, and 0.09% Cu, containing 13.4 Moz Au, 74.4 Moz Ag, and 298.5 Mlb Cu.

- On a 100% basis, Inferred Mineral Resources total 46.1 Mt, grading 2.43 g/t Au, 10.81 g/t Ag, and 0.08% Cu, containing 3.6 Moz Au, 16.0 Moz Ag, and 87.2 Mlb Cu.

- The 2017 exploration program has been successful in finding new areas with good exploration potential.

MINING AND MINERAL RESERVES

- On a 100% basis, Proven and Probable Mineral Reserves (including stockpiles) total 135.6 Mt grading 2.8 g/t Au, 17.4 g/t Ag, and 0.10% Cu containing 12.0 Moz Au, 75.9 Moz Ag, and 291.2 Mlb Cu.

- The Pueblo Viejo Mineral Reserves stated for the EOY2017 meet the requirements of the CIM (2014) definitions to be classified as Mineral Reserves.

- Mining planning for the Pueblo Viejo open pit mine follows industry standards.

- The methodology used by PVDC for pit limit determination, cut-off grade optimization, and production sequence and scheduling, and estimation of equipment/manpower requirements is consistent with good industry practice.

- The Mine's initiative on selective mining (flitch mining) by half bench mining will reduce mining dilution, increase mining recovery, and, as a result, increase gold grade and ounces.

- The Mine is working on truck utilization improvement, to increase truck and shovel utilization for the remainder of the LOM. PVDC identified areas where time loss was most significant and targeted these areas to improve utilization.

MINERAL PROCESSING AND METALLURGICAL TESTING

- The metallurgical testwork is adequate to support the Mine and the recovery models are reasonable.

- Pueblo Viejo has made significant improvements to the operation of the processing circuits over the past years. As a result, throughput and plant availability have increased.

CONVERSION TO LNG

- There are ongoing studies to convert the Quisqueya 1 power plant from HFO to LNG, in order to reduce carbon footprint and decrease dependence on oil.

COSTS

- Pueblo Viejo and Barrick corporate personnel are assessing a number of improvements that have potential to materially increase profitability through lower operating costs and extended mine life.

RISKS AND UNCERTAINTIES

- To the best of RPA's knowledge, and other than as may be described in this report, there are no known significant risks and uncertainties that could reasonably be expected to affect the reliability or confidence in the exploration information, Mineral Resource or Mineral Reserve estimates, or projected economic outcomes.

26 RECOMMENDATIONS

RPA makes the following recommendations:

GEOLOGY AND MINERAL RESOURCES

- Compile and report the QA/QC results on an annual basis in addition to the monthly reports and implement procedures that will reduce CRM failure rates and improve the field duplicate precision. Additionally, incorporate CRMs in the external checks.
- Continue calibrating grade capping levels with production reconciliation data.
- Complete the 2018 exploration program, consisting of a 21,755 m drill program to explore new targets in Arroyo Hondo, Moore North, Moore West Deep, Monte Negro West Deep, and continue with advanced exploration in Upper Mejita, ARD1 and Monte Negro Underground areas, budgeted for approximately US$4.15 million.

MINING AND MINERAL RESERVES

- Continue to evaluate and pursue options for the design and construction of additional TSFs in order to increase the mine life.
- Continue to evaluate mine operation initiatives to improve mining selectivity using half bench mining, increase haul truck utilization, and improve the drill and blast process.

MINERAL PROCESSING AND METALLURGICAL TESTING

- Continue to optimize the operation and maintenance of the processing plant to increase production and reduce costs.

COSTS AND PROFITABILITY

- Continue to evaluate and implement opportunities for cost savings and profitability improvements.
- Advance the contract for LNG and construction of the new facilities needed to use LNG at the Quisqueya 1 power plant and the Pueblo Viejo lime kilns as quickly as possible to take advantage of the significant cost savings.

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28 DATE AND SIGNATURE PAGE

This report titled “Technical Report on the Pueblo Viejo Mine, Sanchez Ramirez Province, Dominican Republic” and dated March 19, 2018, was prepared and signed by the following authors:

(Signed and Sealed) “*Rosmery Cárdenas Barzola*”

Dated at Toronto, ON
March 19, 2018

Rosmery Cárdenas Barzola, P.Eng.
Principal Geologist

(Signed and Sealed) “*Hugo Miranda*”

Dated at Lakewood, CO
March 19, 2018

Hugo Miranda, MBA, P.C.
Principal Mining Engineer

(Signed and Sealed) “*Holger Krutzelmann*”

Dated at Toronto, ON
March 19, 2018

Holger Krutzelmann, P.Eng.
Principal Metallurgist

29 CERTIFICATE OF QUALIFIED PERSON

ROSMERY CÁRDENAS BARZOLA

I, Rosmery Julia Cárdenas Barzola, P.Eng., as an author of this report entitled "Technical Report on the Pueblo Viejo Mine, Sanchez Ramirez Province, Dominican Republic" prepared for Pueblo Viejo Dominicana Corporation, Barrick Gold Corporation, Goldcorp Inc., and dated March 19, 2018 do hereby certify that:

1. I am Principal Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.

2. I am a graduate of Universidad Nacional de Ingenieria, Lima, Peru, in 2002 with a B.Sc. degree in Geological Engineering.

3. I am registered as a Professional Engineer in the Province of Ontario (Reg. #100178079). I have worked as a geologist for a total of 15 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Resource estimation, geological modelling, and QA/QC experience ranging from greenfield projects to operating mines, including open pit and underground.
   - Review and report as a consultant on numerous exploration, development, and production mining projects around the world for due diligence and regulatory requirements.
   - Evaluation Geologist and Resource Modelling Geologist with Barrick Gold Corporation at Pueblo Viejo Project (Dominican Republic) and Lagunas Norte Mine (Peru).
   - Geologist at a polymetallic underground mine in Peru in charge of exploration and definition drilling.

4. 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.

5. I visited the Pueblo Viejo Mine on November 14 to 16, 2017.

6. I am responsible for Sections 6 to 12, 14, and 23 and contributed to Sections 1, 2, 25, and 26 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

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

10. At the effective date of the Technical Report, 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 19th day of March, 2018

(Signed and Sealed) "*Rosmery Cárdenas Barzola*"

Rosmery J. Cárdenas, P.Eng.

HUGO M. MIRANDA

I, Hugo M. Miranda, ChMC(RM), as an author of this report entitled “Technical Report on the Pueblo Viejo Mine, Sanchez Ramirez Province, Dominican Republic” prepared for Pueblo Viejo Dominicana Corporation, Barrick Gold Corporation, Goldcorp Inc., and dated March 19, 2018 do hereby certify that:

1. I am Principal Mining Engineer with RPA (USA) Ltd. of 143 Union Boulevard, Suite 505, Lakewood, Colorado, USA 80228.

2. I am a graduate of the Santiago University of Chile, with a B.Sc. degree in Mining Engineering in 1993, and Santiago University, with a Masters of Business Administration degree in 2004.

3. I am registered as a Competent Person of the Chilean Mining Commission (Registered Member #0031). I have worked as a mining engineer for a total of 20 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Principal Mining Engineer - RPA in Colorado. Review and report as a consultant on mining operations and mining projects. Mine engineering including mine plan and pit optimization, pit design and economic evaluation.
   - Mine Planning Chief, El Tesoro Open Pit Mine - Antofagasta Minerals in Chile
   - Open Pit Planning Engineer, Radomiro Tomic Mine, CODELCO – Chile.
   - Open Pit Planning Engineer, Andina Mine, CODELCO - Chile.
   - Principal Mining Consultant – Pincock, Allen and Holt in Colorado, USA. Review and report as a consultant on numerous development and production mining projects.

4. 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.

5. I visited the Pueblo Viejo Mine on November 14 to 16, 2017.

6. I am responsible for Sections 3 to 5, 15, 16, 19, 21, 22 and 24, and contributed to Sections 1, 2, 25, and 26 of the Technical Report. I am responsible for overall preparation of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have prepare a previous Technical Report dated March 27, 2014 on the property that is the subject of this Technical Report.

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

10. At the effective date of the Technical Report, 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 19th day of March, 2018

(Signed and Sealed) "*Hugo Miranda*"

Hugo M. Miranda, ChMC(RM)

HOLGER KRUTZELMANN

I, Holger Krutzelmann, P. Eng., as an author of this report entitled "Technical Report on the Pueblo Viejo Mine, Sanchez Ramirez Province, Dominican Republic" prepared for Pueblo Viejo Dominicana Corporation, Barrick Gold Corporation, Goldcorp Inc., and dated March 19, 2018 do hereby certify that:

1. I am an Associate Principal Metallurgist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON M5J 2H7.

2. I am a graduate of Queen's University, Kingston, Ontario, Canada in 1978 with a B.Sc. degree in Mining Engineering (Mineral Processing).

3. I am registered as a Professional Engineer with Professional Engineers Ontario (Reg. #90455304). I have worked in the mineral processing field, in operating, metallurgical, managerial; and engineering functions, for a total of 40 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   - Review and report as a metallurgical consultant on numerous mining operations and projects for due diligence and financial monitoring requirements
   - Senior Metallurgist/Project Manager on numerous gold and base metal studies for a leading Canadian engineering company
   - Management and operational experience at several Canadian and U.S. milling operations treating various metals, including copper, zinc, gold, and silver

4. 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.

5. I visited the Pueblo Viejo Mine on November 14 to 16, 2017.

6. I am responsible for Sections 13, 17, 18, and 20 and contributed to Sections 1, 2, 25, and 26 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have had no prior involvement with the property that is the subject of the Technical Report.

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

10. At the effective date of the Technical Report, 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 19th day of March, 2018

(Signed and Sealed) "*Holger Krutzelmann*"

Holger Krutzelmann, P.Eng.