NI 43-101 Technical Report
Didipio Gold/Copper Operations
Luzon Island, Philippines

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1 SUMMARY

1.1 Overview

The Didipio operation is an operating gold-copper mine in the northern Luzon region of the Republic of the Philippines with in-situ underground and surface stockpile reserves estimated to be 42.2 Mt at 0.91 g/t Au and 0.35% Cu for 1.23 million ounces of gold and 0.15 million tonnes of copper, including2.57 million ounces of silver as at 31 December 2021. The operating mine life remaining is 12 years with underground production and processing complete in 2033. The average ore grade for underground material is 1.54g/t Au, 0.42 % Cu and 1.79g/t Ag. Surface stockpile ore has an average grade of 0.34g/t Au, 0.29% Cu and 1.99g/t Ag.

The commodity price assumptions that form the basis of Mineral Resources and Mineral Reserves estimates in this report are listed in Table 1-1.

Table 1-1: Reserve Case Commodity Prices

Commodity	Value (US$)
Au (Reserves)	1,500/oz
Au (Resources)	1,700/oz
Ag (by-product)	18.00/oz
Cu (Reserves)	3.00/lb
Cu (Resources)	3.50/lb

Open pit mining commenced in July 2012 and commercial production was declared in April 2013. The open pit was successfully completed to final design in April 2017 with 27Mt of low and medium grade stockpiles remaining at the time for processing. In April 2015 construction of the underground portal and development began, with first stoping in December 2017.

The previous Didipio technical report was filed in October 2014 prior to the commencement of the underground mine and completion of the open pit.

In July 2019 operations were suspended following the expiry of the initial term of the Didipio Financial or Technical Assistance Agreement ("FTAA"). The FTAA was renewed in July 2021. Processing of surface stockpiles resumed in November 2021 and underground production restarted in November 2021. Current Mineral Reserves support underground mining and processing through to 2033. Inferred Resources have not been included in the mining plan or financial analysis of this report. However, approximately 4Mt of Inferred Resources is in close proximity to current mine designs and is available for potential conversion to reserves via in-fill diamond drilling programs.

This technical report has been prepared in accordance with Canadian National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") for the Didipio Operation ("Technical Report") and supports the updated Mineral Resources and Mineral Reserves as at December 31, 2021.

The material outcomes of the project re-optimisation and re-start are:

- Successful re-start to the operation following FTAA renewal;
- Underground production ramping up from 1.4Mt in 2022 to 1.7Mt in 2024;
- Crown Stabilisation Project ("CSP") implemented to install an engineered crown pillar at the base of the open pit. Mining of this area will be complete in 2022, with backfilling complete in 2024;

- Mining sequence altered to a top-down method (as opposed to bottom-up). This results in earlier access to high grade ore, reduced geotechnical risk around the crown pillar area, and removal of the planned sill pillar that was required in earlier iterations of the underground schedule;
- Improved understanding of geotechnical conditions and implementation of modified stope designs to manage poorer ground conditions in the Breccia zone;
- Dual lift stopes up to 60m high successfully completed in the Monzonite zone;
- Improved underground drill and blast practices including recent commissioning of a Rhino slot raisebore rig;
- Dewatering infrastructure in place for the top half of the underground mine. Additional pump station to be commissioned in 2024 to service the bottom half of the mine;
- Contained metal of 1.23 Moz. of gold and 0.15Mt of copper;

Table 1-2 summarises the key mining and processing physicals based on the current life of mine plan.

Table 1-2: Mining and Processing Plan

Didipio Life of Mine Physicals	Unit	Total
Total Underground Lateral Development	km	28.3
Total Underground Ore	Mt	20.0
Total Ore (Underground + Stockpiles)	Mt	42.2
Underground Production mined	Mt	20.0
Underground Gold grade mined	g/t	1.54
Underground Copper grade mined	%	0.42
Underground Gold Contained mined	Moz	0.99
Underground Copper Contained mined	Mt	0.08
Open Pit Stockpile	Mt	22.2
Open Pit Stockpile Gold grade	g/t	0.34
Open Pit Stockpile Copper grade	%	0.29
Open Pit Stockpile Gold contained	Moz	0.24
Open Pit Stockpile Copper contained	Mt	0.07
Total Ore Milled	Mt	42.2
Total Gold Grade Milled	g/t	0.91
Total Copper Grade Milled	%	0.35
Total Gold Recovery	%	90.8
Total Copper Recovery	%	89.2
Total Gold Recovered	Moz	1.13
Total Copper Recovered	Mt	0.13

Note: Mineral Resources and Reserves in this Technical Report are reported as at December 31, 2021, and mine plans and valuations are from January 1, 2022.

1.2 Introduction

Construction of the Didipio operation commenced in June 2011 and was completed in December, 2012 with official commercial open pit production declared in April 2013. The open pit was completed in April 2017. Underground development commenced in April 2015 via a portal within the open pit, with first stoping commencing in December 2017. In July 2019, operations at the project were suspended for a period of approximately two years following the expiry of the initial 25-year term of the Didipio Financial or Technical Assistance Agreement ("FTAA"). The FTAA was renewed for another 25 years in July 2021 and the operation was re-started shortly thereafter. Full production rates are expected to be reached during Q2 2022.

In accordance with its statutory obligations and corporate social responsibility guidelines, the Company maintains an Environmental Protection and Enhancement Program ("EPEP") a Social Development and Management Program ("SDMP"), a Community Development Fund ("CDF"), a Provincial Development Fund ("PDF") and a Final Mine Rehabilitation and/or Decommissioning Fund ("FMRDF").

Annual mill throughput ramped up from initial rates of 2.5Mtpa, reaching 3.5Mtpa in 2015. Annual production is forecast to be 100-130 koz of gold per annum from 2022 until 2027 when grades start to decline. Similarly, annual copper production is forecast to be 12-13kt from 2022 until 2029, dropping below 10kt from 2030 onwards.

Underground stoping will continue to employ Long Hole Open Stoping ("LHOS") with paste fill at an annual mining rate of 1.4Mtpa to 1.7Mtpa, with mill feed supplemented by surface stockpiles, to achieve a combined processing rate of 3.5Mtpa. Production costsand physicals are summarised in Table 1-3.

Table 1-3: Mine Plan Physical and Unit Cost Assumptions

	Unit	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mining														
UG Ore Production	kt	**20,044**	1,498	1,518	1,671	1,764	1,772	1,764	1,764	1,764	1,764	1,764	1,764	1,237
UG Gold Grade Mined	g/t	**1.54**	2.02	2.33	2.06	1.95	1.93	2.08	1.34	1.32	1.24	0.81	0.69	0.62
UG Copper Grade Mined	%	**0.42**	0.51	0.48	0.46	0.45	0.52	0.45	0.41	0.38	0.31	0.33	0.35	0.35
UG Gold Contained Mined	koz	**991**	97	114	111	110	110	118	76	75	70	46	39	25
UG Copper Contained Mined	kt	**84**	8	7	8	8	9	8	7	7	5	6	6	4
Processing														
Total Ore Milled	kt	**42,207**	3,521	3,515	3,516	3,495	3,504	3,527	3,531	3,527	3,498	3,521	3,537	3,513
Gold Grade Milled	g/t	**0.91**	1.05	1.18	1.19	1.17	1.16	1.22	0.90	0.85	0.76	0.56	0.48	0.40
Copper Grade Milled	%	**0.35**	0.40	0.39	0.40	0.39	0.42	0.40	0.39	0.37	0.30	0.30	0.25	0.22
Gold Recovery	%	**90.8**	90.6	92.8	92.7	92.4	92.4	92.7	90.9	90.6	90.9	88.3	87.6	87.3
Copper Recovery	%	**89.2**	88.4	88.1	89.6	90.0	90.5	90.1	89.8	89.5	88.6	88.7	88.8	87.8
Gold Recovered	koz	**1,128**	108	124	125	122	121	128	93	87	77	56	48	39
Copper Recovered	kt	**133**	13	12	13	12	13	13	12	12	9	9	8	7
Product Sold														
Gold Dore	koz	**416**	36	46	46	45	45	47	35	33	29	22	19	15
Gold in Concentrate	koz	**712**	72	79	79	77	76	81	58	54	48	34	29	24
Copper in Concentrate	Mlb	**293**	27	27	28	27	30	28	27	26	20	21	18	15
Concentrate (dry) Solid	kt	**590**	56	54	56	53	61	57	55	53	42	43	33	28
Operating Costs														
Surface (CSP + Rehandle)	$/t mined	**3.21**	8.51	7.10	4.50	2.19	2.19	2.21	2.21	2.05	1.97	1.98	2.02	2.88
Underground	$/t mined	**25.48**	28.94	30.57	28.63	26.75	25.00	24.29	24.73	24.08	23.37	22.88	21.59	26.70
Processing	$/t milled	**5.81**	6.08	5.88	5.94	6.07	6.06	5.91	5.88	5.92	6.28	5.84	4.90	4.97
General & Admin	$/t milled	**7.94**	9.42	9.67	9.19	9.08	8.71	8.40	8.21	7.91	7.35	6.90	5.48	4.96
Indirect Costs														
Concentrate, Freight, Refining	$/t milled	**4.92**	5.57	5.55	5.65	5.63	5.92	5.69	5.24	5.04	4.19	4.04	3.26	2.84

1.3 Reliance on Other Experts

The authors, Qualified and Non-Independent Persons as defined by NI 43-101, were engaged by OceanaGold to study technical documentation relevant to the Technical Report, to contribute to or review the Technical Report on the Didipio operation, and to recommend a work programme if warranted.

The authors believe the information used to prepare the report and formulate its conclusions and recommendations are valid and appropriate considering the status of the operation and the purpose for which the Report is prepared. The authors, by virtue of their technical review of the Project's exploration potential, affirm that the work programme and recommendations presented in the Report are in accordance with NI 43-101 and the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") technical standards.

1.4 Property Description, Location and Ownership

The Didipio operation is located in the north of Luzon Island approximately 270km NNE of Manila, in the Republic of the Philippines.

The operation is covered by FTAA No. 001 entered into between the Republic of the Philippines and Climax Arimco Mining Corporation ("CAMC") on June 20, 1994. The FTAA was subsequently assigned by CAMC to Australasian Philippines Mining Inc ("APMI") (renamed OceanaGold (Philippines) Inc. ("OGPI")), now a wholly owned subsidiary of OceanaGold. The FTAA was granted for an initial term of 25 years, renewable for a further 25 years on the same terms and conditions. In collaboration with the Government of the Philippines, the FTAA grants title to OGPI to undertake large-scale exploration, development and mining of gold, silver, copper and other minerals within a fixed fiscal regime. The FTAA carried a minimum expenditure commitment of US$50 million, which has been exceeded.

The Didipio FTAA was granted prior to the promulgation of the Philippine Mining Act of 1995 ("Mining Act"), in common with subsequent FTAA's granted under the Mining Act and its Implementing Rules and Regulations. An Environmental Compliance Certificate ("ECC") and a Declaration of Mining Feasibility were both required as a condition for the implementation of the FTAA. Both an ECC and a Partial Declaration of Mining Feasibility ("PDMF") were obtained and remain in place for the Didipio operation.

The initial term of the FTAA expired in June 2019 and was renewed for a further 25 years in July 2021.

The FTAA now covers 8,314.2 hectares (compared with the original 37,000 hectares). Parts of the original FTAA have been relinquished under the terms of the agreement. The PDMF for the Didipio operation covers 975 hectares within the FTAA.

Pursuant to a 1991 addendum agreement, a third-party syndicate has a contractual right to an 8% free carry interest in the operating vehicle formed to undertake the management, development, mining and processing of ore on, and the marketing of products from the Didipio operation.

1.5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

There are two alternative routes connecting the Didipio site by road to the port facilities at Manila (the receiving port for inwards transit of bulk goods and reagents) and Poro Point, La Union (the departure port for ore concentrate). The main route, approaching from the North via the Municipality of Cabarroguis, is an all-weather route suitable for heavy trucks and bulk freight. The secondary access, approaching from the South via the Municipality of Kasibu, is also an all-weather route and is suitable for smaller trucks and light vehicles.

From Manila, access by road via Cabarroguis generally requires approximately 10 hours. From the port facility at Poro Point, La Union to the mine site, the travelling time is generally 26 hours.

Commercial air services operate four days per week between Manila and Cauayan (about 100km and three hours' travelling time from the Didipio site by road). The total travel time to site from Manila by air and road is approximately seven hours.

Didipio is located on the eastern side of Luzon and is classified under the Type III Modified Corona's Classification. Type III climate typically has no pronounced maximum rainfall period with a dry season from only one to three months, usually during the period from December to February or from March to May.

1.6 Project History

Since the discovery of alluvial gold in the 1970s by alluvial miners from the Ifugao Province, the Didipio area has been held by a succession of claim holders. In May 1975, Victoria Consolidated Resources Corporation and Fil-Am Resources Inc. entered into an exploration agreement with a syndicate of claim owners who had title to an area covering the Didipio valley and undertook exploration activities, including a stream geochemistry programme, between 1975 and 1977.

The project was held by a succession of companies who continued to do exploration and commenced resource development work to define what would eventually become the Didipio Operation. The details of this work are contained in Chapter 6 of this document.

In 2006 OceanaGold and Climax merged and OceanaGold (Philippines) Inc. was formed, a wholly owned subsidiary of OceanaGold Corporation. Construction activities commenced in 2008, however, the Didipio Operation was placed in care and maintenance in December of that year following the deterioration of global financial markets and project funding constraints.

Updated studies were completed by OceanaGold in October 2010 and July 2011 and construction of the project re-commenced in June 2011. Open pit mining commenced in July 2012 with commercial production being declared on April 1, 2013. The open pit was successfully completed in April 2017 with 38.5Mt mined containing 0.98Moz of gold and 202kt of copper at a 0.5g/t AuEq cut-off. In April 2015, following the completion of a feasibility study in October 2014, an underground portal was cut and stoping commenced in December 2017, with production rates of 1.6Mtpa achieved in 2018.

On June 20 2019 the first term of the FTAA expired, however, the Mines and Geosciences Bureau ("MGB") of the Philippines Government issued an extension pending renewal of the FTAA. The Nueva Vizcaya Provincial Government considered the FTAA to have expired and on June 25 2019 blockaded the mine which resulted in a suspension of mining and processing in October 2019. On July 14 2021 the FTAA with amended conditions was approved. The mill was re-started in November 2021 shortly followed by commencement of underground stoping in November 2021. It is expected the Didipio mining operation will achieve full production rates in Q2 2022.

1.7 Geological Setting and Mineralisation

The project area is situated within the southern part of the meridional Cagayan Valley basin in north-eastern Luzon and is bounded on the east by the Sierra Madre Range, on the west by the Luzon Central Cordillera range and to the south by the Caraballo Mountains. The regional geology comprises late Miocene volcanic, volcaniclastic, intrusive and sedimentary rocks overlying a basement complex of pre-Tertiary age tonalite and schist, which have been interpreted to represent an island arc depositional and tectonic setting.

The Didipio gold-copper deposit is hosted within the multiphase Didipio Stock, which is in turn part of a larger alkalic intrusive body, the Didipio Igneous Complex. The deposit has been identified as an alkalic gold-copper porphyry system, roughly elliptical in shape at surface (480m long by 180m wide) and with a vertical pipe-like geometry that extends to at least 800m below the surface. The local geology comprises north-northwest trending, steeply (80° to 85°) east-dipping composite monzodiorite intrusive, in contact with volcaniclastics of the Mamparang Formation. The monzodiorite lies in a circular topographic depression that is coincident with a circular IP anomaly.

Porphyry-style mineralisation is closely associated with a zone of K-feldspar alteration within a small composite porphyritic monzonite stock intruded into the main body of diorite (Dark Diorite). The extent of alteration is marked by a prominent topographic feature (the Didipio Ridge) some 400m long and rising steeply to about 100m above an area of river flats and undulating ground.

Chalcopyrite, gold and silver (electrum) are the main economic minerals in the deposit. Chalcopyrite occurs as fine-grained disseminations, aggregates, fracture fillings and veins. Fine grained gold occurs as micro-inclusions in sulphides, as well as free gold, electrum and telluride. Visible gold is rare. Chalcopyrite can replace magnetite and is, in turn, replaced by bornite. Bornite occurs as alteration rims around and along fractures within chalcopyrite grains.

Oxidisation of sulphides persists from the surface to a depth of between 15m and 60m, averaging 30m. The oxide zone forms a blanket over the top of the deposit and largely comprises silicification, clay and carbonate minerals, accompanied by secondary copper minerals including malachite and chrysocolla.

All economic oxide and transitional mineralisation has now been mined.

1.8 Deposit Types

The Philippines Archipelago constitutes one of the world's premier porphyry copper provinces and is a typical area for the study of island arc porphyry systems (predominantly calc-alkaline porphyry deposits).

While the Didipio gold-copper deposit has many broad similarities to the predominant Philippines calc- alkaline porphyry deposits, it is not a classic, large porphyry-style deposit. Rather, it is a smaller alkaline mineralised stock containing disseminated and fracture/vein-controlled gold-copper mineralisation that has been overprinted by late stage, structurally controlled, higher-grade, gold-copper mineralisation.

The Didipio porphyry Au-Cu deposit exhibits features that are common to other alkaline porphyries found in Eastern Australia and British Columbia, Canada.

1.9 Exploration

Prior to the acquisition of the Didipio Project by OceanaGold, previous explorers had drilled a total of 230 diamond drill holes totalling 62,769m. The drilling metres were mostly for resource delineation of the Didipio porphyry Au-Cu deposit, with a small percentage of drilling in nearby prospects that include True Blue, D'Fox, San Pedro, D'Beau, and Morning Star. While there were mineralised drill intersections at True Blue and D'Fox, there was no exhaustive follow-up programme to delineate resources on these prospects. These prospects are all within 3km of the Didipio deposit.

OceanaGold continued follow-up works on some of the targets previously identified. The work included detailed investigation of the Mogambos, Papaya, Upper Tucod, MMB, and TNN prospects. Grid soil sampling over these prospects have delineated coincident Au-Cu anomalies over prospective lithologies that require drill testing.

OceanaGold also conducted exploratory drilling within the PDMF area in 2013 and 2014 to test the near- mine targets. The drilling programmes hit a number of low-grade mineralised intersections at D'Beau, San Pedro and Chinichinga prospects. These intersections were considered to potentially indicate separate mineralised bodies from Didipio or peripheral low-grade occurrences.

Exploration from 2015 to 2019 at the Didipio project involved fieldwork and a series of drilling campaigns within the FTAA area. The drilling was focused on testing potential targets generated from the completed deep imaging geophysical survey, technical review of available data, and follow-up on anomalous intersections from historical drilling. A total of 35 diamond drill holes were drilled totalling 13,224.8m and was carried out over the prospect area of the San Pedro, Dinkidi South, Morning Star, Chinichinga, Luminag, Mogambos, Radio and True Blue prospects.

1.10 Drilling

All drilling at Didipio has been performed by contractors. As at January 31, 2022, the drill hole database for the Didipio FTAA area contained records of 1013 holes for a total of 164,451.7m drilled. The drill hole database for the Didipio mine area comprises 400 holes totalling 109,072.7m for surface holes and 613 underground holes totalling 55,379m although only 727 holes totalling 106,306.3m are drill holes considered suitable for resource estimation. Underground drilling is generally fanned on north-south orientated sections (mine grid). This has resulted in a range of intersection angles, from perpendicular to dip, to 45 degrees to dip. Given the typically diffuse mineralisation style, the drilling provides an acceptable basis for resource estimation.

1.11 Sampling Method and Analysis

Sample preparation of Didipio drill core has been conducted in a number of phases. Within in these phases there have been several changes in sample preparation procedures. The OceanaGold phase represents 88% of the samples used for estimation. The majority of pre-OceanaGold samples have now been mined out or are not contained with current mine designs.

The author considers that the sample preparation, security and analytical procedures used for the Didipio operation are appropriate and adequate for the style of mineralisation being assessed.

1.12 Metallurgical Testing

Test work programmes on the gold-copper deposit at Didipio have been conducted in a number of stages. Later test work managed by Ausenco Asia Pty Ltd and conducted by AMMTEC Ltd and internally by OceanaGold generally confirmed previous results and allowed establishment of design criteria for building the process plant and development of forecast recovery models for production planning.

Operational plant performance since the commencement of operations provides comparison data assisting in validating the recovery models developed in the prior feasibility phase and plant response to changes in grind size and partial oxidation of older stockpiled feed. The plant is generally capable of meeting the modelled recovery estimates and the impacts of partial oxidation of surface stockpiles has been studied and categorised for improved production forecasting.

A future ores testing programme has been maintained with progressive testing with the availability of fresh core from infill drilling programmes to allow variability testing to be undertaken and increase the knowledge of recovery and ore competency for production planning.

1.13 Mineral Resource Estimate Update

1.13.1 Reporting Date

Mineral Resources for the Didipio stockpiles and underground are reported as at December 31, 2021.

1.13.2 Qualified Persons

The mineral resources quoted here were prepared by Jonathan Moore, Chief Geologist for OceanaGold, with assistance from the Didipio Mine Geology team.

1.13.3 Mineral Resources

The resource estimate was constructed in June 2019. No resource development drilling has been completed since then but drilling will resume in Q1 2022.

The resource estimate is sub-divided for reporting purposes:

- Surface stockpiles resulting from open pit mining during 2012 to 2017;
- An underground resource between 2,460mRL (base of completed open pit) and 1,980mRL;
- The underground resource is reported to an 0.67 g/t AuEq cut-off grade within a volume guided by an optimised stope design, based on metal prices of US$1,700 per ounce for gold and US$3.50 per pound for copper; and
- The resources have been depleted for mining as at December 31, 2021.

The equation for contained gold equivalent for resource is g/t AuEq = g/t Au + 1.39 x % Cu. Although silver grades are reported, silver does not contribute to the gold equivalence calculation and is considered as an incidental by-product.

The stockpile, underground and combined resource estimates are presented in Table 1-4 to Table 1-6. Resources are classified in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves and the Joint Ore Reserves Committee's publication Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves - The JORC Code 2012 Edition ("JORC 2012"). The JORC 2012 Code and CIM Standards are identical except that JORC 2012 Code requires additional disclosure around resources extrapolated beyond actual sampled locations.

Table 1-4:Stockpile Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	22.9	0.33	1.99	0.29	0.25	1.46	0.067
Indicated	-	-	-	-	-	-	-
Measured & Indicated	**22.9**	**0.33**	**1.99**	**0.29**	**0.25**	**1.46**	**0.067**
Inferred	-	-	-	-	-	-	-

Table 1-5: Underground Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	12.6	1.94	2.09	0.49	0.79	0.84	0.062
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.043
Measured & Indicated	**24.9**	**1.45**	**1.78**	**0.42**	**1.16**	**1.42**	**0.10**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

Table 1-6:Combined Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	35.5	0.90	2.03	0.36	1.04	2.3	0.13
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.043
Measured & Indicated	**47.8**	**0.92**	**1.88**	**0.36**	**1.41**	**2.88**	**0.17**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

- Mineral Resources are reported to a gold price of US$1700/oz and US$3.50lb for copper
- Cut-off grade for open pit stockpile material is 0.40g/t AuEq cut-off. Stockpiles include 5.3 Mt of low grade at a 0.27 g/t AuEq cut-off
- Cut-off grade for underground material is 0.67 g/t AuEq
- Mineral Resource are inclusive of Mineral Reserves.
- There is no certainty that Mineral Resources, not included as Mineral Reserves, will convert to Mineral Reserves.

The Qualified Person ("QP") considers that the sample preparation, security and analytical procedures used for the Didipio operation are appropriate and adequate for the style of mineralisation being assessed.

For Measured Resources the drill hole spacing is typically 25m x 25m, Indicated Resources up to 45m x 45m (although typically less) and Inferred Resources greater than 45m x 45m.

The resource estimates and classification thereof, for the Didipio deposit is considered to be appropriate for reporting and mine planning purposes.

The 2019 resource estimate has not been externally audited. However, an internal peer review of the resource estimate was completed in December 2021 which included reproducing and estimating the resource with independently determined estimation parameters. The independently estimated and reported resources were +1% for contained gold and +2% contained copper relative to those presented in Table 1-5.

Long term open pit and underground mine to mill reconciliation performance which is presented in Table 14-9 and Table 14-10 shows acceptable performance and supports the validity of the resource estimates.

Additional drilling is planned to test and convert Inferred resources that are within the current Life of Mine mined volume and to test or convert the Inferred resources that lie below the base of the reserves.

1.14 Mineral Reserve Estimates

1.14.1 Reporting Date

Mineral Reserves for the Didipio stockpiles and underground are reported as at December 31, 2021.

1.14.2 Qualified Persons

The Mineral Reserves quoted here were prepared by Phillip Jones, Group Mining Engineer for OceanaGold, with assistance from the Didipio Technical Services team.

The basis for the estimation of Mineral Reserves is metal prices of US$1,500 per ounce for gold and US$3.00 per pound for copper. While silver is reported and recovered it is not used in the economic assessment Mineral Reserves as silver is considered to be an incidental by-product.

1.14.3 Mineral Reserves

The Mineral Reserve is reported to a gold equivalent ("AuEq") cut-off grade, based on metal prices of $US1,500/ounce for gold and $US3.00/pound for copper.

The equation for gold equivalent for the Mineral Reserve is g/t AuEq = g/t (Au) + (1.37 x Cu%).

The Mineral Reserve estimate is sub-divided for reporting purposes:

- Surface stockpiles resulting from open pit mining between 2012 to 2017, which are lower grade and provide supplemental mill feed; and
- Underground, which incorporates remaining material in the base of the pit as part of the Crown Stabilisation Project ("CSP") from the 2460mRL down to the 2100mRL.

Cut-off grade for underground material is 1.16g/t AuEq. Cut-off grade for surface stockpiles is 0.40g/t AuEq.

The combined Mineral Reserves for Didipio Open Pit and Underground are summarised in Table 1-7.

Table 1-7: Didipio Mineral Reserve Estimate (December 31 2021)

Reserve Area	Reserve Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Underground	Proven	12.7	1.83	1.98	0.46	0.75	0.81	0.06
	Probable	7.33	1.03	1.44	0.34	0.24	0.34	0.03
Open Pit (Stockpiles)	Proven	22.2	0.34	1.99	0.29	0.24	1.42	0.07
	Probable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Proven		**35.6**	**0.87**	**1.99**	**0.35**	**0.99**	**2.23**	**0.12**
Total Probable		**7.33**	**1.03**	**1.44**	**0.34**	**0.24**	**0.34**	**0.03**
Didipio Total (Dec 2021)		**42.2**	**0.91**	**1.89**	**0.35**	**1.23**	**2.57**	**0.15**

- Mineral Reserves are reported to a gold price of US$1500/oz and US$3.00lb for copper
- Cut-off grade for open pit stockpile material is 0.40g/t AuEq. Stockpiles include 5.3 Mt of low grade at a 0.27 g/t AuEq cut-off
- Cut-off grade for underground material is 1.16g/t AuEq
- Gold Equivalence grade is calculated as: Grade (AuEq) = Grade Au (g/t) + (1.37 x Grade Cu (%)
- Dilution (waste) is applied and ranges from 0% to 5% depending on activity type
- Mining recovery (ounces) is applied and ranges from 95% to 100% depending on activity type
- Mineral Reserves are inclusive of Mineral Resources. All figures are rounded to reflect the relative accuracy of the estimates.
- Totals may not sum due to rounding.
- Mineral Reserves have been stated on the basis of a mine design, mine plan, and cash flow model

1.15 Mining Methods

The long hole open stoping method ('LHOS') is employed at Didipio for the extraction of underground stopes. Stope dimensions vary depending on their location within the orebody. On the eastern side of the orebody in the monzonite zone, stopes are up to 60m high whereas in the breccia zone on the western side of the orebody, more conservative stope dimensions are adopted due to poorer ground conditions. These include, where required, significant stope crown support to prevent unravelling. Paste backfill is utilised for backfilling of all stope voids.

The previous technical report for Didipio proposed a bottom-up mining sequence working on top of backfilled material, incorporating a crown pillar at the base of the open pit and a sill pillar at the 2250mRL level. Following optimisation and geotechnical studies, an updated sequence has been developed for Didipio involving top-down stoping beneath a pre-placed, engineered crown pillar. A top-down sequence removes the requirement for the sill pillar and results in several geotechnical and sequencing benefits. These are discussed in detail in Chapter 16.

1.15.1 Recent Technical Studies

Several internal and external technical reports have been completed to support understanding of current and future operations at Didipio. The summary findings of those studies are included in this NI 43-101 Technical Report and discussed in further detail in Chapter 16. The technical studies completed are:

- Geotechnical Engineering:
  - Pit Slope Stability (AMC, OceanaGold);
  - Underground Geotechnical Design (AMC, OceanaGold); and
  - LoM Numerical Modelling (Beck Engineering).
- Hydrology and Hydrogeology:
  - Groundwater Modelling (GHD, OceanaGold);
  - Water Inflow Risk Zone (WIRZ) Modelling (GHD, OceanaGold); and
  - Groundwater Chemistry (OceanaGold).
- Paste Backfill (AMC, OceanaGold);
- Tails Storage Facility Design Review (GHD);
- Crown Pillar Optimisation (AMC, OceanaGold);
- Underground Mine Design and Scheduling (OceanaGold); and
- Economic Evaluation (OceanaGold).

1.15.2 Open Pit Mining

Large scale open pit mining was completed in April 2017 with 27Mt of low and medium grade ore stockpiled. Surface stockpiles included in the Mineral Reserve total 22.2Mt of ore at an average grade of 0.34g/t Au and 0.29% Cu for contained metal of 0.24 Moz of gold and 0.07Mt of copper (0.53Moz AuEq). The underground mine is directly beneath the open pit and underground infrastructure including portals, primary fans and dewatering pumps are located within the existing open pit. Remaining open pit activities are;

- Completion of backfilling at the base of the pit with cemented rock fill (‘CRF’) as part of the Crown Strengthening Project. This is expected to be completed in 2024;
- Maintain in-pit de-watering capacity and open pit diversion drains throughout the life of the underground mine;

- Maintain clean water supply from pit rim catchments to the underground operation; and
- Monitor pit wall stability throughout the life of the underground mine.

1.15.3 Underground Mining

The Didipio underground mine has a Mineral Reserve of 20.0Mt of ore at an average grade of 1.54g/t Au and 0.42% Cu for contained metal of 0.99Moz of gold and 0.08Mt of copper (1.36 Moz AuEq).

Underground development commenced in April 2015 via a portal within the open pit. Stoping commenced in December 2017 with throughput ramping up to 1.6Mtpa rates in 2018. Underground operations were suspended in July 2019 due to expiration of the FTAA. During the FTAA renewal process, the underground mine and associated infrastructure were kept in a state of operational readiness with underground production resuming in November 2021. An initial ramp up period during 2022 will result in a production rate of 1.4Mtpa and is scheduled to increase to a maximum of 1.7Mtpa over the course of the life of mine before underground production tails off in 2032 and 2033.

The current decline face has advanced to the 2180mRL. Approximately 28km of lateral development remains in the mining schedule which includes capital development in the lower part of the mine to enable establishment of active dewatering and pumping infrastructure (CPS 1).

Stopes are mined via the LHOS mining method allowing for a high degree of mechanisation and good mining selectivity, high mining recovery and scheduling flexibility. A primary/secondary stoping sequence is utilised, where primary stopes are separated by a secondary stope. Extraction of the secondary stope can only occur after the two immediately adjacent primary stopes have been mined, backfilled, and have had time to cure. All stopes are backfilled with paste fill.

The operating cost per tonne (ore mined) for the underground operation is US$25.48/t of ore which includes all underground mining related costs but excludes capitalised development and capital purchases. Underground operating costs will remain relatively steady over time at Didipio, primarily attributable to:

- Significant capital development and infrastructure, including the main decline, level accesses, pump stations, ventilation, electrical reticulation and escapeways are already in place allowing a quick ramp up to steady state production rates (1.7Mtpa) following renewal of the FTAA;
- Reverting to a top-down mining sequence and construction of an engineered crown pillar reduces geotechnical risks, increases mining recoveries, and allows for earlier access to higher grade ore;
- An improved understanding of the breccia zone on the western side of the orebody has enabled improved mine design including crown support requirements, scheduling and cost estimates;
- Similarly, in the monzonite zone on the eastern side of the orebody, dual lift stopes have been successfully mined resulting in increased production rates and a reduction in lateral development requirements; and
- Power at the Didipio site was initially provided by diesel generators. A connection to grid power now exists and has reduced the reliance on diesel power and reduced the unit mining cost. Diesel generators are maintained to provide backup power for continued operations in the event of power failures.

1.16 Recovery Methods

Recovery of copper and gold at Didipio is achieved from the use of froth flotation following a conventional SAG Mill-Ball Mill Pebble Crushing grinding circuit and gravity gold recovery circuit. The design and subsequent upgrades to the process plant were established from test work outlined in Section 13 of this report. The plant has successfully run for seven years, and a competent workforce and management team are in place.

Following introduction of first ore in December 2012 the plant throughput and recovery ramped up in line with the forecast plan. Concentrate shipments to the port commenced in late January 2013 and the first consignment of concentrate was dispatched from Poro Point on April 7, 2013.

The mill has achieved targeted utilisation rates greater than 95% when required and processed the permitted 3.5Mt of ore annually. Copper and gold recovery rates have been in line with forecast rates used in the production planning process.

Progressive improvement projects continue to be implemented with additional gravity gold equipment being installed to target coarser gold in the underground ore underway and the preliminary design for a Controlled Potential Sulphidisation circuit upstream of flotation to counteract the effect of oxidation in surface stockpiles well progressed.

Due to the relative grind size insensitivity to recovery between 125-150um there is the potential to increase mill capacity to over 4Mtpa. This was demonstrated in Q1/Q2 2019 and once the amended ECC permit is granted the ability to increase throughput can be made without significant capital.

1.17 Project Infrastructure

The Didipio operation has been in full production since April 2013 and all mine site infrastructure has been completed to support the underground operations. Infrastructure includes a tailings storage facility, workshops, camp, water treatment plant, paste fill plant and ore processing facilities.

Power supply for the project is now connected to the national grid via a 69kV dedicated line to Bayombong allowing the diesel generators on site to be used as a backup only reducing the cost of electricity appreciably.

The tailings storage facility has been designed to accommodate the life of mine tailings requirement net of paste backfill. The current construction schedule supports the filling schedule with the majority of the dam core constructed during open pit mining.

1.18 Market Studies and Contracts

The major contracts in place cover surface civil works (provided by Delta Earthmoving Inc. (“Delta”)), maintenance of the underground mining equipment (provided by Sandvik Tamrock Philippines Inc (“Sandvik”)), provision of power (National Grid Corporation of the Philippines (“NGCP“)), transportation and refining of bullion (provided by ABC Refinery), transportation and sale of gold-copper concentrate (Trafigura Pte Ltd (“Trafigura”)) and the purchase and delivery of fuel (Petron Corporation (“Petron”)), explosives (Orica Philippines Inc. (“Orica”)), analytical facilities (SGS Philippines Inc (“SGS”)) and management of camp facilities ((Didipio Community Development Corporation (“Dicorp”)).There is no project financing in place for the Didipio operation, which is funded entirely from operating revenue.

No hedge contracts have been entered into in relation to the Didipio operation. Refer to Section 19.4 for a description of the gold-copper concentrate off-take arrangements.

The OceanaGold Corporation Executive Management Committee (EXCO) annually sets the gold, silver and copper prices to be used in Annual Resource and Reserve statements and technical studies. The prices used in this study were set by EXCO in September of 2021 and are listed in Table 1-1.

1.19 Environmental and Permitting

The Didipio operation holds the permits, certificates, licences, and agreements required to conduct its current operations. Refer to Section 4.9.1 and 20.1.2 for a list and discussion of the most significant of these.

OceanaGold, Philippines Inc. (OGPI) is required to ensure that mining activities are managed in a technically, financially, socially, culturally and environmentally responsible manner. The Philippines Department for the Environment and Natural Resources ("DENR") requires an Environmental Compliance Certificate (ECC) for any mining activity based on an Environmental Impact Study ("EIS") prepared by the company in accordance with procedures under the ECC system. An ECC obliges the company to comply with a comprehensive set of conditions, including submission and implementation of an Environmental Protection and Enhancement Program (EPEP) for the life of the mine.

On July 4, 2016, OGPI requested for the amendment of the ECC to increase its throughput from 3.5Mtpa to 4.3Mtpa. The application, however, was impacted by the moratorium under DENR Memorandum Order No. 2016-01 which also included the processing of any ECC related applications. Following issuance of the DENR's clarificatory memorandum dated December 22, 2017, eliminating the processing of ECC applications from the coverage of the moratorium, the ECC amendment application was resubmitted on February 19, 2018 and the first review was completed on January 21, 2019 followed by the conduct of the public hearing on March 7, 2019. Subsequently, the Environmental Impact Assessment Review Committee ("EIARC") completed the review of the ECC amendment application and endorsed the approval thereof. After the confirmation of the renewal of the FTAA, the EIARC conducted final deliberation of the ECC amendment in September 2021 and is now awaiting review and/or approval by the Environmental Management Bureau ("EMB") under the authority of the DENR Secretary.

The ECC system and the Implementing Rules and Regulations of the Mining Act regulate a funding structure to ensure company compliance with EPEP commitments and ensure immediate funding in the form of a Contingent Liability and Rehabilitation Fund ("CLRF") is available for rehabilitation in the event of environmental damage during mining operations. CLRF funds are held in a government depository bank and administered by the CLRF Steering Committee ('CLRFSC").

OGPI's Environmental Performance Report and Management Plan ("EPRMP") submitted in November 2011 includes survey work completed in November 2011 in conjunction with the Nueva Vizcaya State University, which establishes baseline conditions for ambient air and water quality, together with other studies that establish the bases for future environmental assessment. An updated EPRMP was submitted to amend the current ECC to include increase in throughput rate from 3.5Mtpa to 4.3Mtpa and amendment approval process is still on-going.

The studies note that the natural environment in the vicinity of the site had been highly modified by human land use which is dominated by agriculture and small-scale mining activity. In terms of water quality (surface water and groundwater) the surface waters within and adjacent to the project area were compromised by forest clearance and small-scale mining. Baseline sediment monitoring similarly indicated effects on rivers of surrounding activities.

Change in land use for the open pit, underground mine, excavations, adits, and related engineering structures and installations where permanent mine facilities are established are expected to result in consequential impacts that are within acceptable regulatory limits.

1.20 Capital and Operating Costs

Total operating costs including surface operations, underground mining, processing, and general and administration are estimated at US$1,155 million. This translates to a total unit cost of US$27.37/t milled as summarised in Table 1-8.

Table 1-8: Operating Cost Summary

Description	Total (US$000s)	$/t Mined
Surface Operations (CSP and Stockpile Reclaim)	64,273	3.21
Underground Mining	510,705	25.48
Total Mining	574,978	27.56
Description	**Total (US$000s)**	**$/t Milled**
Processing	245,258	5.81
General and Administration	335,013	7.94
Total Operation ($/t Milled)	**1,155,249**	**27.37**

Capital costs are estimated at US$137 million as summarised in Table 1-9. Significant surface and underground infrastructure is already in place at the site. Approximately 60% of estimated capital expenditure is required for underground development and infrastructure required to access and mine the lower levels of the orebody

Table 1-9: Capital Cost Summary

Description	Sustaining Capital (US$000's)	Non-Sustaining Capital (US$000's)	Total (US$000's)
Operations Information Technology	3,306		3,306
General Operations Expenditure	40,271		40,271
Brownfields Exploration	1,646		1,646
Operations Based Mining Projects	16,537		16,537
UG Mine Development	16,314		16,314
Rehabilitation	2,150	3,119	5,269
General Corporate Expenditure		26,423	26,423
Greenfields Exploration		5,683	5,683
Stand-alone CSR Projects		13,280	13,280
UG Mine Development		8,111	8,111
Total Capex	**80,225**	**56,615**	**136,840**

1.21 Economic Analysis

The project is expected to produce 1.13 million ounces of payable gold and 133kt of copper over a 12-year mine life with mill feed via surface stockpiles and the underground mine.

Under the terms of the FTAA project Net Revenue is shared between the Government of the Philippines and OceanaGold on a 60/40 basis; that is 60% of Net Revenue is the Government's portion and 40% applies to OceanaGold. In the financial summary presented below cash flows and NPV as presented are OGPI's share after inclusion of all estimated local and production based taxes, royalties and payments to local and national government and income tax where defined.

Two pricing scenarios have been analysed for the economic analysis of the project – a consensus price case and a reserves price case.

A consensus case assumes higher commodity prices during the initial years of the Life of Mine ("LoM") and presents project economics based off current prices. Consensus case price assumptions are detailed in Table 1-10.

Table 1-10: Consensus price assumptions

Description	Value	2022	2023	2024	2025	2026 - 2033
Gold Price	US$/oz	1,800	1,700	1,650	1,600	1,600
Copper Price	US$/lb	4.20	4.00	3.75	3.50	3.50
Silver Price	US$/oz	24	22	21	20	20

The reserves case assumes a flat US$1500/oz gold price, US$3.00/lb copper price and US$18.00/oz silver price, and shows the value of the project based on current reserve price assumptions and cut-off grades

Project metrics using consensus price assumptions are:

- Pre-Tax Net Cashflow US$1,020 million
- Pre-Tax NPV5% US$832 million
- After-Tax Net Cashflow US$848 million
- After-Tax NPV5% US$709 million
- All-in Sustaining Cost US$726/oz gold equivalent (includes gold and copper credits)

Project metrics using a constant US$1,500/oz gold price and US$3.00/lb copper price (reserves case) are:

- Pre-Tax Net Cashflow US$799 million
- Pre-Tax NPV5% US$639 million
- After-Tax Net Cashflow US$703 million
- After-Tax NPV5% US$579 million
- All-in Sustaining Cost US$807/oz gold equivalent (includes gold and copper credits)

1.22 Adjacent Properties

There are no adjacent properties that have an impact on the Didipio operation. The Didipio FTAA contains all Mineral Resources and Mineral Reserves on which this Technical Report is based.

1.23 Other Relevant Data and Information

1.23.1 Risk Management

The current study represents an understanding by operations personnel and the project team of risks associated with the Didipio operation, while recognising that the level of risk may change over time and that new risks may emerge. A risk register is maintained as a 'live' document which forms part of the risk management plan and is subject to regular review.

1.23.2 Health and Safety Performance

The health and safety performance of the Didipio operation is well above the industry average and as a result it has received several awards in recognition of OGPI's focus on employee health and safety.

Health and safety remain a key focus of OceanaGold. The Health & Safety team promotes continuous improvement through targeted safety initiatives. OGPI's aim remains 'Zero Harm' with a focus on all employees being safe at work and at home.

1.24 Recommendations

1.24.1 Resource Definition

- Underground infill drilling will continue to target Indicated Resources for conversion to Measured Resources;
- OceanaGold will rebuild site technical capacity for geological mapping, logging, interpretation and estimation;
- Continue to develop geological understanding and classification of the high-grade breccia complex and Balut complex at depth; and
- Develop model input attributes to assist with 3D geometallurgical modelling.

1.24.2 Underground Mining

The key recommendations relating to the underground project include:

- Continual improvement around stoping practices in the breccia and monzonite zones focusing on quality control and faster stope turnover;
- Competitive tendering process for major contracts including diesel, ground support and cement supply;
- Improved utilisation of mobile equipment via remote/autonomous trucking and loading over shift change;
- Conduct further studies to investigate underground bottlenecks and expansion/throughput opportunities. Additional underground material available earlier in the LoM would likely be processed before lower grade stockpiles, increasing net present value;
- Current LoM mill feed is a combination of open pit stockpiles and underground ore. Further studies should be conducted to determine requirements for sustainable underground only operations once surface stockpiles are depleted. Parameters including underground throughput, operating costs,

labour requirements, infrastructure and capital requirements, and cut-off grade strategy should be further investigated;

- Approximately 4Mt of Inferred Resources are near current planned designs (to the 2100mRL). Minimal capital expenditure is required to complete infill drilling as most capital infrastructure is already in place to mine stopes in the current design. Conversion of Inferred Resources above the 2100mRL to Measured and/or indicated will introduce higher grade material to the underground mine plan, displacing lower grade stockpile material from the processing plan, and increasing net present value; and
- Current mine designs extend to the 2100mRL however potential exists for extension of the decline should successful conversion drilling take place.

1.24.3 Ore Processing

Opportunities exist to utilise the inherent capacity of the plant to mill over 4Mtpa with the existing equipment. This could be in the form of a faster rate of open pit ore stockpile treatment or to accommodate a higher rate of mining from the underground reserves. A review of the impacts of increasing milling rate of stockpiles and underground reserves on cashflow and LoM costs should be undertaken.

Stockpiled ore from the open pit comprises approximately 60% of mill feed and testwork has shown the effect of time on surface oxidation and decreased copper recovery. With the demonstration of Controlled Potential Sulphidisation to offset the flotation recovery losss over time completing the FEED study and economic assessment should be completed to confirm the viability of this improvement project.

2 INTRODUCTION

The Didipio operation is a gold-copper mine in the northern Luzon region of the Republic of the Philippines with Mineral Reserves currently estimated to be 1.23 million ounces of gold, 0.15 million tonnes copper and 2.57 million ounces of silver. The operating mine life remaining is 12 years with mining and processing schedule for completion in 2033. The average ore grade is 0.91g/t gold, 0.35% copper and 1.89g/t silver.

Construction of the Didipio operation commenced in June 2011, open pit mining commenced in July 2012. First commercial production was declared in April 2013. The open pit was successfully completed to design in May 2017 leaving 27Mt of medium and low-grade stockpiles for processing.

Underground mining commenced in April 2015 with the cutting of the underground portal. Stoping commenced in December 2017 with production rates of 1.6Mtpa achieved in 2018.

Annual mill throughput ramped up from 2.5Mtpa to 3.5Mtpa in 2015 and this throughput is assumed as the maximum annual processing rate for this report. Average annual production is approximately 94koz of gold and 11,000 tonnes of copper per annum over the LoM. Production peaks in 2027 at 127koz before grades and therefore produced ounces begins to reduce from 2028 onwards.

Mining is from underground with mill feed being supplemented by surface stockpiles. Underground stopes are mined via the LHOS method with paste backfill. Stopes commence immediately below the floor of the open pit at 2460mRL down to the 2100mRL.

In July 2019 operations at the project were suspended for a period of approximately two years following the expiry of the FTAA. The FTAA renewal was approved in July 2021 and the operation expects to be in full production during Q2 2022.

The current operation employs approximately 1,250 OceanaGold employees and contractors. Over half of those come from the provinces of Nueva Vizcaya and Quirino. Filipinos comprise 99% of the workforce. In accordance with its statutory obligations and corporate social responsibility (‘CSR”) guidelines, the Company maintains an Environmental Protection and Enhancement Program (“EPEP”) consisting of a Social Development and Management Program (“SDMP”), a Community Development Fund (“CDF”), a Provincial Development Fund (“PDF”) and a Final Mine Rehabilitation and/or Decommissioning Fund (“FMRDF”).

2.1 Terms of Reference and Issuer for Whom the Technical Report is Prepared

OceanaGold has prepared this technical report for the Didipio operation according to NI 43-101 and Form 43-101F1, to provide an update on the Didipio operation. The previous NI 43-101 report was released in October 2014. The Didipio Gold/Copper operation is owned by OGPI, a wholly owned subsidiary of OceanaGold Corporation (“OceanaGold”). OceanaGold is listed on the Toronto and Australian stock exchanges under the code “OGC” and is the issuer of this Technical Report.

The report is for use by the general investing community. It provides an update on the status of the Didipio operation and will be lodged with SEDAR in accordance with TSX requirements.

References in this report to “OceanaGold” include OceanaGold Limited, OceanaGold Corporation, OceanaGold (Philippines) Inc. and its subsidiaries and associates, as the context requires.

This report has been prepared to satisfy OceanaGold’s obligations as a reporting issuer in Canada.

2.2 Principal Sources of Information

This Technical Report was prepared by OceanaGold. Information for the Report was based on published material as well as the data, professional opinions and unpublished material obtained from work completed by OceanaGold, and materials provided by, and discussions with, third-party contractors/consultants.

Reports and documents listed in Section 27 were also used to support preparation of the report. Additional information was sought from OceanaGold personnel where required to support preparation of this report.

2.3 Qualified Persons and Inspection of the Property

The Qualified Persons (QPs) for the Report are OceanaGold employees engaged for the preparation of the Report, as listed in Table 2-1.

Table 2-1: Didipio Operation Qualified Persons

Qualified Person (QP's)	Employer	Position	Technical Report Item(s) Contributed to or Reviewed
Phillip Jones (not independent) MAusIMM (CP) B Mining Eng (Hons)	OceanaGold	Group Mining Engineer	Sections: 1.1 - 1.6, 1.14 - 1.15, 1.20 - 1.24, 2 - 5, 15 - 16, 21 - 24, 25.4 -25.5, 25.9, 26.2 - 26.3
Jonathan Moore (not independent) MAusIMM (CP Geology) B.Sc (Hons) Geology, GradDip Physics	OceanaGold	Chief Geologist	Sections 1.7 - 1.11, 1.13, 1.19, 1.22, 6-12, 14, 20, 23, 25.1 - 25.3, 25.8, 26.1.1 and 26.5
David Carr (not independent) MAusIMM (CP)	OceanaGold	Chief Metallurgist	Sections 1.12, 1.16 - 18, 13, 17, 18, 19, 25.6 - 25.7, 26.4 - 26.6

In July 2019 operations were suspended following the expiry of the Didipio Financial or Technical Assistance Agreement (“FTAA”). This and the subsequent global COVID19 pandemic have made travel to the property extremely difficult. As a result, reliance is placed on the use of electronic meeting systems and documented operations management practices to confirm some of the information contained in this document.

Mr Jones last visited the property in January 2020 and inspected underground production levels, infrastructure, mining equipment, and the processing plant.

Mr. Moore has visited the property on a number of occasions and last visited the property in December 2018. During the site visit, Mr. Moore inspected drill core, the underground mine as well as reviewed aspects of mine geology, resource estimation and reconciliation practices.

Mr Carr has visited the property on a number of occasions since 2012 and last visited the property in September 2018. During the site visit, Mr. Carr inspected the processing plant, maintenance facilities, TSF areas and underground production levels.

3 RELIANCE ON OTHER EXPERTS

3.1 External Consultants

The Authors used their experience to determine if the information from previous reports was suitable for inclusion in this technical report and adjusted information that required amending. This report includes technical information, which required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the Authors do not consider them to be material. The Authors have relied upon OceanaGold for information regarding the surface land ownership/agreements as well as the mineral titles and their validity.

The Authors believe the information used to prepare the report and formulate its conclusions and recommendations is valid and appropriate considering the operational nature of the Project and the purpose for which the report is prepared. The Authors affirm that the work programme and recommendations presented in the Report are in accordance with NI 43-101 and CIM technical standards.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Didipio operation is located in the north of Luzon Island approximately 270km NNE of Manila, in the Republic of the Philippines as highlighted in Figure 4-1.

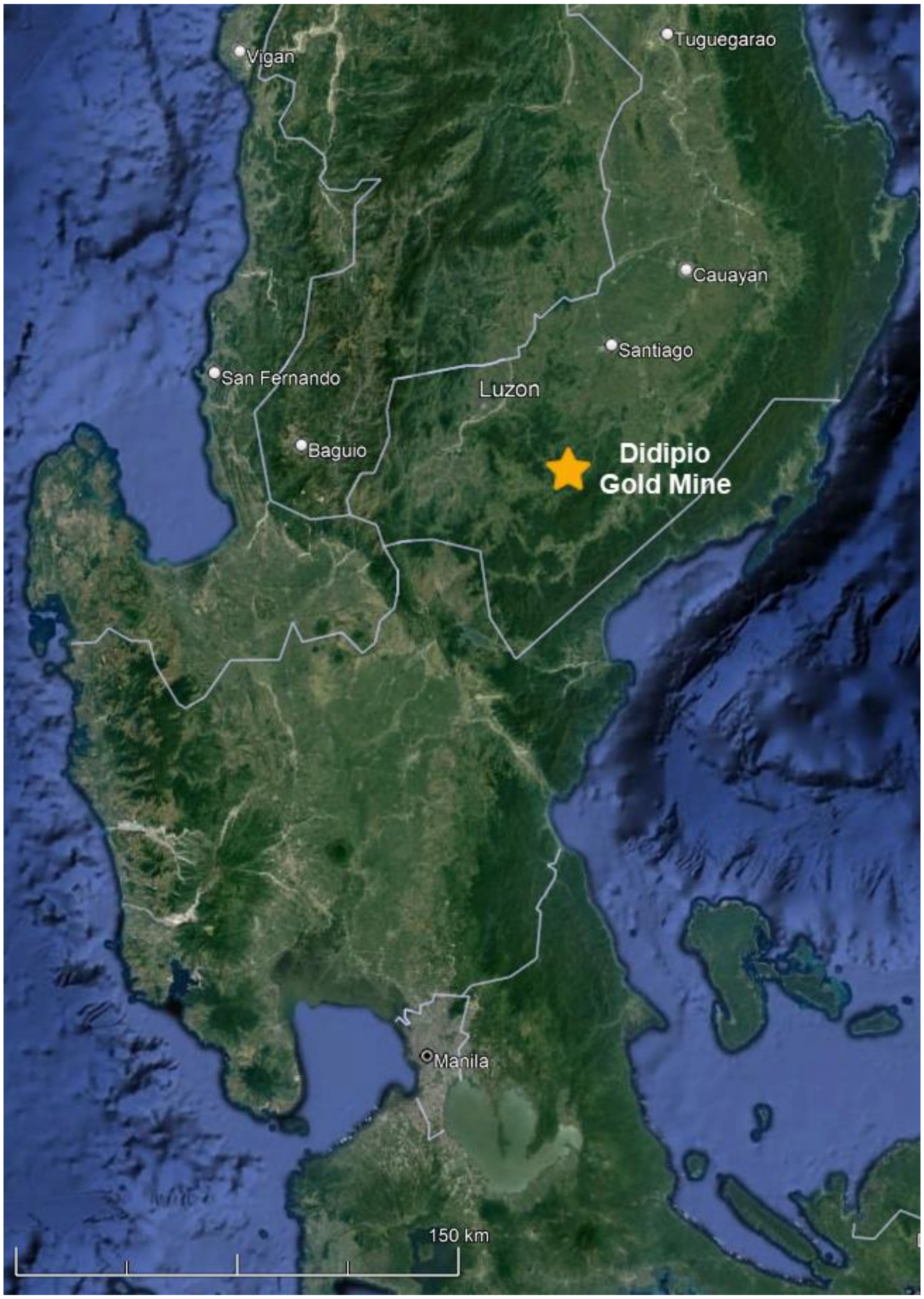


Figure 4-1: Location Map Didipio Gold Mine

The site is at 121.45º E 16.33º N (Longitude/Latitude – World Geodetic System 1984). The FTAA straddles a provincial boundary, with part of the property within the Province of Nueva Vizcaya and part within the Province of Quirino.The location of the FTAA area and the Didipio operation are shown in Figure 4-2 subject to the outcome of a pending litigation between the two provinces in the area.

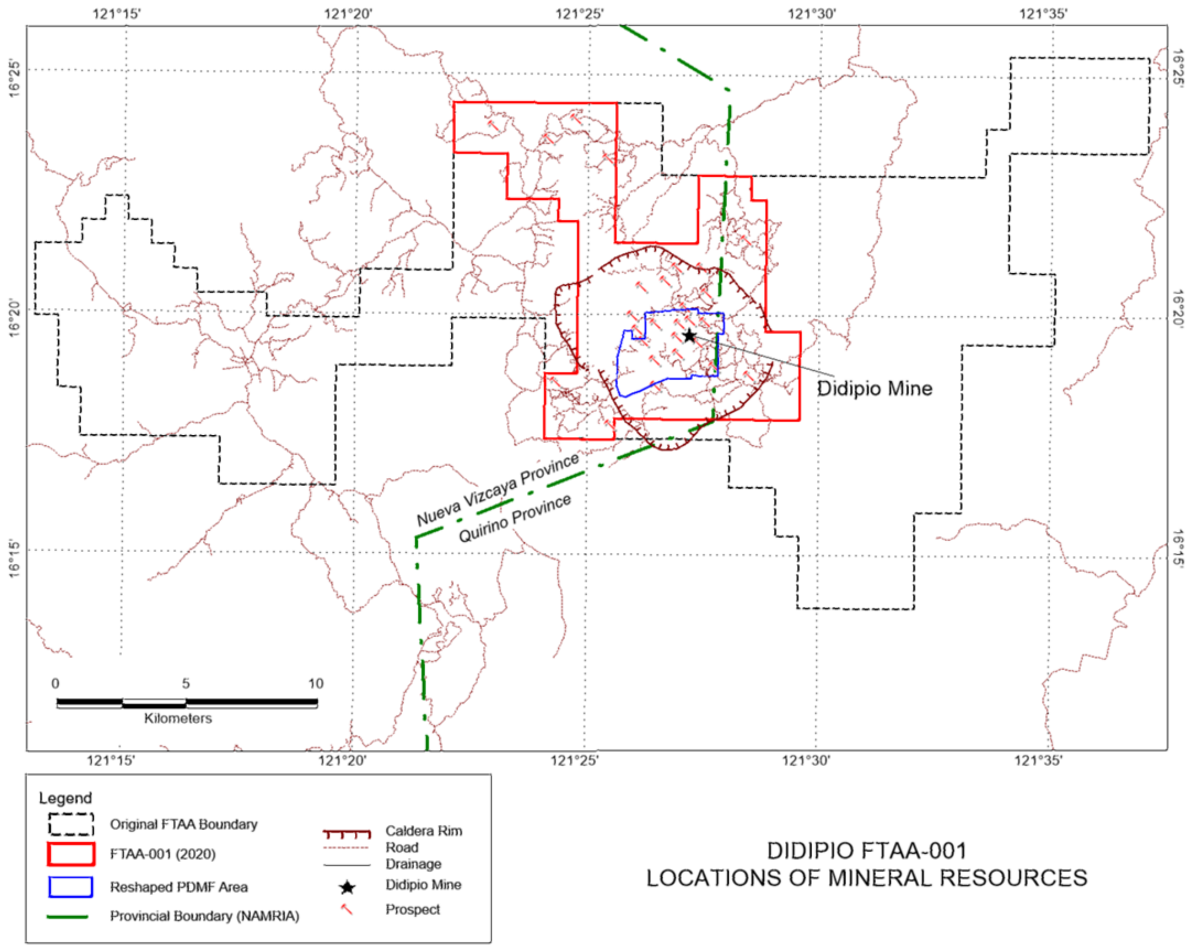


Figure 4-2: FTAA Boundaries and Provincial Boundaries

4.2 Area of Property

The FTAA covers 8,314.42 hectares as shown in Figure 4-2. The original FTAA covered 37,000 hectares with parts relinquished over the years under the terms of the agreement. The approved Partial Declaration of Mining Project Feasibility ("PDMF") for the Didipio operation covers 975 hectares within the FTAA.

4.3 Mineral Tenure

4.3.1 FTAA

The Didipio operation is covered by the FTAA which grants OGPI the right to undertake large-scale exploration, development and mining of gold, silver, copper and other minerals within a fixed fiscal regime.

The FTAA application was first lodged in February 1992 and granted to OGPI's related company, OGPEC, on June 20, 1994, under Executive Order No. 279 and the Mineral Resources Development Decree of 1974. The FTAA therefore pre-dates the Mining Act, which is the empowering legislation for subsequent FTAAs. On December 23, 1996, OGPEC entered an Assignment, Accession and Assumption Agreement with OGPI affecting the transfer of all of OGPEC's rights and obligations under the FTAA to OGPI. That transfer was approved on December 9, 2004 by an Order of the Philippines Department for the Environment and Natural Resources ("DENR"). OGPI is the current holder of the Didipio FTAA.

Pursuant to the FTAA, OGPI notified the DENR that commercial production had commenced at the Didipio operation on April 1, 2013.

The FTAA makes provision for exploration over tenements outside the FTAA area for a five-year term from grant of the FTAA. On February 20, 2002, OGPI requested a five-year extension of the FTAA exploration period, and this was approved by the DENR on August 15, 2005. On June 28, 2010, OGPI applied for a further five-year extension of the exploration period of the FTAA, which was approved on March 10, 2016, for a further five years which expired in March 2021. OGPI is seeking the continuation of the implementation of exploration activities sion on the basis that OGPI was not able conduct exploration for two years due to the suspension of operations.

The initial 25-year term of the FTAA ended on June 20, 2019. On the same day, the Mines and Geosciences Bureau ("MGB") issued a letter stating that OGPI was permitted to continue its mining operations pending the approval of the renewal of the FTAA. On June 25, 2019, the Nueva Vizcaya Provincial Government considered the FTAA to have expired and blockaded access to the Didipio Operation. This resulted in the temporary suspension of underground mining in July 2019 and processing in October 2019.

The renewal of the FTAA was confirmed by the Philippine Government on July 14, 2021, with the execution of an Addendum and Renewal Agreement (of the FTAA) providing for the amendments summarised below:

- Provision for an additional Social Development Fund ("SDF") equivalent to 1.5% of the gross mining revenue of the preceding calendar year. 1% of the fund will be allocated as Community Development Fund ("CDF") and 0.5% is for the Provincial Development Fund ("PDF") for the provinces of Quirino and Nueva Vizcaya. The expenses for the SDF shall be included as an allowable deduction;
- Reclassification of the Net Smelter Return ("NSR") to be an allowable deduction and shared 60%/40% rather than wholly included in the government share;
- Listing of at least 10% of the common shares in OGPI on the Philippine Stock Exchange within three years from confirmation of FTAA renewal, which can be extended for another two years as may be required;
- OGPI to offer for purchase by the Central Bank not less than 25% of its annual gold doré production at a fair market price and on mutually agreed terms; and
- OGPI shall transfer its principal office to a local government unit in either of the host provinces of Nueva Vizcaya or Quirino within two years.

Following the confirmation of the renewal of the FTAA, OGPI commenced a restart of operations. In November 2021 the mill restarted with stockpile feed followed by underground production later that month.

4.3.2 Environmental Compliance Certificate and Partial Declaration of Mining Feasibility

Although the Didipio FTAA was granted prior to the Mining Act, in common with subsequent FTAAs granted under the Mining Act and its Implementing Rules and Regulations, an Environmental Compliance Certificate ("ECC") and a Partial Declaration of Mining Feasibility ("PDMF") are both required as a condition of the implementation of the FTAA. Both an ECC and a PDMF have been obtained and remain in place for the Didipio operation.

The PDMF was approved under a DENR Order dated October 11, 2005, and OGPI was deemed to have satisfied all conditions required for its approval. The declaration, covering 9.75 km^2, was defined as only ‘partial’ as it applied specifically to the development zone around the Didipio deposit. OGPI retains the right to seek further partial declarations of mining feasibility in the future over other deposits in the broader Didipio FTAA area. In effect, this provides the permit to operate and develop Didipio. The PDMF approval allows for, among other matters, open pit and underground mining, a tailings storage factility and impoundment, waste rock stacks, a process plant, an explosives magazine and watersheds. The Definitive Feasibility Study (“DFS”) completed in 1998 specified the initial project mining methods, production rate, processing methods and other aspects of the mining operation.

To accommodate certain areas necessary for the mining operations, the PDMF area was redefined in 2015, as shown in Figure 4-3, and the pertinent mineral land survey map was approved on November 4, 2016.

On August 11, 1999, the Company obtained an ECC (No. 9801-001-301) for the project. The ECC specifies the environmental management and protection requirements including the submission of an Environmental Protection and Enhancement Program (“EPEP”), an annual EPEP, a Final Mine Rehabilitation and/or Decommissioning Plan (“FMR/DP”), and a Social Development and Management Program (“SDMP”). The ECC was amended in 2000 and 2004 to accommodate project modifications.

Following further optimisation studies in the last quarter of 2010 and early part of 2011, OGPI identified certain changes that could be made to optimise the value of Didipio. The changes included revised processing capacity - from 2.5Mtpa to 3.5Mtpa, and the change in the mining methodology - from a limited open pit operation followed by underground mining operation utilising sub-level caving and benching, to an open pit for most of the mine life followed by an underground stoping operation with paste backfill. Considering these modifications, the ECC was further revised and the amended ECC named ECC-CO-1112-0022 was issued on December 10, 2012. An additional amendment was approved by the DENR on July 15, 2015, allowing for the construction of approximately 3.35km of Overhead Power Line (“OHPL”) and the High Voltage (“HV”) Sub-station within the FTAA Area (approximately 1500m^2). A separate ECC was also approved for the establishment and operation of onsite Sanitary Landfill under ECC No. ECC-OL-RO2-2016-0083 issued on June 28, 2016, in addition to the main project ECC.

On July 4, 2016, the Company applied for the amendment of the ECC-CO-1112-0022 to cover further potential increase in mill throughput from 3.5Mtpa to 4.3Mtpa. The application, however, was impacted by the moratorium under DENR Memorandum Order No. 2016-01 which also includes the processing of any ECC-related applications. Following issuance of the DENR’s clarificatory memorandum dated December 22, 2017, eliminating the processing of ECC applications from the coverage of the moratorium, the ECC amendment application was resubmitted on February 19, 2018, and the first review was completed on January 21, 2019, followed by the conduct of the public hearing on March 7, 2019. Subsequently, the Environmental Impact Assessment Review Committee (“EIARC”) completed the review of the ECC amendment application and endorsed the approval thereof. After the confirmation of the renewal of the FTAA, the EIARC conducted final deliberation of the ECC amendment, and the ECC amendment is now awaiting review and/or approval by the Environmental and Management Bureau (“EMB”).

4.4 Property Boundaries

The boundary of the original FTAA, the updated FTAA and PDMF are shown in Figure 4-3.

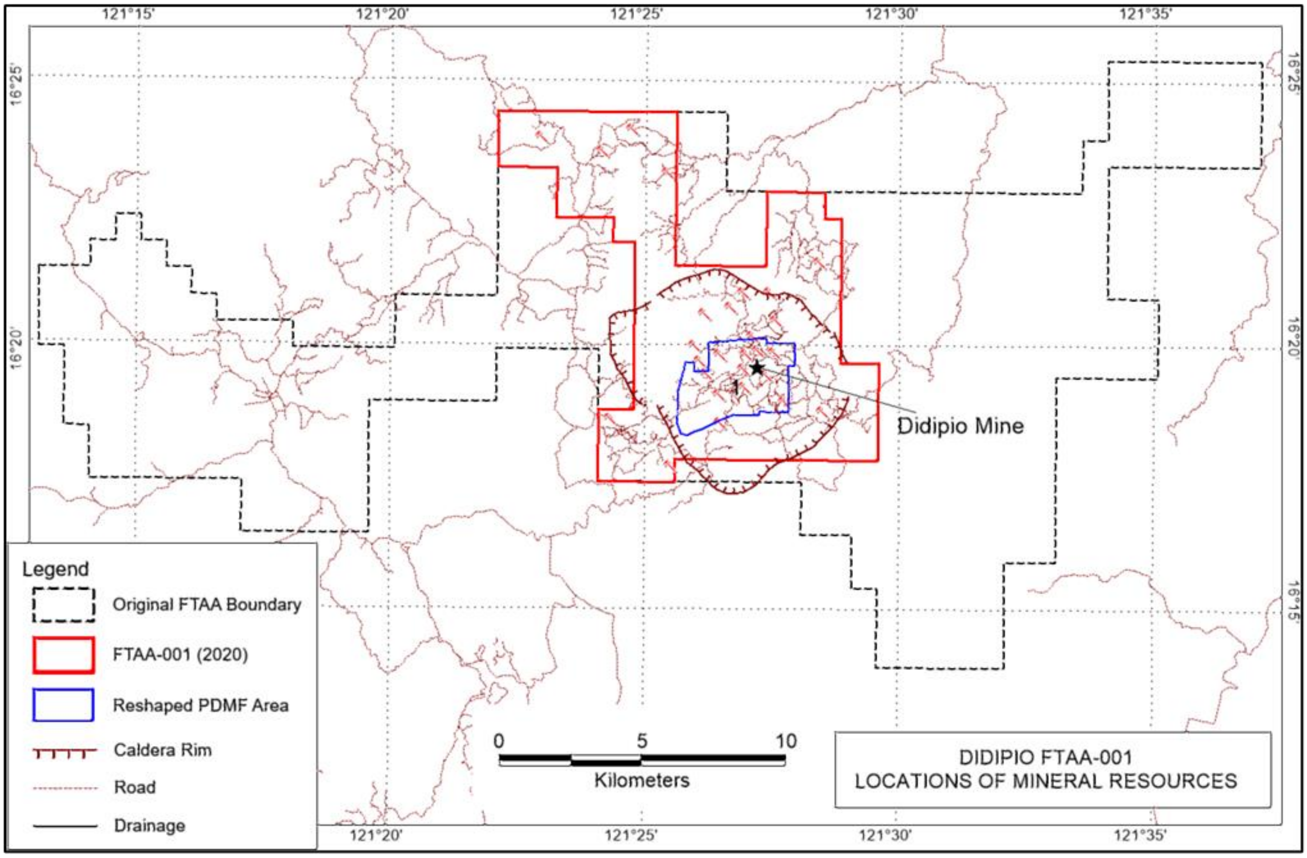


Figure 4-3: FTAA Boundaries

4.5 Surface Rights

The Company has acquired, through voluntary agreements, the surface rights to all the land required for the Project for the foreseeable future. The main route providing access to the Didipio operation is from the north, culminating in a provincial road linking the site to Barangay of Debibi in the Municipality of Cabarroguis. Refer to Section 5.2 for details of road access to the site.

4.6 Didipio Operation Ownership

The ownership structure for the Didipio assets is illustrated in Figure 4-4.

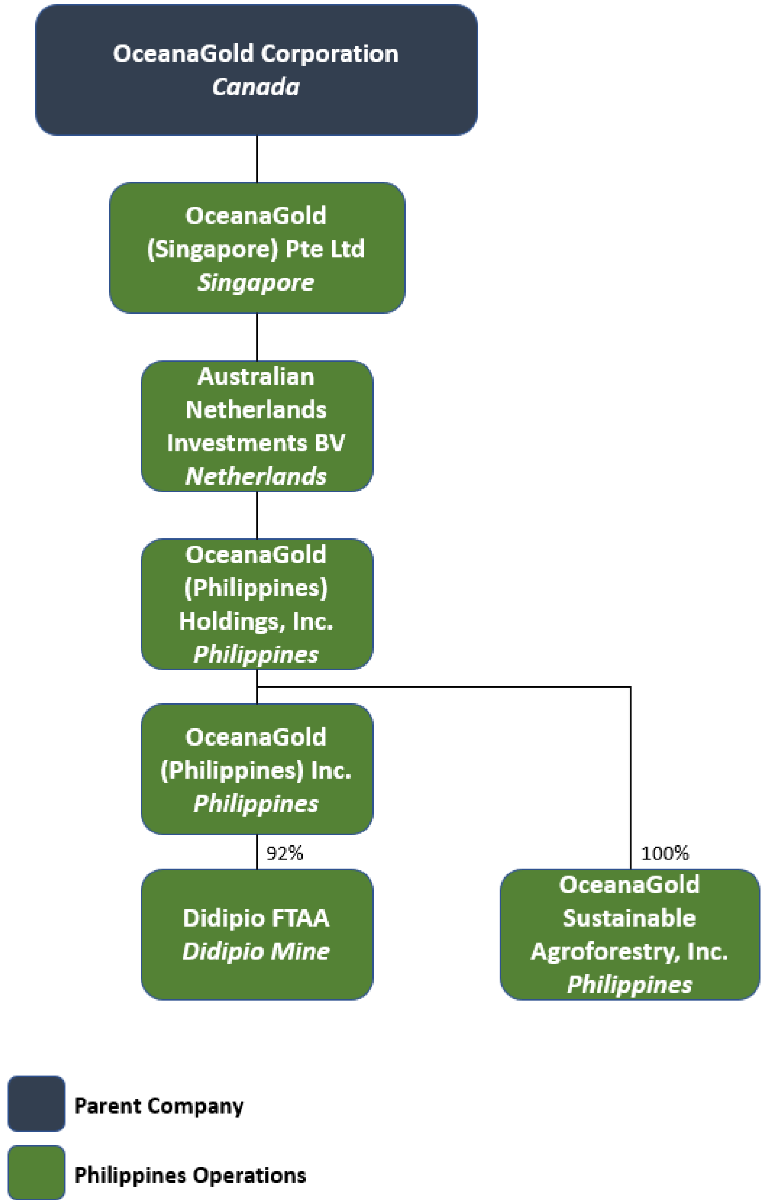


Figure 4-4: Didipio Ownership Structure

OGPI holds the FTAA and PDMF, has the surface rights associated with the mining area and is responsible for the mining, exploration, environmental, social and community relations on the project site.

4.7 Government Royalties and Imposts

4.7.1 Government Share Under the FTAA

Under the terms of the FTAA project Net Revenue is shared between the Government of the Philippines and OceanaGold on a 60/40 basis; that is 60% of Net Revenue is the Government's portion and 40% applies to OceanaGold. In the financial summary presented in Section 22 of this report, cash flows and NPV as presented are OGPI's share after inclusion of all estimated local and production based taxes, royalties and payments to local and national government and income tax where defined.

OceanaGold had a period of up to five years after the Date of Commencement of Commercial Production (being April 1, 2013) as a recovery period related to its initial investment. After this period the right of the Government to share in the Net Revenue accrues. Royalties, production taxes, other fees and corporate income tax are included as part of the 60% Government share.

In the event OceanaGold had not recovered its investment in that 5-year period, the FTAA allowed a further three years in which the remaining unrecovered amount is ammortised as a deduction against net revenue

The initial investment included not only the construction and development of the project but also payments to claim owners, landowners, exploration programmes, and maintenance of the exploration tenement, feasibility studies, interest, administration of of offices and the net commissioning costs up to the commencement of commercial production..

Under the Addendum and Renewal Agreement of the FTAA, with effect from 14 July 2021, the 2% NSR is treated as an allowable deduction from Net Revenue and no longer part of the additional Government Share. Unrecovered pre-operating expenses as defined in the FTAA at that time will be amortized equally for thirteen (13) years starting on the calendar year of the addendum date. A detailed illustration of the Government Share is provided in Section 22 of this report.

4.7.2 Contribution to Development of Mining Communities, Sciences and Mining Technology

Under the Mining Act, OGPI is required to make a minimum contribution of 1.5% of its operating costs annually during mining operations for the development of the host and neighbouring communities under the SDMP, advancement of mining technology and geosciences, and development of information, education and communication programmes. Of the 1.5%, 75% must be apportioned to the implementation of the SDMP. OGPI's funding of community development programmes to date exceeds the minimum requirements of the Mining Act. Refer to Section 20.1 for a detailed discussion of OGPI's SDMP contributions and commitments.

In the Addendum and Renewal Agreement of the FTAA, OGPI is mandated to provide additional Social Development Fund equivalent to 1.5% of the gross mining revenue of the preceding calendar year in addition to the SDMP for the development of other communities outside the host and neighbouring communities of the SDMP. The Social Development Fund shall be distributed as follows:

- Community Development Fund ('CDF") equivalent to 1% of the gross mining revenues; and
- Provincial Development Fund ("PDF") equivalent to 0.5% of the gross mining revenues for the provinces of Nueva Vizcaya and Quirino. The expenditures for the Social Development Funds shall be treated as allowable deduction.

4.8 Third Party Interests

OGPI has an agreement (known as the "Addendum Agreement") with a Philippine claim owner syndicate (the "syndicate") which covers that portion of the FTAA previously included in a block of mineral claims held by the syndicate, including the PDMF area in its entirety. Once certain conditions have been met, the Addendum Agreement provides that the syndicate will be entitled to an 8% interest in the operating vehicle to be established to undertake the management, development, mining and processing of ores, and the marketing of products from the area of interest.

The 8% interest will entitle the syndicate to a proportionate share of any dividends declared from the net profits of the operating vehicle, but not until all costs of exploration and development have been recovered. The syndicate is also entitled to a 2% NSR royalty on production from the area of interest. There is currently a legal proceeding involving the claim owner syndicate and a third party on beneficial ownership of the mining claims.

4.9 Permits

4.9.1 Permits Required

The Didipio operation holds all the necessary permits, certificates, licences and agreements required to conduct its current operations Materially significant permits and approvals include:

- FTAA renewed July 14, 2021, for a period of 25 years;
- Partial Declaration of Mining Feasibility;
- Environmental Compliance Certificate: ECC-CO-1112-0022;
- Utilisation Work Program Commitment;
- SDMP Commitment;
- Annual CDF Commitment;
- Annual PDF Commitment;
- Permit to Operate the Crushing Plant/ROM PAD: Permit No. 014-POA-I-0250K-012;
- Permit to Operate Power Station: Permit No. 013-POA-D-0250K-009;
- Discharge Permit for Sewage Treatment Plant: Permit No. 2017-DP- A-0250-009; and
- Discharge Permit for Tailings Storage Facility: Permit No. 2017-DP-D-0250-010.

OGPI obtains a range of other operating permits (including those for transportation and export of ore concentrate/doré and importation of individual reagents into the Philippines) on an ongoing basis. These and other permits, certificates and licences are issued for various periods and are regularly reviewed and where applicable, renewed. The Philippines has an established framework that is well regulated and monitored by the DENR and other regulatory bodies. OGPI has dedicated programmes and personnel involved in monitoring permit compliance and works closely with authorities to promptly address additional requests for information.

4.9.2 Environmental Compliance Certificate (ECC)

The ECC for the project was originally granted in August 1999. As discussed above there have been several revisions to the ECC the most recent being in July 2016 which is not yet approved.

In July 2016, the Company applied for the amendment of the ECC-CO-1112-0022 to cover a potential increase in mill throughput from 3.5Mtpa to 4.3Mtpa. The application, however, was impacted by the moratorium under DENR Memorandum Order No. 2016-01 which also includes the processing of any ECC-related applications. OGPI obtained clarification on the Moratorium and re-submitted the EEC amendment application. The Environmental Impact Assessment Review Committee ("EIARC") has now completed the review of the ECC amendment application and endorsed the approval of the EEC. After confirmation of the renewal of the FTAA, the EIARC conducted final deliberation of the ECC amendment. After deliberation, additional reports/documents were submitted, and the application is currently under review by the Environmental Management Bureau ("EMB").

4.9.3 PDMF and Associated Work Programs

In March 2005, OGPI submitted a PDMF for approval by the DENR. In conjunction with the PDMF, OGPI submitted (among other things) a study for the project as well as the three-year Development and Utilisation Work Program ("DWP").

The PDMF was approved under an Order of the DENR issued on October 11, 2005, when OGPI was deemed to have satisfied all conditions required for its approval. Subsequent DWP's received approval from the DENR leading up to the commencement of commercial operations in April 2013.

A DWP submitted to the DENR on March 27, 2013, forms the basis for the current operations.

The PDMF is defined as only 'partial' at this time as it applies specifically to the current development zone around the Didipio deposit. Subject to the successful outcome of OGPI's application to continue to explore (see Section 4.3.1), OGPI retains the right to seek further partial declarations of mining feasibility in the future over other deposits in the FTAA area.

4.10 Environmental Liabilities

The revised ECC sets out the applicable environmental management and protection requirements for the Didipio operation.

The Company obtained the approval for an EPEP in January 2005. To accommodate the series of project modifications from optimisation studies, and in line with the ECC amendments, the Company lodged a revised EPEP accompanied by the FMR/DP. After a series of deliberations by the Contingent Liability and Rehabilitation Fund Steering Committee ("CLRFSC"), after endorsement by the Mine Rehabilitation Fund Committee ("MRFC"), Certificate of Approval No. 129-2018-08 was issued on March 20, 2018, approving both the EPEP and FMR/DP covering years 2016-2019. The Company also established a trust fund for the FMR/DP. OGPI subsequently submitted an addendum to the EPEP and FMR/DP dated November 19, 2018 incorporating its Underground Operation. The EPEP and FMR/DP covering the Project's Mine Life from calendar year 2019 were submitted on April 19, 2018.

The annual implementation of the EPEP was approved following the confirmation of the FTAA renewal. The EPEP Certificate of Approval was issued on October 7, 2021.

The Mining Act and its Implementing Rules and Regulations mandate the setting up of a CLRF in the form of the Mine Rehabilitation Fund ("MRF"), Mine Waste and Tailings Fees ("MWT") and Final Mine Rehabilitation and Decommissioning Fund ("FMRDF"). Prior to operations, OGPI established the required Rehabilitation Cash Fund, Monitoring Trust Fund and Environmental Trust Fund, forming part of the MRF. OGPI likewise pays the mandated MWT for mine wastes.

The Didipio operation is closely monitored by the Mine Rehabilitation Fund Committee and its Multipartite Monitoring Team ("MMT").

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Topography, Elevation and Vegetation

The Didipio operation is located approximately 270km NNE of Manila in the southern part of the Mamparang mountain range adjacent to the border of Nueva Vizcaya and Quirino Provinces (Figure 5-1 and Figure 5-2).

The project area is located within the southern part of the Cagayan Valley basin in north-eastern Luzon, the Philippines. The area is bounded on the east by the Sierra Madre Range, on the west by the Luzon Central Cordillera range and on the south by the Caraballo Mountains. The regional geology comprises late Miocene volcanics, volcaniclastics, intrusives and sedimentary rocks overlying a basement complex of pre- Tertiary tonalites and schists. This geology is indicative of an island arc depositional and tectonic setting.

The geomorphology of the project area is diverse. The project can be generally subdivided into at least six geomorphic units: ridges-and-spurs, escarpment zones, hills-and-slopes, valley-and-gully sides, infilled valley bottom and mass movement zones. Infilled valley bottoms occur as narrow strips of low and flat-lying areas within the project area. These areas occupy the main Didipio Valley. Morphological associations include the floodplain and terraces along the Didipio River.

The valley floor near the project centre is at 690-700m above sea level with the surrounding ridgelines rising another 150-200m above this.

In the project area, three segments of existing vegetative cover have been identified, and consist of:

- Grassland, which covers both primary and secondary impact areas;
- Brushland (riparian), which is located within the primary impact site; and
- Low-density forest, which is located within the secondary impact area.

Development of the operation has involved partial clearance of some vegetative cover, comprising the clearance and covering or inundation of trees, brush and scrub. All removal of trees has been subject to appropriate clearance permits, which ensure that any trees of harvestable size are harvested in accordance with regulatory requirements.

5.2 Accessibility

5.2.1 Road Access

The mine is located in Barangay Didipio, Kasibu, Nueva Vizcaya. Barangay Didipio is approximately 36km east of Bayombong and about 40km south of Cordon off the National Maharlika Highway. Presently, access to Didipio is from the north commencing at the national highway at Cordon, continuing along a concrete paved road to Cabarroguis and thereafter, a gravel all-weather road passing a concrete bridge over the Dibibi River. OGPI has committed to concreting the remaining all-weather section at a rate of two kilometres per year. This recently declared provincial road serves as the main access route for fuel deliveries, employee travel, and concentrate transport. To date, a total of 12.86km or around 58.5% of the 22km road has been concreted. Likewise, in total, over 144.86km of roads have been improved in Nueva Vizcaya and Quirino

Alternate access to the site, suitable for vehicle sizes up to small trucks, extends east from the National Maharlika Highway at Bambang. The road is approximately 80% concrete until the town of Kasibu. Thereafter, the road is approximately 25% concrete to the village of Capisaan. The road between Capisaan and Didipio is currently being upgraded to an all-weather gravel standard road and is similarly planned to reach provincial status.

The nearest airport to the project is the Cauayan Airport in Isabela some 100km away. The terrain within the project area is not amenable for the construction of an airstrip so a helipad is maintained for emergency purposes.

5.2.2 Air Access

Commercial air services operate four days per week between Manila and Cauayan (about 100km and three hours' travelling time from the Didipio site by road). The total travel time to site from Manila by road and air is approximately seven and a half hours.

5.3 Proximity to Population Centres

The Didipio operation lies approximately 35km ESE of the municipality of Bayombong, near the heart of Northern Luzon as show in Figure 5-1.

Figure 5-1: Didipio Location Map (Not to Scale)

The provinces of Nueva Vizcaya and Quirino have total populations of approximately 497,432 and 203,828 people respectively (2020 Census). Nueva Vizcaya is subdivided into a total of 15 municipalities, of which Bayombong (population 67,714 in the 2010 Census) is the provincial capital and Bambang and Solano are the major commercial centers. Quirino has six municipalities and Cabarroguis is its capital.

The municipality of Kasibu is subdivided into 30 Barangays, with a mix of rural and built-up areas. Eleven (11) of these Barangays have been identified as the neighbouring barangays of the Didipio operation for the purposes of SDMP funding. Kasibu has a total population of approximately 41,776 people (2020 Census) and a local economy dominated by agriculture. Didipio is amongst the largest of the Barangays within Kasibu municipality.

Cabarroguis the capital municipality of Quirino and has a population of 33,533 people (2020 Census). It comprises 17 Barangays in total. In 2016 two Municipalities and 11 Barangays and have been identified as neighbouring the Didipio operation and are eligible for funds from the SDMP. The details of the SDMP are discussed in Section 20.1.2 of this document. The provinces of Nueva Vizcaya and Quirino have total populations of approximately 421,355 and 176,786 people respectively (2010 Census). Nueva Vizcaya is subdivided into a total of 15 municipalities, of which Bayombong (population 57,416 in the 2010 Census) is the provincial capital and Bambang and Solano are the major commercial centers. Quirino has six municipalities and Cabarroguis is its capital. The nearest significant town to the Didipio operation is Cabarroguis, located approximately 20km to the north and connected by paved road to Bayombong to the west. The nearest major population centre to the Didipio site is the City of Santiago (population 148,580 in the 2020 Census). The City of Santiago is located about two hours by road from the site.

5.4 Climate

Didipio is located in Nueva Vizcaya on the eastern side of Luzon and is classified under the Type III Modified Corona's Classification. Type III climate typically has no pronounced maximum rainfall period with a dry season from one to three months, usually during the period from December to February or from March to May. Figure 5-2 shows the location of Didipio within the Modified Corona's Classification.

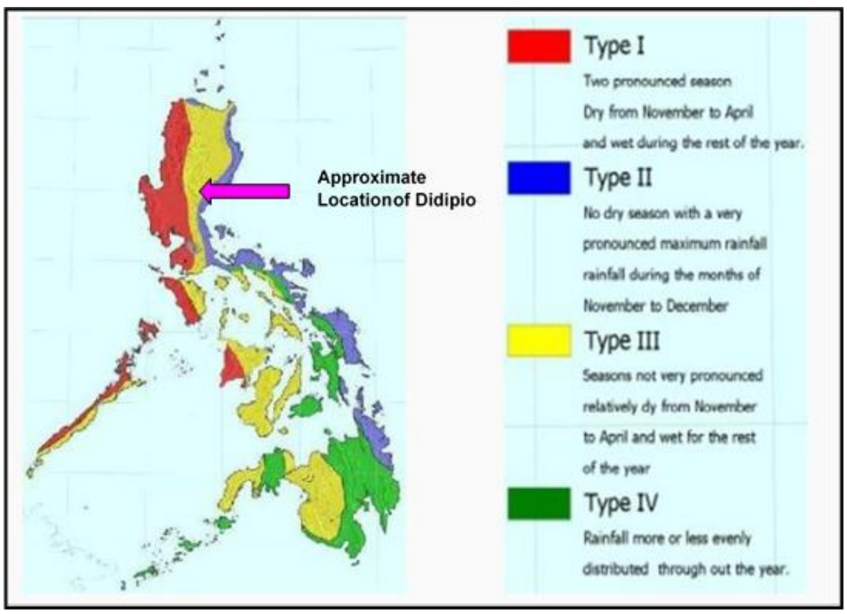


Figure 5-2: Modified Corona's Classification of the Philippines

At the Didipio operation site, rainfall has been monitored daily since May 1989. The mean annual number of rainfall days at the site is 226 and the mean annual rainfall is 3,201mm. Consistent with the Type III Modified Corona's Classification, the mine site area experiences a tropical climate consisting of three main seasons:

- The south-west monsoon season in June-September;
- The north-west monsoon in October- January;
- And a transition period in February-May.

Didipio receives most of its rainfall during the monsoon seasons. As shown on Figure 5-3 the wettest months are normally November and December and the driest month is normally April.

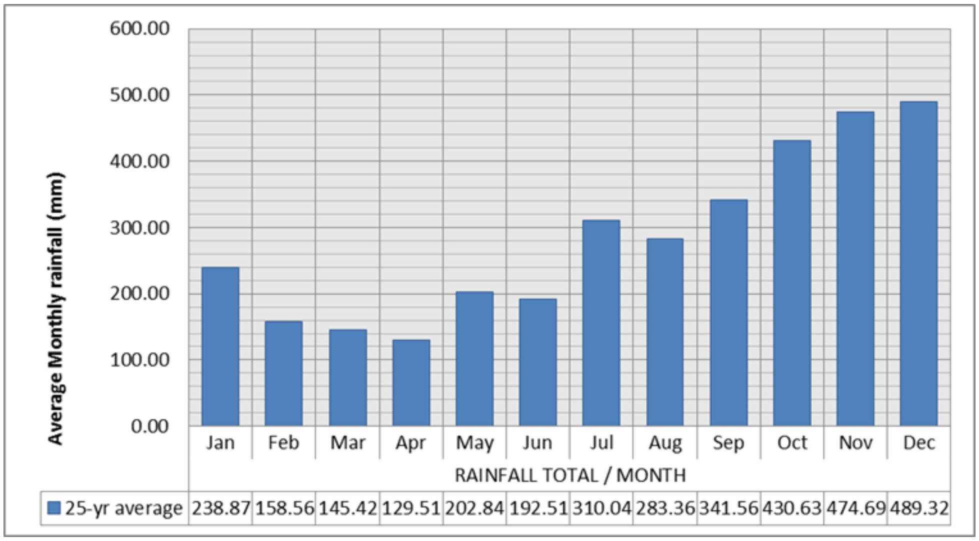


Figure 5-3: Average Monthly Rainfall for Didipio (mm)

The maritime setting of the Philippines results in relatively small temperature ranges being experienced. Based on the temperature monitoring data from 2012 to present at site, the mean annual temperature at the project site is 22.8ºC. The hottest months were May 2012 and July 2014, and the coldest month was January 2014.

Luzon Island's setting combined with its high rainfall, results in high humidity levels. The average annual humidity is 80.9% and nearly all regional weather stations report a relative humidity in excess of 70% on a monthly basis. A large majority of these stations report a relative humidity of greater than 80% for more than eight months of the year.

The prevailing winds tend to conform to the dominant seasonal air streams. Consequently, north-east winds are associated with the north-east monsoon season. Local topography and diurnal effects do, however, influence this general trend to some extent. The average annual wind speed is 3.75m/s.

The Didipio region is subject to the effects of an average of two tropical typhoons a year, which, together with topographical effects, can greatly influence wind speeds and contribute to the high annual rainfall. In such instances, wind speeds can exceed 50m/s and may reach as much as 75m/s. The average wind speed over such surge periods normally exceeds 38m/s.

The Didipio operation has experienced three typhoons since commercial operations commenced in April 2013. The effect on operations has been minimal. OGPI monitors typhoon and tropical storm development progress and has developed emergency planning to protect personnel and equipment in the event of a typhoon impacting the site.

5.5 Local Resources and Infrastructure

5.5.1 Site Infrastructure and Surface Rights

Figure 5-4 presents the general site layout of the Didipio operation, showing the main items of infrastructure associated with the current operations including that associated with the current surface land use. More detailed Infrastructure information is contained in Chapter 18 of this document. The infrastructure includes:

- A 52ha open pit (final design surface disturbance);
- A 3.5Mtpa capacity processing plant;
- A diesel-powered backup power station;
- An incoming overhead HV powerline and switchyard;
- A 129ha TSF which includes the flowthrough intake and the impoundment area;
- A 64ha waste rock dump, apportion of which has already been rehabilitated;
- Workforce accommodation compounds;
- Water treatment plant;
- Plant sediment ponds and other waste water storage ponds;
- Warehousing, workshops, offices, crib rooms;
- Fuel farm, paste plant, emulsion plant;
- Site roads and bridges; and
- Armoured river diversion channel.

OGPI has acquired surface rights over all the land on which the current and planned site infrastructure is located.

Figure 5-4: General Site Plan

The daily water demand for the Didipio operation at a 3.5 Mtpa processing rate is approximately 20,000m^3, of which the majority (approximately 90%) is recycled water for the process plant, sourced from decant water from the thickeners and the tailings pond. Fresh makeup water was sourced previously from the five deep bores around the perimeter of the open pit mine. In the third quarter of 2018, these boreholes were decommissioned. The current source of domestic and raw water supply for the camp and processing plant comes from either the Madadag levee or from underground mine dewatering.

A water discharge permit (Permit No. 2017-DP-D-0250-010) for the TSF is currently held to allow discharge of up to 67,462.8m^3 per day from the tailings storage facility. A water treatment plant with capacity to process 48,000m^3 per day ensures OGPI meets the required discharge standards. In the event of a rain event in excess of the combined capacity of the decant system, the water treatment plant and available storage capacity in the TSF, clean decant water from the TSF can be discharged via a spillway. Section 20.3.5 of this report provides further details.

5.5.2 Power Supply

Didipio's power requirements were originally self-generated on site by an OGPI owned power station consisting of fourteen diesel powered generator sets supplying a maximum of 16MW of power to site. This power station remains in place and provides back-up power to the operation.

Construction of an overhead power line (“OHPL”) was completed in September 2015. Since November 2015 the Didipio mine site has been operating on National Grid Power as its main operational power supply. A high voltage transformer was installed to step down the National Grid Power to the Didipio mine site voltage of 13.8kV.

With the commencement of underground mining the power demand for the Didipio operation increased from 16MW to a maximum of 22MW.

5.5.3 Sewage

Sewage from locations around the Didipio operations site are piped or transferred to a site-based sewage treatment plant for which OGPI holds a Discharge Permit: No. DP-R02-20-06237. This permit allows the current discharge of wastewater not exceeding a flow rate of 5.23m^3 per day.

5.5.4 Refuse Disposal

As part of the Company’s commitment to comply with its ECC, OGPI is implementing best practice reusing and recycling in waste management. A separate Environmental Compliance Certificate (“EEC”) has been approved for the establishment and operation of onsite Sanitary Landfill under ECC No. ECC-OL-RO2-2016-0083 issued on June 28, 2016, as an addition to the main project ECC. Recyclable wastes are collected in a material recovery facility operated by a contractor and sold to recyclers. Scrap metals generated in the operation are collected at a metal scrap yard and sold to scrap metal buyers. Waste oils and lubricants are recovered and disposed of at a registered waste treatment or disposal facility in accordance with Philippines Government requirements.

5.5.5 Port Facilities

The Port of Manila (372km from the Didipio site) is the destination port for inwards transit of bulk goods and reagents, while the existing copper concentrate storage and shipment facilities at Poro Point, La Union (356km from the Didipio site) are the departure port for the shipment of ore concentrate. See Section 5.2 of this report for descriptions of the routes between these ports and the site.

5.5.6 Personnel

OGPI and its main contractors currently employs approximately 1,250 personnel consisting of 710 OceanaGold personnel and 540 contractors.

Under the FTAA, OGPI is committed to a target of 100% employment of Filipinos in unskilled, skilled and clerical positions and 60% employment of Filipinos in professional and management positions. Long-term contractors servicing the project are required to follow a similar employment policy.

Where possible, recruitment for the Didipio operation, particularly of mining and processing plant personnel, is from the local area. The Didipio operation sources the majority of its employees from the provinces of Nueva Vizcaya and Quirino. Positions requiring skills and experience not available locally are filled from the remainder of the Philippines.

There are a small number of highly skilled and experienced expatriate employees present at the Didipio operation. These expatriates actively mentor and assist in the development of OGPI’s Filipino employees. OGPI currently employs approximately 25 expatriates, consistent with the requirements of the FTAA.

5.5.7 Accommodation

A site-based camp offering single-status accommodation is provided for all personnel recruited from outside the Didipio region. The camp includes both permanent and temporary operational accommodation in a mix of self-contained one-bedroom apartments, single bedrooms with ensuites or shared ensuites and barracks style accommodation with a shared ablutions block.

Other buildings/facilities within the accommodation camp include:

- Kitchen and mess hall;
- Medical clinic;
- Accommodation camp laundry and linen storage;
- Recreation room and gym;
- Camp office;
- Sewage treatment plant;
- Emergency Response Team (“ERT”) office and equipment storage;
- Emergency generators; and
- Guard house.

The camp is operated by a local contractor, the Didipio Community Development Corporation, whose role includes providing meals, cleaning duties for the camp and mine site buildings, laundry services, provision of linen, cutlery and shuttle services for employees.

5.5.8 Communications

Satellite and terrestrial services provide telephone and data communications to the Didipio operation. Mobile telephone coverage is available throughout the majority of the mining area.

A multi-channel radio network is utilised for operations communication within the mine and process plant.

In 2015, the company established an internet backbone using a fibre optic link with secondary internet users connected to the network using microwave technology. The site has a single service provider Globe – LTE which provides 4G capability to the site and local community.

6 HISTORY

6.1 Prior Ownership

The Didipio area was first recognised as a gold province in the 1970s, when alluvial gold deposits were discovered. There followed a succession of owners undertaking exploration activities in the region. Prior to the Didipio operation, there has been no large-scale mining in the Didipio region and while artisanal miners have been active in the area, there are no records of production.

Since the discovery of alluvial gold in the 1970s, the Didipio area has been held by a succession of claim holders:

- In May 1975, Victoria Consolidated Resources Corporation and Fil-Am Resources Inc. entered into an exploration agreement with a syndicate of claim owners who had title to an area covering the Didipio valley and undertook exploration activities, including a stream geochemistry programme, between 1975 and 1977;
- In April 1985, the property area was explored (with work including geological mapping, panning of stream-bed sediments and ridge and spur soil sampling) by a consultant geologist engaged by local claim owner Jorge Gonzales;
- Geophilippines Inc. investigated the Didipio area in September 1987 and made mining lease applications in November 1987;
- In 1989, Cyprus Philippines Corporation ("Cyprus") and subsequently Arimco NL (as Arimco Mining Corporation in the Philippines ("Arimco MC")) entered into an agreement with Geophilippines Inc. and the local claim owner, Jorge Gonzales, to explore the Didipio area, undertaking an exploration programme between April 1989 and December 1991; and
- In 1992, Climax acquired control of Armico MC (renamed Climax-Arimco Mining Corporation ("CAMC")) and the entire Cyprus-Arimco NL interest in the Didipio Project. The FTAA was executed in 1994 and was subsequently assigned from CAMC to Australasian Philippines Mining Incorporated ("APMI"), a subsidiary of Climax, in 2004.

6.2 OceanaGold

- In 2006 OceanaGold and Climax merged and OceanaGold (Philippines) Inc ("OGPI"). was formed, a wholly owned subsidiary of OceanaGold Corporation. Construction activities commenced in 2008, however, the Didipio Operation was placed in care and maintenance in December of that year following the deterioration of global financial markets and project funding constraints;
- Open pit mining commenced in July 2012 and was completed in April 2017;
- Commercial production was declared on April 1, 2013 at a 2.5Mtpa rate, which increased to 3.5Mtpa in 2015;
- In April 2015, following the completion of a feasibility study in October 2014, the underground portal was cut, and stoping commenced in December 2017 achieving 1.6Mtpa production rates in 2018;
- On the June 20 2019 the first term of the FTAA expired, however, the MGB of the Philippines Government issued an extension pending renewal of the FTAA. The Nueva Vizcaya Provincial

Government considered the FTAA to have expired and on June 25 blockaded the mine which resulted in a suspension of mining and processing in October 2019; and

- On July 14 2021 the FTAA with amended conditions was approved and work commenced on restarting the Didipio mining operation with the expectation of being back to full production in Q2 2022.

6.3 Previous Work

Indigenous miners from Ifugao Province first discovered alluvial gold in the Didipio region in the 1970s. Gold was mined either by the excavation of tunnels following high-grade quartz-sulphide veins associated with altered dioritic intrusive rocks, or by hydraulicing in softer, clay-altered zones. Gold was also recovered by panning and sluicing gravel deposits in nearby rivers, and small-scale alluvial mining still takes place. No indications of the amount of gold recovered have been recorded.

Since 1975, exploration work carried out in the area has been managed by the following:

- From 1975 to 1977, Victoria Consolidated Resources Corporation (“VCRC”) and Fil-Am Resources Inc undertook a stream geochemistry programme, collecting 1,204 pan concentrates samples that were assayed for gold, copper, lead and zinc. A large area of hydrothermal alteration was mapped, but, although nine drill holes were planned to test it, no drilling eventuated. Despite recognition of an altered diorite intrusive (the Didipio Gold-Copper Deposit), no further work was undertaken;
- Marcopper Mining Corporation investigated the region in 1984, followed in April 1985 by a consultant geologist (E P Deloso) who was engaged by local claim owner Jorge Gonzales. Work by Deloso included geological mapping, panning of stream-bed sediments and ridge and spur soil sampling. Deloso described the Didipio Gold-Copper Deposit as a protruding ridge of diorite with mineralised quartz veinlets within a vertically dipping breccia pipe containing a potential resource. The resource is not compliant with CIM guidelines and is therefore not quoted. Benguet Corporation examined the Didipio area in September 1985 and evaluated the bulk gold potential of the diorite intrusion. Work included grab and channel sampling of mineralised outcrops, with sample gold grades ranging up to 12g/t Au and copper averaging 0.14% Cu. It was concluded that the economic potential of the diorite intrusion depended on the intensity of quartz veining and the presence of a clay-quartz-pyrite stockwork at depth;
- Geophilippines Inc investigated the Didipio area in September 1987 and carried out mapping, gridding, rockchip and channel sampling over the diorite ridge. In November 1987, Geophilippines Inc commissioned the DENR, Region One, to undertake a geological investigation of the region in conjunction with mining lease applications;
- Between April 1989 and December 1991 Cyprus and then AMC carried out an exploration programme that included the drilling of 16 diamond core holes into the Didipio Ridge deposit. This work outlined potential for a significant deposit;
- From 1992, Climax exploration work concentrated on the Didipio Gold-Copper Deposit, although concurrent regional reconnaissance, geological, geophysical and geochemical programmes delineated other gold and copper anomalies in favourable geological settings within the Didipio area. Diamond drilling and other detailed geological investigations continued in the Didipio operation area and elsewhere in the Didipio region through 1993 and were coupled with a preliminary Environmental Impact Study ("EIS") and geotechnical and water management investigations. These works, producing

21 diamond drill holes for a total of 7,480m of drilling, formed the basis for a preliminary resource estimate (not quoted as it is not compliant with CIM) and commencement of a Project Development Study ("PDS") by Minproc Limited in January 1994;

- Additional diamond drilling was completed at the Didipio operation as part of the PDS, providing a database of 59 drill holes within the deposit. A model of the deposit was developed, and a resource estimate made (not quoted as it is not compliant with CIM guidelines). The work identified the key parameters for potential project development, which included the likelihood of underground block caving for ore extraction. The economics of this scenario were dependent in part on the delineation of a central core of higher-grade gold and copper mineralisation, but drill intersections in this area were too widely spaced to confirm geological and grade continuity for measured resource category;
- A programme of 17 additional diamond drill holes was undertaken to provide closer spaced sampling data primarily within an area lying above the 2400mRL. This programme was completed in June 1997, with all drill core assays received by early August 1997. These data formed the basis for a study completed by Minproc Limited in 1998; and
- By the time the FTAA was assigned to APMI in 2004, CAMC had drilled 94 drill holes into the Didipio gold-copper deposit for a total of 35,653m of drilling.

6.4 Historical Estimates

Several resource estimates have been made since 1985. The chronology of these is presented below. None of the resource estimates are quoted as they do not adhere to the CIM guidelines. No work is proposed to upgrade or verify the historical estimates.

- Work by Deloso in April 1985 suggested a potential resource;
- In September 1985, Benguet Corporation estimated the total resource potential;
- In December 1993, Climax produced an estimate based on available data including the first 21 diamond drill holes; interpolation method was inverse distance squared into 25 x 25 x 25m blocks;
- Snowden Associates produced a resource estimate in 1995 using additional drill holes (up to hole DDDH65). This model effectively used a 3g/t AuEq interpretation and wire-framing of the high grade core of mineralisation. Interpolation was by indicator kriging into 15x15x15m blocks and classification was based on search radii and number of samples;
- The Minproc Limited DFS estimate used all 79 holes (up to hole DDDH83) plus the data for nine surface trenches. The stockwork and high-grade core were modelled separately and grades were interpolated using ordinary or indicator kriging (with grade top cutting) into 15 x 15 x 15m blocks; and
- There have been a number of resource updates following the completion of resource development drilling programs. These resource estimates covered both the open pit and underground mining areas.

6.5 Previous Production

There was no large-scale mining at Didipio prior to the commencement of the Didipio open pit operation and there are no records of the production by artisanal miners although minor artisanal activity did occur.

Between 2013 and December 2021 a total of 39.5Mt had been mined by a combination of open pit and underground mining methods.

7 GEOLOGICAL SETTING AND MINERALISATION

The project area is situated within the southern part of the meridional Cagayan Valley basin in north-eastern Luzon and is bounded on the east by the Sierra Madre Range, on the west by the Luzon Central Cordillera range and to the south by the Caraballo Mountains. The regional geology comprises late Miocene volcanic, volcaniclastic, intrusive and sedimentary rocks overlying a basement complex of pre-Tertiary age tonalite and schist (Figure 7-1), which have been interpreted to represent an island arc depositional and tectonic setting.

The basal sequence of the Caraballo Group is of Cretaceous to Eocene age and comprises andesitic pyroclastics, andesitic lavas and basaltic tuffs with inter-layered beds of sandstone, shale and tuff. The Caraballo Group includes the Alimit Volcanics and is intruded by tonalites, diorites, quartz diorites and gabbros of the Coastal Batholith (27 to 49Ma) and the Dupax Batholith (26 to 33Ma).

The Caraballo Group is unconformably overlain by the Mamparang Formation of the Oligocene age, comprising andesitic and basaltic lavas and volcaniclastic rocks (‘Dark Diorite’). This was intruded by various alkalic plutonic rocks including syenite, monzonite and a variety of K-feldspar-rich igneous rocks that comprise the Palali Batholith (17 to 25Ma). This batholith includes intrusive rocks found in the Didipio area (Didipio Igneous Complex).

Unconformably overlying the Caraballo Group and Mamparang Formation, the Palali Formation comprises basaltic and andesitic lavas, mudstones, sandstones and dacitic pyroclastics of early to middle Miocene age.

Regionally, the volcanic and sediments are folded about meridional anticlinal and synclinal axes and are cut by prominent, steeply dipping, north-west and north-trending faults sub-parallel to the major Philippine Fault zone (Figure 7-1 and Figure 7-2). A set of later, steeply north dipping, east-north-east-trending faults are associated with the batholitic intrusions.

Recent geological mapping in the Didipio region has been interpreted to indicate the Didipio Gold-Copper Deposit is hosted within the multiphase Didipio Stock, which is in turn part of a larger alkalic intrusive body, the Didipio Igneous Complex. The Didipio Igneous Complex consists of:

- An early composite clinopyroxene-gabbro-diorite-monzodiorite pluton that comprises medium-grained, clinopyroxene-biotite rich microdiorites and monzodiorites of the dark diorite (pre-mineralisation);
- The Surong clinopyroxene to biotite monzonite pluton. Breccia textures on the margins of the Surong pluton are interpreted to indicate that the Surong monzonite intruded into the Dark Diorite. The Didipio area lies within a circular physiographic feature, approximately six to eight kilometres in diameter. The Pimadek Porphyry (latite porphyry) occupies the topographic highs of the Didipio circular feature and is characterised by coarse K-feldspar phenocrysts (<20mm to 30mm) in a pale grey-green feldspathic groundmass. Pyroclastic deposits (ignimbrites, autobreccias) recognised in the area suggest that the Pimadek Porphyry could represent both the feeder dyke and extrusive product of an intra-caldera ignimbrite;
- The Au-Cu mineralised Didipio Stock; and
- Post-mineralisation andesite dykes.

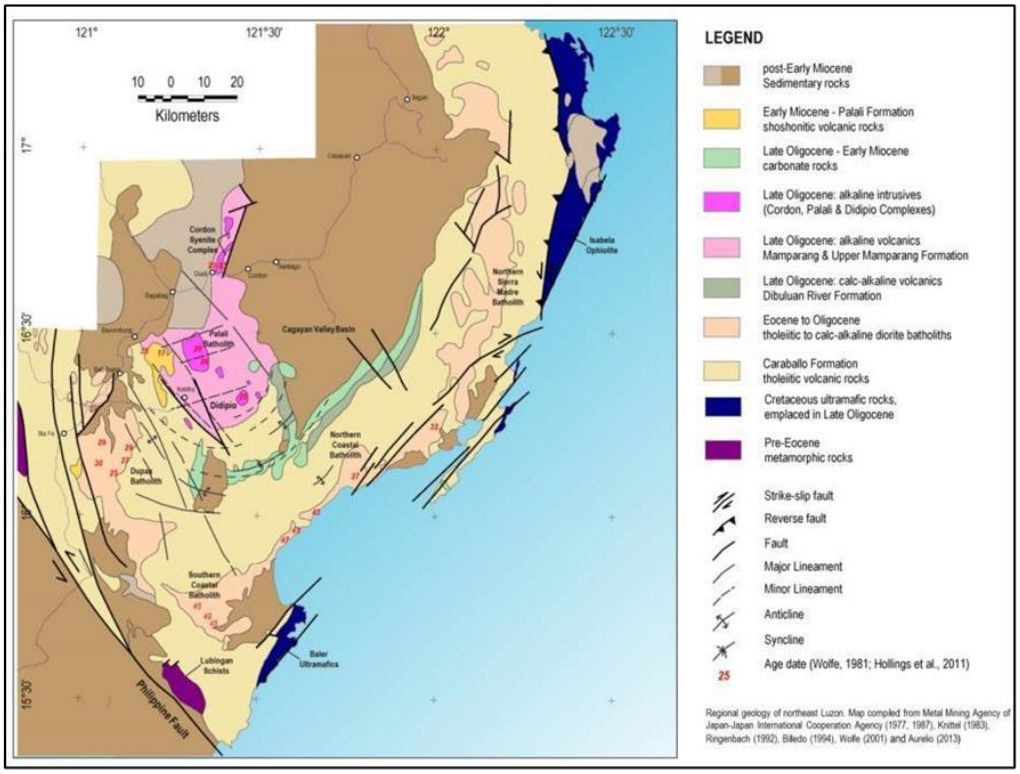


Figure 7-1: Northern Luzon – Major Geological Subdivisions and Structural Elements

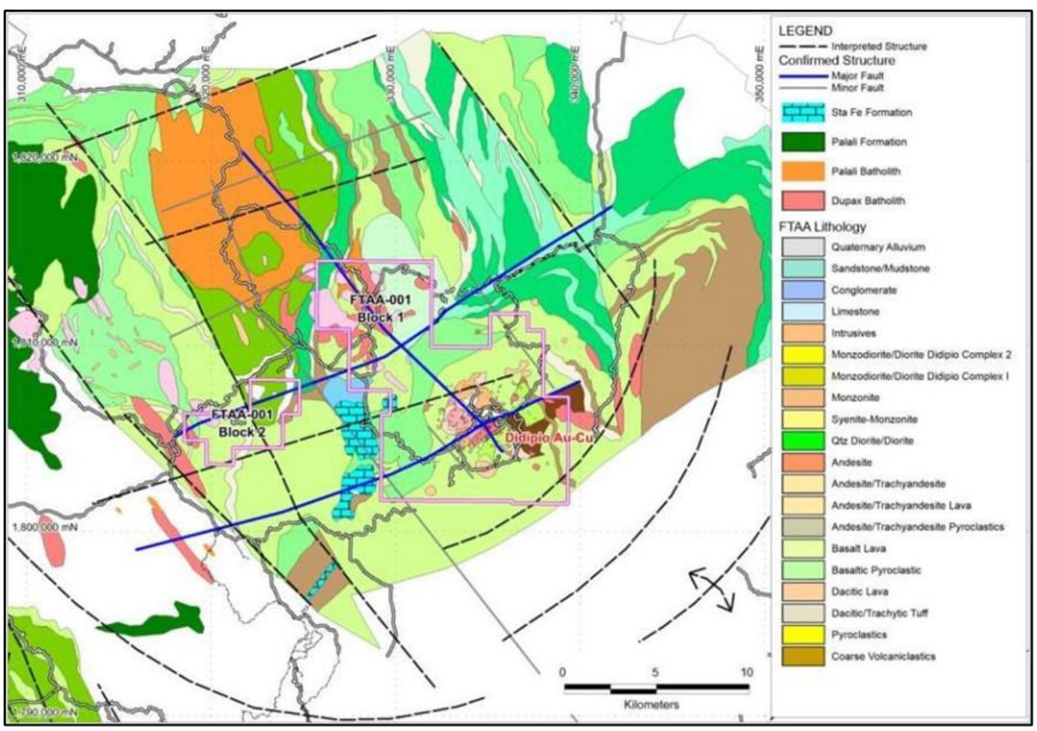


Figure 7-2: Regional Geology

7.1 Deposit Geology

The Didipio Project has been identified as an alkalic gold-copper porphyry system, roughly elliptical in shape at surface (480m long by 180m wide) and with a vertical pipe-like geometry that extends to at least 800m below the surface.

The local geology comprises north-northwest trending, steeply (80° to 85°) east-dipping composite monzodiorite intrusive, in contact with volcaniclastics of the Mamparang Formation (Figure 7-3). The monzodiorite lies in a circular topographic depression that is coincident with a circular IP anomaly.

The area is cross-cut by a north-northwest trending regional magnetic lineament, which is possibly a geophysical expression of major strike-slip faulting. North to northwest trending strike-slip faults in the Luzon Cordillera area have been recognised as major controls on the emplacement and elongation of porphyry deposits (Sillitoe and Gappe, 1984) and a similar structural control may have been important in the Didipio area.

Porphyry-style mineralisation is closely associated with a zone of K-feldspar alteration within a small composite porphyritic monzonite stock intruded into the main body of diorite (Dark Diorite). The extent of alteration is broadly marked by a prominent topographic feature (the Didipio Ridge) some 400m long and rising steeply to about 100m above an area of river flats and undulating ground.

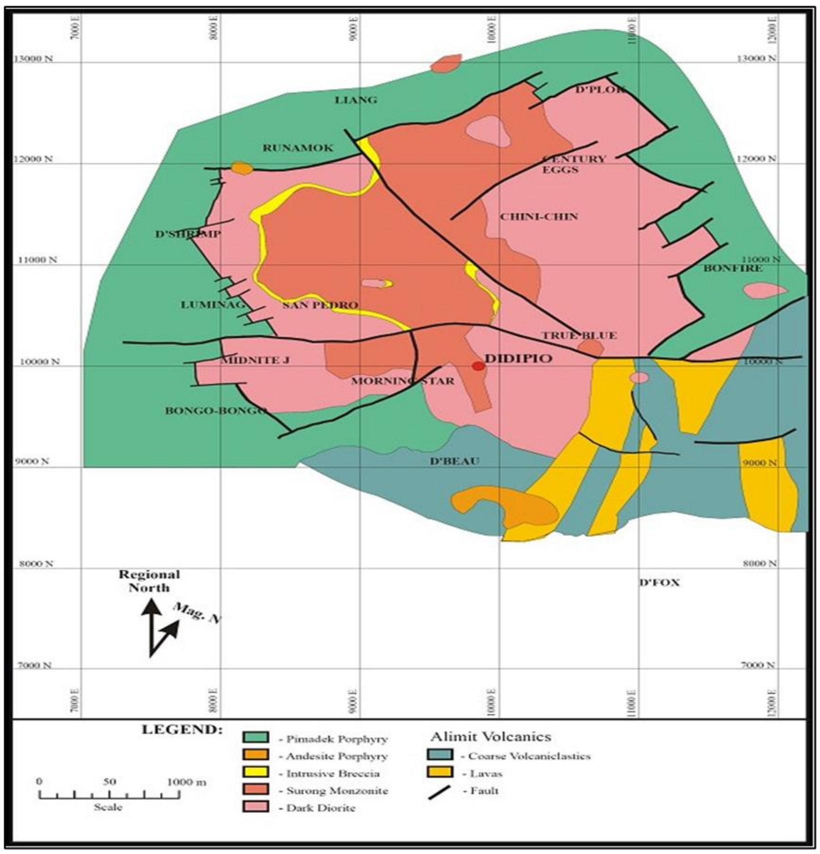


Figure 7-3: Local Geology

7.2 Didipio Operation Deposit Mineralisation

Chalcopyrite, gold and silver (electrum) are the main economic minerals in the deposit. Chalcopyrite occurs as fine-grained disseminations, aggregates, fracture fillings and veins.

Fine grained gold occurs as micro-inclusions in sulphides, as well as free gold, electrum and telluride. No coarse gold has been observed.

Chalcopyrite can replace magnetite and is, in turn, replaced by bornite. Bornite occurs as alteration rims around and along fractures within chalcopyrite grains.

7.3 Surface Oxidation

The deposit is oxidised from the surface to a depth of between 15m and 60m, averaging 30m. The oxide zone forms a blanket over the top of the deposit and largely comprises silicification, clay and carbonate minerals, accompanied by secondary copper minerals including malachite and chrysocolla.

Most of the oxide and transitional mineralisation has been mined-out since mining commenced in August 2012.

7.4 Lithology

OceanaGold's Didipio mine in the Philippines is an alkalic porphyry Cu-Au deposit hosted by a composite diorite-monzonite pluton that was intruded by the Surong monzonite, the Dinkidi stock, and cross-cut by the Didipio breccia complex (Wolfe, 2001, Wolfe and Cooke, 2014). The lithological units esp. mineralized breccia complex was previously described by Wolfe, 2001, Wolfe and Cooke, 1999, and Panol and Parian, 2008. The breccias have been classified into clastic and coherent facies by Blackwell, 2017.

The sequence of intrusions and breccias is observed to develop inwards towards the centre of the mineralized stock: diorite, monzonite, monzonite porphyry, Balut dyke (mafic and aplitic components), quartz and overlying monolithic breccias, feldspar porphyry dykes and syenite porphyry (Sillitoe, 2019).

In the new interpretation, there shows a clear genetic linkage between the syenite porphyry and quartz breccia, with the latter occurring as a spatially coincident carapace to the latter. The parent syenitic magma is believed to have released the fluid that accumulated to form a giant bubble that crystallised to form the copper- and gold-bearing quartz body. Feldspar porphyry dykes appear to have intervened between breccia and syenite emplacement. There are two main events of mineralization in Didipio, one is related to the monzonite porphyry, which is characterised by irregularly distributed chalcopyrite-bornite-magnetite mineralization. This event was overprinted by quartz veinlets containing clots of chalcopyrite, which were fed from the fluid bubble that produced the quartz body (Sillitoe, 2019).

The northwestern end of the deposit is truncated by the Biak Shear.

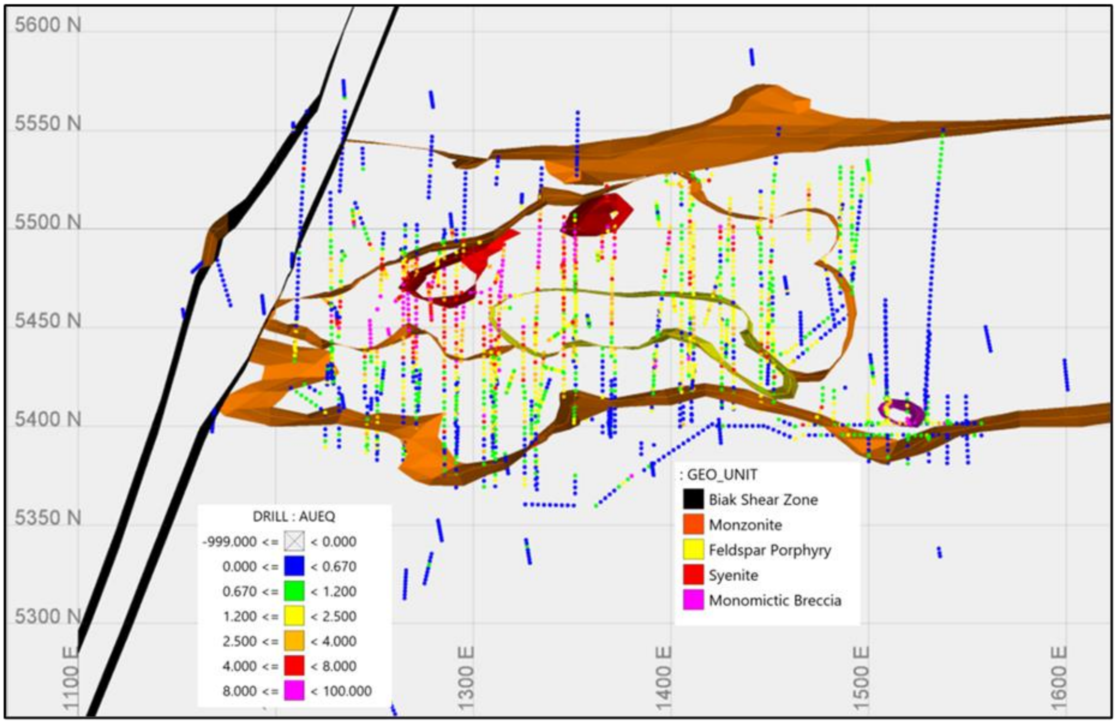


Figure 7-4: 2340 level plan of Didipio deposit, showing main geological units and assays gold-equivalent grades

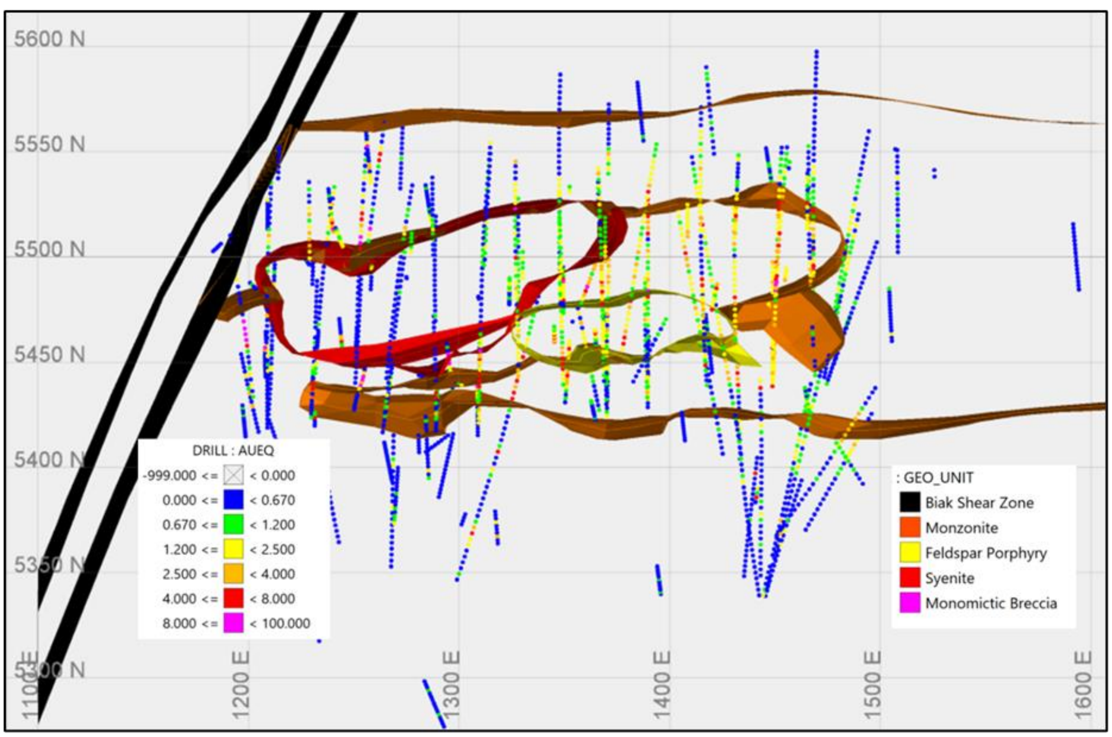


Figure 7-5: 2250 level plan of Didipio deposit, showing main geological units and assays gold-equivalent grades

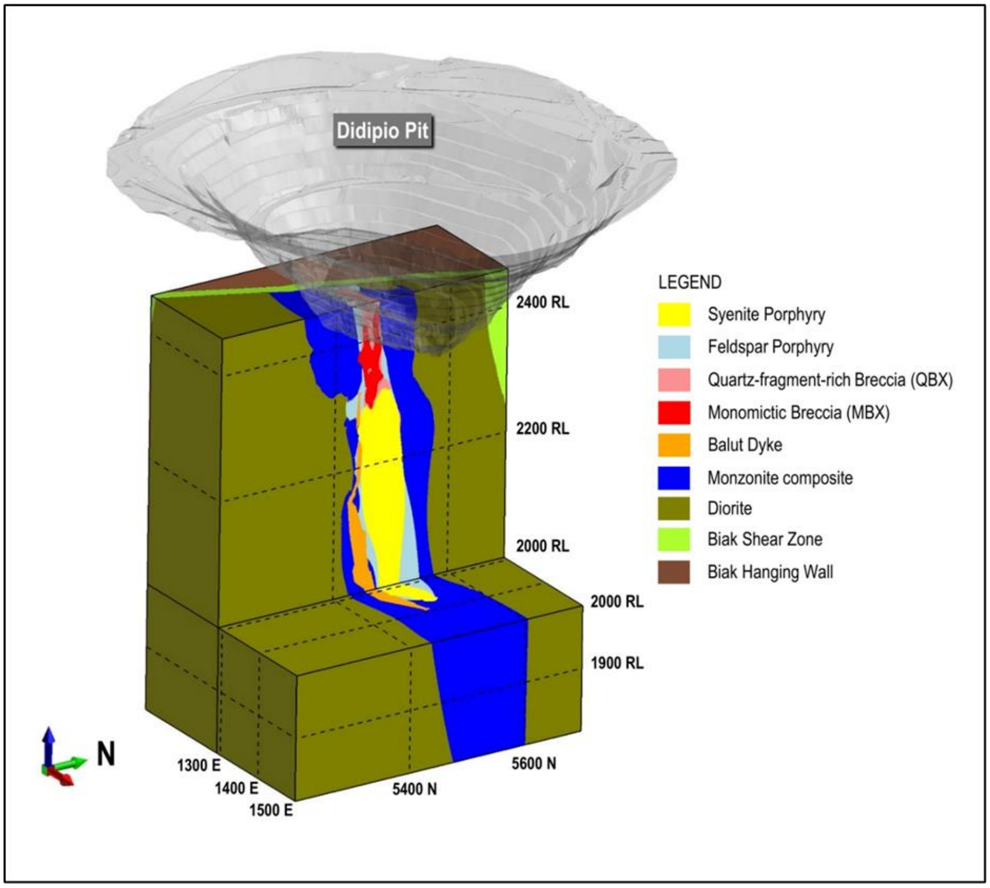


Figure 7-6: Didipio Geology 3D Block Cut

7.4.1 Dark Diorite

The Dark Diorite is a grey-black medium-grain equigranular to weakly plagioclase and clinopyroxene-phyric clinopyroxene-diorite (Figure 7-7).

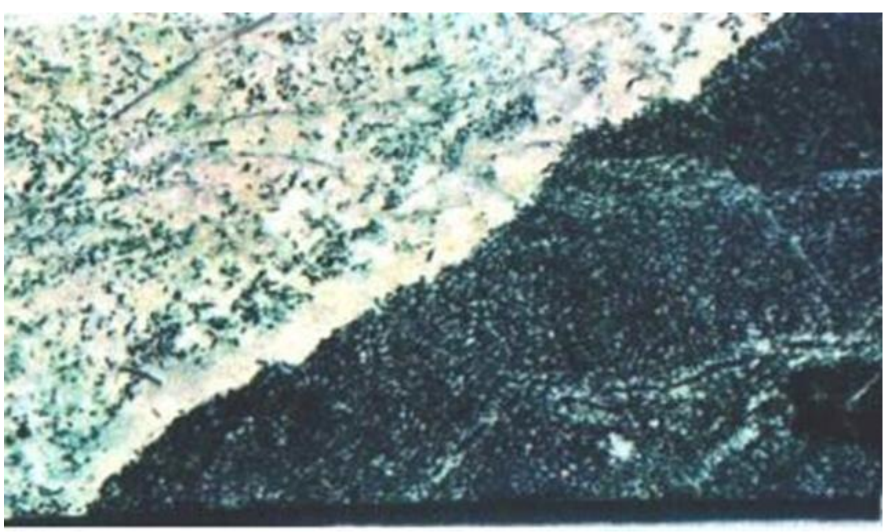


Figure 7-7: Sharp Intrusive Contact Tunja (left) and Dark Diorite

7.4.2 Monzonite

Monzonite that intrudes dark diorite and its dykes penetrate into the surrounding Dark Diorite for over 100m. Medium-grained equigranular to weakly porphyritic monzonite. Commonly occurs with medium grain biotite, actinolite and feldspar.

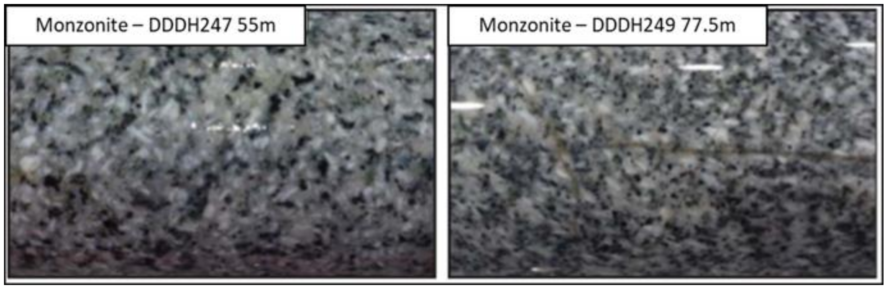


Figure 7-8: Hornblende-bearing Monzonite

7.4.3 Monzonite Porphyry

Monzonite with euhedral to subhedral feldspar phenocrysts. Finer grained and less mafic than Monzonite. Can be combined with monzonite as one solid composite.

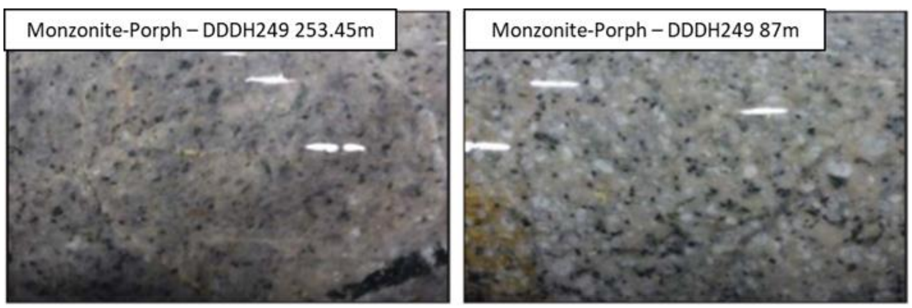


Figure 7-9: Light-pink to pale green color Monzonite Porphyry

7.4.4 Feldspar Porphyry

Known to have a coarse feldspar phenocryst (subhedral often with fuzzy boundaries), up to 8mm, in a fine-grained groundmass, previously referred to as the Quan Porphyry or QMP.

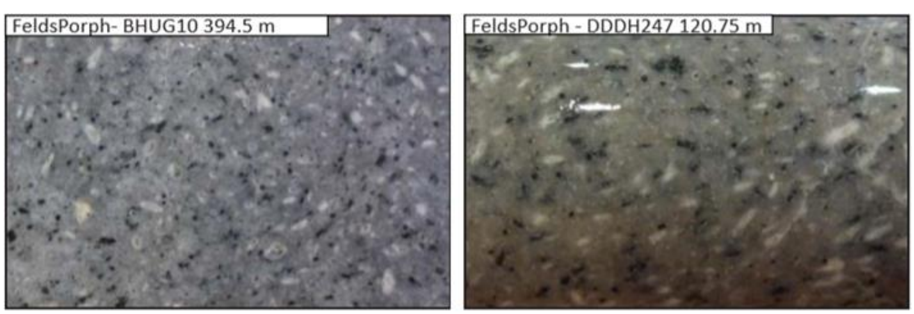


Figure 7-10: Light grey color Feldspar Porphyry with prominent white feldspar and hornblende phenocrysts

7.4.5 Syenite

Commonly known to have vughs (often lined with quartz). Vugs could be miarolitic cavities, vesicles, or vughy alteration. Also ranges from very fine-grained aphanitic syenite to sparsely feldspar ± quartz porphyritic syenite. Sometimes occurs as sharp dyke-like margins or occurs on the margins of the syenite facies to gradational facies between feldspar porphyry and syenite.

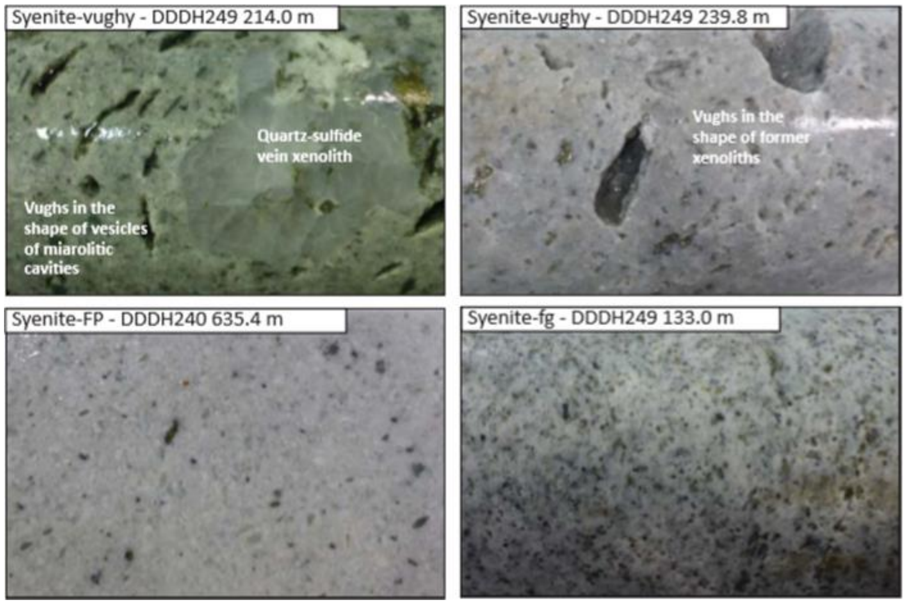


Figure 7-11: Syenite distinguished by its distinctive miarolitic cavities and bleached white color

7.4.6 Balut Zone

Texturally and compositionally complex unit with aphanitic phases, aplitic phases, phaneritic monzonitic phases, layered phases, pegmatitic phases (actinolite dominant and K-feldspar dominant) and massive magnetite domains. Two main types are mafic balut and felsic balut. The Balut hosts high grade mineralisation.

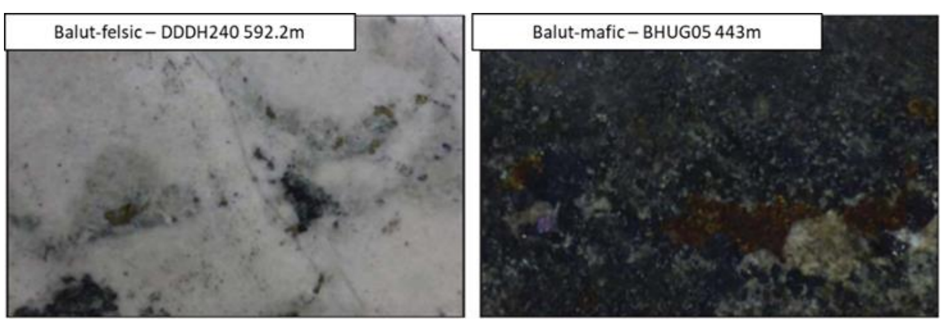


Figure 7-12: Balut dyke comprises of mafic and felsic components containing disseminated grains of chalcopyrite and bornite

7.4.7 Breccia

Quartz-fragment-rich Breccia (QBX)

Quartz-fragment rich breccias (QBX) contain diagnostic round to angular quartz-vein fragments as clasts and matrix. The QBX occupies the central part of underground mine grid between 1190 to 1350. It is a less competent rock unit that hosts very high Au-Cu grade mineralisation. Sulfides may appear as clast or matrix or cement which drive the high bearing grades.

Monomictic Breccia (MBX)

Clast supported monomictic breccia with lithic clasts of all coherent units, may fit from jigsaw to chaotic. Known to be more competent than QBX but relatively lower in average grades. Commonly seen on the eastern side of the underground mine grid.

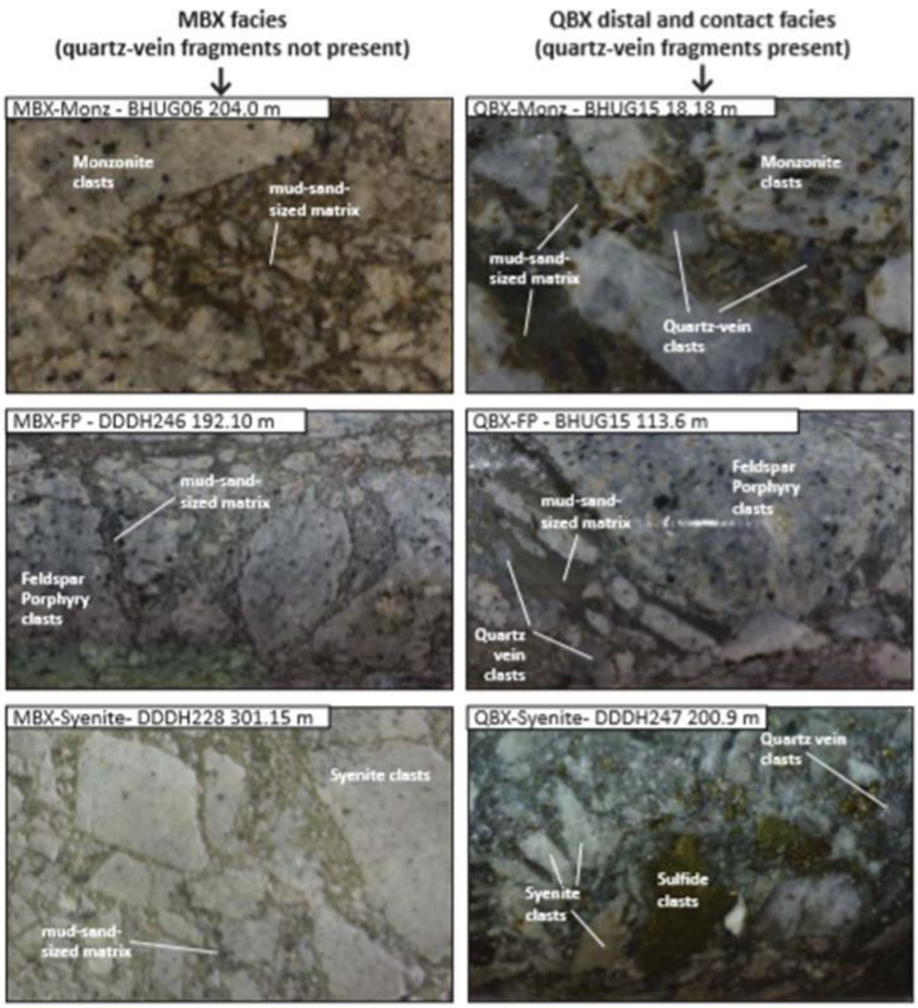


Figure 7-13: Variety of breccia are present in the Didipio orebody. High grade copper-gold mineralisation is hosted in this rock unit

7.4.8 Altered Coherent Units

Altered porphyry and altered monzonite porphyry. Characterized by highly altered groundmass and moderately altered phenocrysts.

7.4.9 Biak Shear

The Biak Shear Zone truncates the northern end of the deposit, reflecting post-mineralisation movement. There is however evidence of primary mineralisation within the Biak Shear, suggesting that the structure was present during mineralisation. Intrusives within the shear zone are extensively carbonate veined and sheared.

8 DEPOSIT TYPE

The Philippines Archipelago constitutes one of the world's premier porphyry copper provinces and is a typical area for the study of island arc porphyry systems.

8.1 Description of Deposits

In a comprehensive review, Sillitoe and Gappe (1984) reported the characteristics of 48 mineralised predominantly calc-alkaline porphyry deposits in the Philippines, many of which have been in production (see Figure 8-1). The size of the deposits varies from 50Mt to more than 300Mt and copper grades are characteristically 0.40% Cu to 0.55% Cu, with gold content varying from 0.1g/t Au to 0.4g/t Au.

The list following does not cover all known characteristics, but it provides a framework into which it is possible to fit many of the geological features of calc-alkaline porphyry deposits and construct a generalised genetic model of a typical Philippines gold-copper porphyry deposit.

Sillitoe and Gappe (1984) found that the majority of calc-alkaline porphyry deposits studied:

- Occurred in subduction settings;
- Were emplaced into volcanic, volcano-sedimentary or subordinate fine-grained sedimentary sequences of late Mesozoic (95Ma) to Neogene (5.3Ma) age;
- Are centred on small (mainly <0.5km^2 in plan), roughly cylindrical composite stocks of diorite to quartz-diorite porphyry;
- Exhibit the development of syn-mineral and post-mineral intrusive phases. These may occur as low-grade deep cores to the deposits or as larger, phaneritic plutons that truncate the deposits at depth;
- Were emplaced in strike-slip fault zones of regional extent;
- Show development of widespread K-silicate, sericite-clay-chlorite and propylitic alteration, combined with more restricted sericitic, advanced argillic and calc-silicate development;
- Are characterised by pyrite-chalcopyrite-bornite-magnetite mineralisation introduced as part of the K-silicate alteration phase;
- Are characterised by widespread overprinting of K-silicate alteration by the sericite-clay-chlorite assemblage, with attendant partial alteration of magnetite to haematite;
- Contain ore zones having steep cylindrical forms preferentially developed in intrusive rocks;
- Show a positive correlation between gold and hydrothermal magnetite;
- Show evidence that a major part of the gold was introduced with K-silicate-related copper mineralisation, and that more than 50% of the gold is closely associated with chalcopyrite and bornite;
- Contain hydrothermal breccias of syn-mineral and post-mineral age, as pipes, dykes and irregular bodies; and
- Exhibit thin (generally <50m) supergene profiles developed since the Pliocene. In situ oxidation of pyrite mineralisation resulted in goethitic cappings containing oxide copper minerals. Supergene

enrichment is not common, probably due to the low pyrite content and neutralising capacity of the K-silicate alteration style.

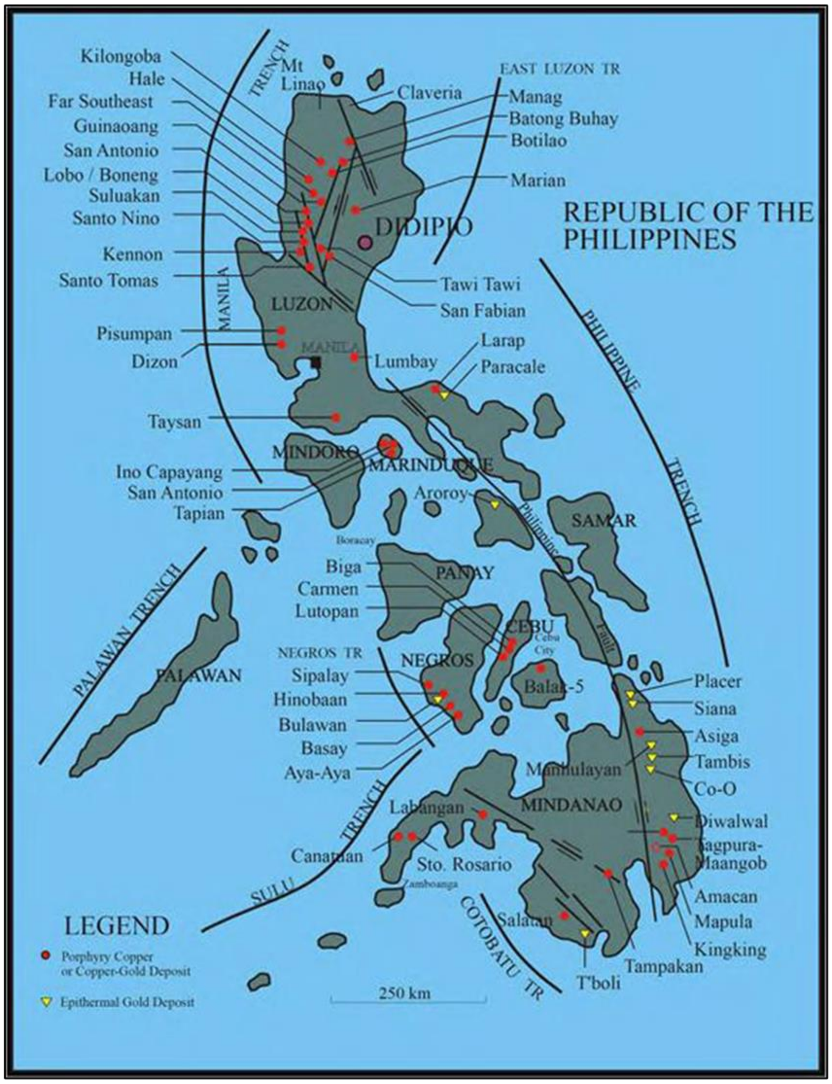


Figure 8-1: Porphyry Au-Cu Deposits and Epithermal Deposits, Philippines Archipelago

While the Didipio Gold-Copper Deposit has many broad similarities to the geological features documented by Sillitoe and Gappe (1984), it is not a classic, large porphyry-style deposit. Rather, it is a smaller alkaline mineralised stock containing disseminated and fracture/vein-controlled gold-copper mineralisation that has been overprinted by late stage, structurally controlled, higher-grade, gold-copper mineralisation.

The Didipio Porphyry Au-Cu deposit exhibits features that are common to other alkaline porphyries found in Eastern Australia and British Columbia, Canada. These are:

- Alkalic porphyry intrusions as host to Au-Cu mineralisation;
- Presence of calc-potassic alteration consisting of orthoclase, magnetite, apatite, perthite, and diopside that is associated with the main stage Au-Cu mineralisation;
- Occurrence in the back-arc setting; and

- Sulfur isotope compositions are closer to the sulphides at alkalic porphyries in New South Wales and British Columbia than the sulphides in calc-alkaline porphyries in the Philippines (Wolfe and Cooke, 2011).

There is no commonly agreed, detailed model for the formation of the Didipio Gold-Copper Deposit, although there is general agreement about the style of the mineralisation and many of the key elements. The framework appears to be as follows:

- Intrusion of Dark Diorite as a composite intrusive of clinopyroxene microdiorite followed by porphyritic monzonite porphyry, with intrusive breccia developed along the contacts. The later intrusive (and all subsequent intrusives) appears likely to have been controlled by the north- trending Tatts Fault;
- Intrusion of biotite clinopyroxene monzodiorite (Tunja monzonite), probably accompanied by some potassic metasomatism and biotite-magnetite alteration along the contacts and for up to 200m into the Dark Diorite. Some pervasive K-feldspar alteration and veining may have accompanied this event;
- Intrusion of Quan monzonite porphyry into the Tunja intrusive, with accompanying magmato-hydrothermal alteration leading to formation of mineralised skarn and calc-silicate pegmatite at the Tunja/Quan contact and calc-silicate-K-feldspar veining (Garrett, 1995) extending into adjacent Tunja rocks. K-feldspar flooding also extended along the contact into Tunja monzonite;
- Bufu “microgranite” emplaced as a separate but related intrusive, or possibly representing a deeper crystallising phase of the Quan. Development of a silica-rich cap to the Bufu and build-up of hot SiO2-CO2 rich fluids beneath this cap;
- Multiple pressure release events related to continuing movement on the Tatts Fault, or due to overpressuring. Initially, weak development of quartz+K-feldspar-sulphide stockwork and irregular veining (Garrett, 1995) concentrated in the Quan above the Bufu intrusive, and in adjacent Tunja rocks;
- Formation of Bugoy breccia due to a combination of physical disruption and hydrothermal brecciation of the silica cap, quartz-sulphide stockwork veins and local adjacent skarn rocks. The timing of this event is unclear, but the matrix is often strongly mineralised and thus the event accompanies a significant period of hydrothermal alteration and mineralization;
- Cooling and mixing of magmato-hydrothermal and meteoric waters leading to pervasive sericite-chlorite-carbonate-sulphide alteration (Garrett, 1995) occurring along contacts and other fractures and cavities within Quan and Tunja lithologies; and
- Late-stage mixing, cooling and collapse of the hydrothermal system, with clay-carbonate-zeolite alteration along open fractures in Quan, Tunja and Bugoy breccia.

Garrett (1995) recognised post-mineralisation shearing and brecciation as exemplified by the Biak Shear, with associated remobilisation of gold-copper mineralisation into these shear zones. Wolfe (1996) suggested that there was a more extensive post-mineralisation carbonate alteration event, with carbonate + sulphide and late silica veining within the body of the deposit as well as within the Biak Shear.

An age date of 23.2 ± 0.6Ma has been reported by Wolfe (1996) for a rock specimen tested for Newmont from a K-feldspar vein within the nearby True Blue prospect biotite monzodiorite. It is likely that this date is broadly synchronous with the intrusion of the Didipio operation monzonite suite and its associated mineralisation.

9 EXPLORATION

9.1 Introduction

Prior to the acquisition of the Didipio Project by OceanaGold, previous explorers have drilled a total of 230 diamond drill holes aggregating 62,769 m. The drilling metres were mostly for the resource delineation of the Didipio porphyry Au-Cu deposit with a small percentage of drilling in nearby prospects that include True Blue, D'Fox, San Pedro, D'Beau, and Morning Star. While there were mineralised drill intersections at True Blue and D'Fox, there has not been any exhaustive follow-up programme to delineate resources on these prospects, all within 3km of the Didipio deposit.

Likewise, previous companies have completed exploration work to assess the regional prospectivity of the FTAA tenement and follow-up detailed investigations on the targets identified. The regional work includes about 100,000 line-kilometres of airborne magnetics and radiometrics, 2,248 stream sediment samples, and 5,287 rock samples. Follow-up programmes consisted of detailed mapping, grid soil sampling, induced polarisation, and ground magnetic surveys.

OceanaGold continued follow-up works on some of the targets previously identified. The works included detailed investigation of the Mogambos, Papaya, Upper Tucod, MMB, and TNN prospects shown in Figure 9-1. Grid soil sampling over these prospects have delineated coincident Au-Cu anomalies over prospective lithologies that are worth drill testing. OceanaGold is securing an extension to the FTAA Exploration Period to be able to drill the regional prospects.

OceanaGold also conducted exploratory drilling within the PDMF area from 2013 to 2014 to test the near- mine targets. A total of 5,447.8 m over 15 holes were drilled over the period. The drilling programme hit a number of low-grade mineralised intersections at D'Beau, San Pedro and Chinichinga prospects as summarised in Table 9-1. These intersections may indicate separate mineralised bodies from Didipio or peripheral low-grade occurrences.

Ground exploration activities within the FTAA ceased in Q1 2019, after the completion of drilling in Radio prospect. No exploration program can be implemented in the FTAA due to the expiration of the 5-year FTAA exploration permit on March 10, 2021. The said permit was granted on March 2016.

Exploration from 2015 to 2019 at the Didipio project conducted fieldworks and series of drilling campaigns within the FTAA area. The drilling was focused on testing potential targets generated from the completed deep imaging geophysical survey, technical review of available data, and follow-up on anomalous intersections from historical drilling. A total of 35 diamond drill holes were drilled totalling 13,224.8m and was carried out over the prospect area of San Pedro, Dinkidi South, Morning Star, Chinichinga, Luminag, Mogambos, Radio, and True Blue prospects. Below is the summary of exploration works completed to date and the location of the prospect.

Table 9-1: Summary of Exploration works on the Didipio FTAA

Activity	Pre-OGC Exploration	OGC Exploration
Geophysics		
Airborne Magnetics	100,000 line Km	
Ground Magnetics	205 line Km	
Gradient Array IP	300 line Km	
Dipole-dipole IP	65 line Km	
Ground DCIP and MT (Titan 24)		30.4 line Km
Geochemistry		
Steam Sediment Sampling	2,248 Samples	263 Samples
Soil Sampling	8,298 Samples	6,335 Samples
Rock Sampling	5,287 Samples	3,125 Samples
Drilling		
Diamond Drilling	62,769 m 230 Holes	41, 754 m 179 Holes

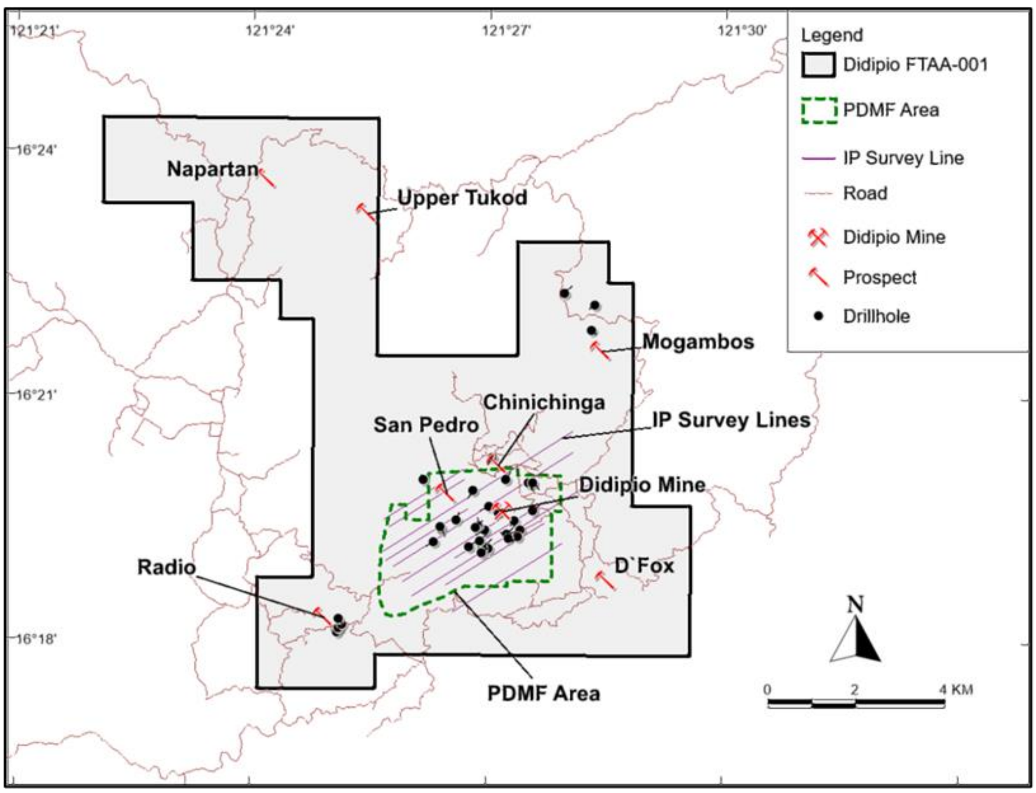


Figure 9-1: FTAA Prospect Location

The Titan 24 DC-IP-MT survey completed a total of 30.4 km DC/IP and MT over the PDMF area on Q3 of 2014. The survey includes 13 DC/IP (Direct Current/ Induced Polarization) and MT (Magneto-telluric) spreads along 10 survey lines with 100m station interval and nominal 200m and 400m line spacing. Several potential targets with different priority levels were outlined along the survey lines. These targets were prioritized as High, Moderate and Low based on the category of the chargeability and resistivity of the anomalies as well as the size. Anomalies were drill test and intersected some minor sections of low gold+copper grade that could be the basis of more drilling in the future.

In mid-2016, approval for the five-year Didipio FTAA exploration period extension was received, and another round of drilling program were planned to test targets from priority prospects outside the PDMF area. In Mogambos prospect, three holes that tested the copper-gold anomaly in soil were completed and intersected narrow zones of copper-gold mineralisation usually along the intrusive contacts. In Chinichingga, surface mapping revealed exposures of lithologies similar to Didipio. An old drill hole (CDDH104) intersected a Bufu-like intrusion typified by the presence of miarolitic cavities. Two holes were drilled to test for conceptual porphyry mineralisation beneath CDDH104.

Exploration groundworks in Radio prospect identified three closely spaced discrete gold anomaly target defined by grid soil. Results from the soil geochemical survey were further supported with rock chip sampling and trenching works that resulted to location of quartz veins that yielded anomalous gold. The scout drilling program tested these anomalies and completed five holes with 543 metres drilled. Complete assays returned with the best results of 1.5m @ 1.2g/t Au (including 0.5m @2.5g/t Au) and 2.4m @ 0.75g/t Au (including 0.3m @ 1.8g/t Au). This mineralisation is hosted in Andesite lavas containing narrow veins (mm-cm) of quartz-calcite-gypsum-hematite.

Target generation activities at the Napartan prospect produced encouraging results. Follow-up of coincident Au-Cu anomalies in soil revealed the presence of pegmatitic dykes from artisanal miners' muck-out. The pegmatitic dykes have similar composition with the Balut dykes at Didipio. Assay of the muck sample returned >2% Cu and >1 g/t Au. A drilling program to test the occurrence of the pegmatitic dyke at depth was proposed and consider as priority in the future plan.

The image below shows the Didipio open pit and underground mine workings, resource classification, and exploration targets. Measured and indicated blocks (>0.84 g/t AuEQ) are shown in blue while inferred blocks are shown in green.

Resource definition drilling of lower confidence material resumed in February 2022. Exploration drilling scheduled for 2022 includes 1,062 metres targeting “North of the Syenite Porphyry”, and 815 metres in the Eastern Monzonite Porphyry.

Drilling included in budgeted capital for 2022 and 2023 will infill the mine plan to the 2,100mRL.

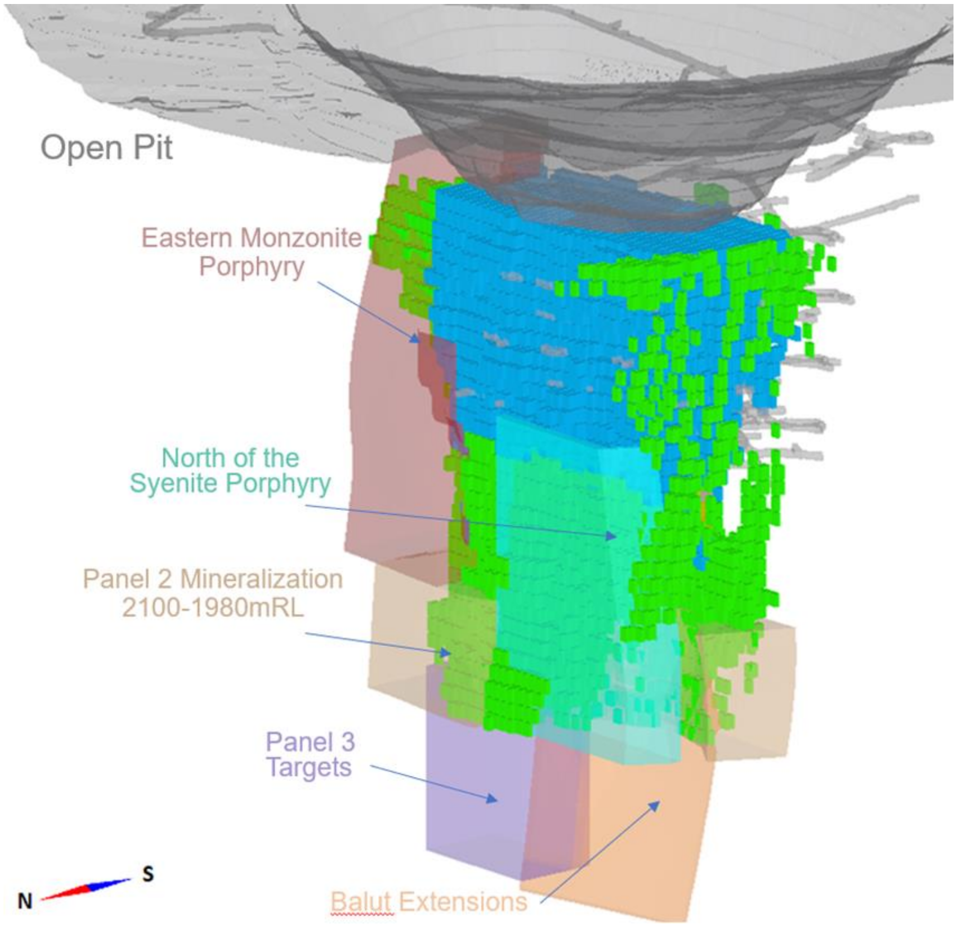


Figure 9-2: Didipio Underground with exploration targets and resource classification

10 DRILLING

10.1 Introduction

All drill hole collar, down hole survey, assay, magnetic susceptibility and logged geology data, including pre-OceanaGold (i.e. Climax) data, has been transferred to an ODBC database via an AcQuire interface. In some cases it was not possible to locate original source copies of pre-OceanaGold data.

All drilling at Didipio has been performed by contractors.

As of January 31, 2022, the drill hole database for the Didipio FTAA area contained records of 1013 holes for a total of 164,451.7m drilled. The drill hole database for the Didipio mine area comprises 400 holes totalling 109,072.7m for surface holes and 613 underground holes totalling 55,379m although only 727 holes totalling 106,306.3m are drill holes considered suitable for resource estimation. Underground drilling is generally fanned on sections orientated mine grid north south. This results in a range of intersection angles, from perpendicular dip to 45 degrees to dip. Given the mineralisation style the drilling provides an acceptable basis for resource estimation. For Measured Resources the drill hole spacing is typically 25m x 25m, Indicated Resources up to 45m x 45m (although typically less) and Inferred Resources greater than 45m x 45m.

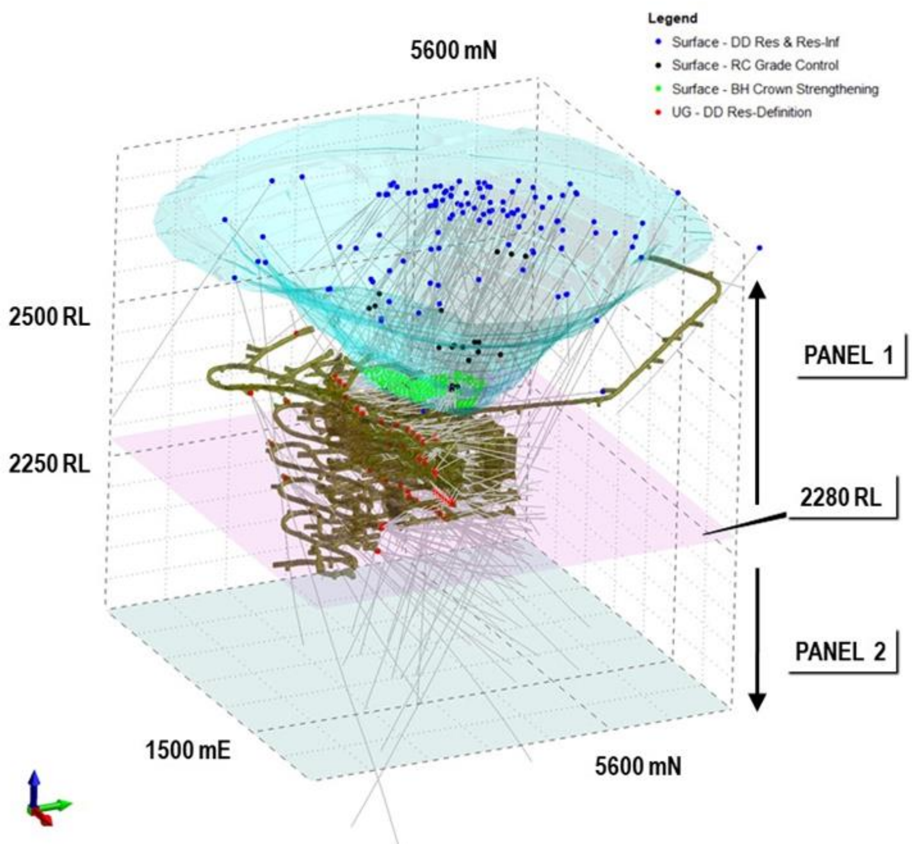


Figure 10-1: Oblique View showing Didipio Underground Drilling

10.2 Drilling Campaigns

In reverse chronological order:

10.2.1 OceanaGold

- 325 RAB blastholes from the 2019 Crown Strengthening Project were also spear-sampled and included in the resource estimate for the crown pillar. The crown pillar is expected to be mined out in early 2022;
- From September 2016 to June 2019, 307 drillholes were completed as part of an underground resource definition drilling program. This program allowed for a ~25m x ~25m spaced drill pattern to accurately measure and predict local geological units that contain different geological, hydrogeological and grade domains;
- Panel one drilling was completed by Quest Exploration Drilling using an Atlas Copco Diamec U6 rig. Vertical fans were drilled from the footwall drives of the production levels;
- Panel two drilling was completed by Quest Exploration Drilling using an Atlas Copco Diamec U8 rig and by Indodrill Philippines using a Sandvik DE150/DE140. These were drilled from crosscuts of the decline since the Panel two footwall drives had not yet been developed;
- From September 2016 to January 2017, three deep drill holes (DDDH 240, 241A, 242) for resource extension were drilled by Indodrill Philippines. These holes were designed to target the extensional potential of mineralisation both down dip and strike proximal to the Biak Shear, as well as the eastern flank of the syenite;
- From May 2015 to Feb 2016, 18 boreholes were drilled for geotechnical monitoring and determination of geotechnical properties of the different geotechnical domains in the underground (BHUG01-18). 15 of these were included in the resource estimate (BHUG01-6, 08, 09-16);
- Starting January 2015, the open pit grade control drilling was done primarily by a Schramm 950 RC rig by Indodrill rather than blast hole sampling. Grade control RC depths were done in a 7m x 8m spacing;
- In December 2014, a total of 20 RC holes were drilled at the pit to upgrade the resource. 10 of the holes were terminated before target depth was reached due to high water inflows;
- Three deep drill holes (DDDH 227 – DDDH 229, targeting the Bufu Syenite, were drilled in April 2014. These are not included in the resource estimate;
- Between August and October 2013, five diamond drill holes (DDDH 222 – DDDH 226) totalling 2,156.4m were drilled by Quest Exploration Drilling from the floor of the open pit. These holes tested the extent of high-grade gold mineralisation in the transition between open pit and the proposed underground mine. Targeting was restricted by physical access and proximity to mining activity. 292.6m were drilled using PQ size core and 1,863.8m for HQ size core; and
- An infill drilling programme at the Didipio Gold Copper Project was completed in mid-2008. This programme, which aimed to improve the understanding of the high-grade gold/copper core of the deposit as well improve confidence within the open pit design, comprised 21 infill drill holes for 7,390.6m. These drill holes were incorporated into the October 2008 resource update.

10.2.2 Pre-OceanaGold

- An in-fill programme was designed and undertaken in the first half of 1997 to reduce drill hole spacing to approximately 50m down dip on sections 25m to 50m apart, concentrating on the high-grade mineralisation in the north-western part of the deposit;
- Up to July 31, 1995, a total of 74 diamond drill holes had been drilled on the Didipio project. 59 of these holes were drilled at Dinkidi Ridge, including oxide definition holes, largely on 50m sections, with a vertical separation of 120m to 180m;
- Diamond drilling on site has been carried out by several different contractors, but from January 1994 (from drill hole DDDH29 – DDDH83) all holes were drilled by one of two contractors, Core Drill Asia or Diamond Drilling Company of the Philippines. Both contractors used Longyear drilling rigs and wireline drilling methods. The 2008 infill drilling programme (DDDH201 – DDDH221) was done by DrillCorp Philippines Inc, using CS 1000 drilling rigs. The 2013 – 2014 drilling programme (DDDH222 – DDDH 229) was done by Quest Exploration Drilling using an Edson MP drilling rig; and
- Earlier holes were collared using 5¼" roller bits to refusal (generally less than 10m depth), cased off and then drilled HQ (63.5 mm core diameter) as far as possible, reducing to NQ (47.6 mm core diameter) as required. Depth limitations with HQ equipment were generally around 600m. From DDDH29 onwards, all holes were drilled by diamond coring starting from surface.

10.3 Infrastructure Sterilisation Drilling

A total of 23 diamond drill holes have been drilled for sterilisation and infrastructure. Drill hole collar locations are shown in Figure 10-2. Additionally, the following exploration has been conducted over the intended plant site, underground infrastructure, waste dump and tailings dam sites, and the accommodation village:

- Induced polarisation surveys;
- Aerial geophysical surveys (including magnetics);
- Geochemical surveys; and
- Geological mapping.

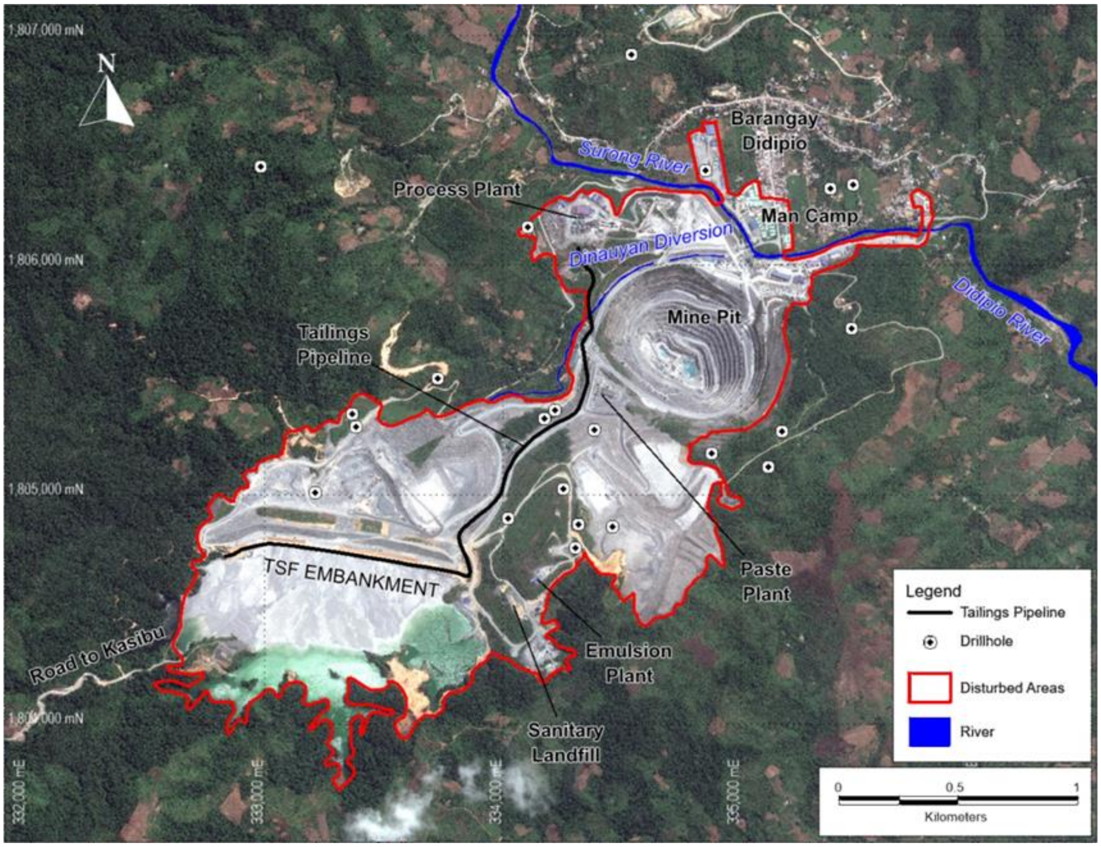


Figure 10-2: Position of Sterilisation and Infrastructure Drill Holes

10.4 Down Hole Surveying

Starting August 2017, a Reflext Tn14 gyrocompass is used during rig setups to orient the drill rigs. Underground drillholes were surveyed by either Camteg Proshot or Reflex EZ-Trac at 30m intervals. Gyroscopic surveys were done on certain drillholes to test accuracy of the Reflex EZ-trac (DDDH 240, 241A and 242, RDUG 004, 013, 017, 022, 025, 029, 031, 124, 129). An average deviation of 4.6 degrees was observed, and after accounting the declination from true north of the gyros, a correction of -5 degrees for magnetic declination is done in acQuire. All surveys undergo QC checks before being uploaded in the acQuire database using Reflex S-Process software.

Drill holes for the 2013 campaign were surveyed using Reflex EZ-shot camera at 20 m to 30 m intervals and cores oriented using a Reflex ACT II orientation tool. Surveys have been corrected for the 2013 local magnetic declination of -2.07°. Given the high magnetite content for many of the rock types at Didipio, DDDH223 was resurveyed using real-time gyro operated by GXD. The gyro confirmed the accuracy of the Reflex EZ - shot down hole surveys.

Prior to 2013, where possible, drill holes were surveyed down hole using an Eastman survey camera, generally at 50m to 100m intervals. Overall, down hole directional changes are generally minor; holes tend to steepen by 3° in the first 100m and 1° per 100m or less thereafter. Little change in azimuth was noted where holes were drilled perpendicular to strike, whereas for drill hole DDDH47, which was drilled sub- parallel to strike, the azimuth deviated by 15° over 1,005m.

Downhole survey readings were examined for anomalous values related to local high concentrations of magnetite. Within the mineralised zones, low magnetic susceptibility readings on the drill core indicated little potential for magnetic interference on downhole azimuth measurements, whereas a few spurious azimuths from more highly magnetic units were noted and rejected from the database.

10.4.1 Underground Grid

In order to better align the underground geology and the layout of the underground mine a new grid was established. The underground mine operates on a mine grid rotated 44° east of the UTM WGS84 Zone 51 grid using the points shown in Figure 10-3.

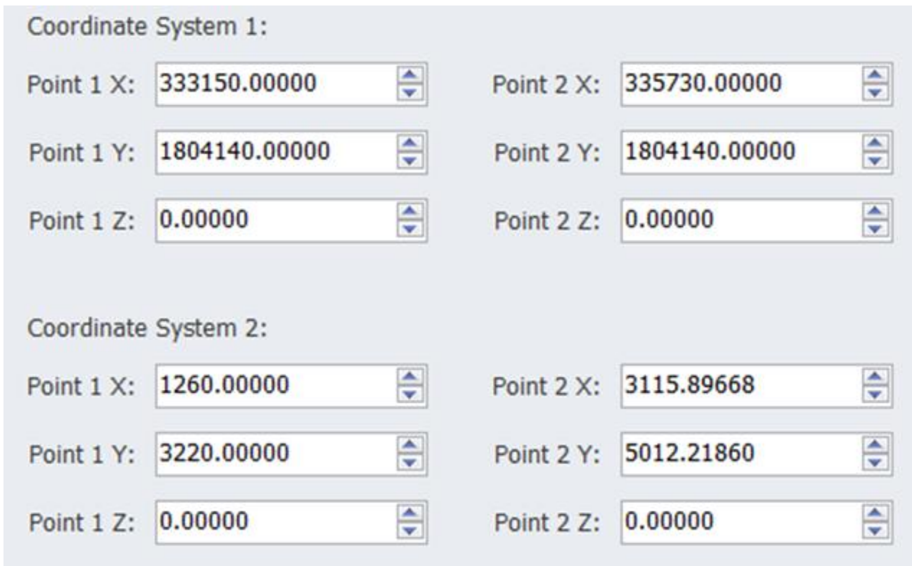


Figure 10-3: Underground Grid Coordinate System

10.5 Surface Surveying

Prior to OceanaGold, three grids were used in the collection of survey data within the Didipio operation area. All drill hole collar coordinates are now captured in Universal Transverse Mercator ("UTM") (or National) Grid. The previous use of three grids, and in particular, the conversions between them, has resulted in some locational uncertainty for earlier drilled holes. The three grids are summarised below.

10.5.1 National Grid

The National Grid, known as the Philippine Transverse Mercator, is based on UTM WGS84 Zone 51 coordinates and is used in all national mapping.

10.5.2 Regional Grid

This grid was set up by Climax, with its northing orientation 30° west of true north (UTM), and 10,000 N, 10,000 E located in the vicinity of the Didipio Ridge. Historically it has been assumed that magnetic declination is negligible, and that true north equates closely to magnetic north.

10.5.3 Drill Grid

Prior to 2011 all drillholes were survey in using a Drill Grid which was centred on the Didipio Gold Copper Project with grid north parallel to the ridge axis, .ie. 21° to the west of the Regional Grid or 51° west of true north on the UTM WGS84 Zone 51grid.

10.5.4 Project Grid

By 2013 drilling data had been converted to Project Grid, which is a modified UTM WGS84 Zone 51 grid, XY coordinates are UTM with 2000m added to the Z coordinate.

10.6 Core Orientation

Drill holes for the 2013 campaign cores were oriented using a Reflex ACT II orientation tool. Surveys have been corrected for the 2013 local magnetic declination of -2.07°. For holes drilled prior to this, spear orientations were used. Structural analysis of the 2013 orientations suggests that some of the core may not have been orientated appropriately.

Since October 2017 core orientation using a reflex orientation tool has been discontinued.

10.7 Core Logging

Immediately after retrieval from a drill hole, a drill core is colour photographed in wet and dry states. Some cores, particularly from early drill holes, were also re-photographed after splitting with a diamond saw.

On site, core logging and marking up is carried out in several stages.

Preliminary geological logging is carried out by the site geologist using logging sheets and/or notes to construct a brief geological log that includes:

- Lithology;
- Alteration; and
- Mineralisation.

Geotechnical logging uses standard logging forms:

- Recoveries;
- Orientations; and
- Rock quality – RQD.

Physical property measurements:

- Point load testing (after DDDH31);
- Magnetic susceptibility measurements are taken at approximately four readings per metre;
- Specific gravity determinations; and
- PIMA and pXRF are being trialled.

Detailed geological logging is generally carried out after the core is split and sampled.

All drill holes are logged geotechnically and geologically for the entire length of each hole using OceanaGold logging form on a laptop. Th drill logs are then downloaded and go through QA/QC checks as part of loading into the acQuire database. Holes drilled prior to 2008 were re-logged using OceanaGold procedure. All logged data is loaded into an acQuire database.

During early exploration at the Didipio Project by Climax, a total of eight trenches were cut down to bedrock across part of the ridge at irregular intervals, for a total length of 237m. Depths from surface varied from less than 1m to 2m. These trenches were channel chip sampled in 10cm wide by 5cm deep channels, at intervals ranging from 2m to 5m (averaging 3m), providing a total of 155 samples in the database.

In addition, 21 near-horizontal tunnels were developed by local miners to investigate high-grade gold mineralisation in shears, veins and breccias in the upper part of the Didipio Ridge. Tunnel location and orientation depended on topography. Channel sampling along the walls was carried out by Climax over 2m sample intervals to provide a total of 178 samples to the database.

Both trenches and tunnels only investigated the oxide zone. They were surveyed by tape and compass and geologically mapped at 1:100 scale.

In 2008 five trenches for 88m on the spine of the Didipio hill top were excavated and channel/chip sampled at 2m intervals. The results confirmed strong copper mineralisation within the oxide zone.

Trench samples were not used for resource estimation.

10.8 Sampling Method and Analysis

The core processing and storage facilities were transferred from Cordon to Didipio site in mid-2014. Since mid-2014 all drill core has been stored at the Didipio core shed.

10.8.1 Sampling

The overall envelope of mineralisation at Didipio Ridge has a steep easterly dip, with the >0.5 g/t gold equivalent footprint dimensioned 180m wide and 480m long. Underground drilling is generally fanned on sections orientated mine grid north south. This results in a range of intersection angles, from perpendicular dip to 45 degrees to dip. Given the typically diffuse mineralisation style, the drilling provides an acceptable basis for resource estimation.

The majority of surface-based holes, which are being superseded by underground drilling, were drilled at around 60° to the southwest, which is considered appropriate, although does result in some acute intersection angles immediate to the Biak Shear Nominal sample lengths of 2m to 3m (which equates to 1m or 1.5m in plan view projection) are considered adequate to define the grade distribution within this zone.

Downhole core sample intervals are generally 2m or 3m.

Future infill drilling from underground development will be sampled more tightly.

Sample intervals were defined during the initial logging of cores on site. Core was cut in half using a diamond saw either on site (up to hole DDDH16) or at Cordon (holes DDDH17 onwards). Core has typically been sampled in intervals 2m or 3m under supervision of the site geologist or sample preparation manager, generally crossing rock type boundaries. After sampling, the remaining half core was stored for further technical and/or metallurgical purposes. In 1992, all drill cores on site were moved and stored at Climax's facilities at Cordon.

For the 2013 drilling (DDDH 222 to DDDH 226), the diamond core was cut and prepared at 2m intervals at Didipio. All 2013 core is stored at Didipio site.

For underground resource drilling, diamond core sampling intervals were defined after geological logging was completed. Whole NQ size core and half HQ size core was generally sampled in intervals of one metre, within a range from 0.3 metres to 1.3 metres, depending on lithological boundaries.

10.8.2 Core Recovery and Sample Quality

Core recoveries were generally better than 95%, although in local areas of severe structural deformation recovery was as low as 50%.

A review of core recoveries indicated that there was no strong relationship between core recovery and grade. The sampling is considered to be appropriate for purposes of resource estimation.

10.8.3 Tunnel Sampling and Trenching

Tunnel sampling and trench sampling data were excluded from the resource estimation database.

11 SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1 Sample Preparation

Sample preparation of Didipio drill core has been conducted in a number of phases, within in these phases there have been a number of variations in sample preparation procedures over time. The OceanaGold phase represents 88% of the samples used for estimation. The majority of pre-OceanaGold samples have now been mined out or are not contained with current mine designs. Details of the methods are described below and are summarised in Table 11-1.

Table 11-1: Didipio Operation Sample Preparation

Period	Company	Sample Preparation	Drillholes	Number of Samples	% of Total Database
1989	CYPRUS	ANALABS (MANILA)	DDDH1-5	344	0.50%
1990-1991	ARIMCO	ANALABS (MANILA)	DDDH8-11	347	0.50%
	ARIMCO	AMC	DDDH14-16	249	0.30%
1992-1998	CLIMAX	CLIMAX	DDDH18-22, 25-38, 41-45, 47, 49-55, 60-64, 66-83; DOX1-9	7790	10.80%
2007-2008	OGC	McPHAR (MANILA)	DDDH201-221	2309	3.20%
2013-2015	OCG	INTERTEK (MANILA)	DDDH222, 230-239	2251	3.10%
		SGS (DIDIPIO)	DDDH223-229; BHUG01-6, 8-15; RCDH1-2, 5, 9, 13-15	4747	6.60%
2016-2019	OGC	SGS (DIDIPIO)	BHUG16; DDDH240-255; RDUG1-326; RCDH550032, 560031, 33-36, 570003, 5800001-2; RCDH39-45; RAB holes; UG Channels	54022	75.00%

Climax Mining, from 1992 to 1998, maintained a sample preparation facility at the town of Cordon, comprehensively stocked with diamond saws, crushers, pulverisers, mills and riffle splitters. A large working area was kept relatively clean and dust free by means of an efficient extraction system. The sample preparation and core storage areas were under the supervision of experienced local staff. The storage facility was kept by OceanaGold until mid-2014, when all core was transferred to a core shed at Didipio. Since that time diamond core from resource definition drilling programs has been sampled and stored in the Didipio core shed with the samples being submitted to the onsite SGS laboratory.

The following sample preparation sequence was used by Climax:

- Oven-dry quarter core samples;
- Jaw crush to minus 6mm;
- Disc pulverise to minus 2mm; and
- Hammer mill to minus 1mm.

Riffle split into two by 2kg samples and fine pulverised with one split to minus 200 mesh:

- Screen >95% minus 200 mesh;
- Riffle split 150g to 200g for assay;
- All sample rejects stored; and

- Prepared samples air freighted to Analabs Proprietary Limited ("Analabs") in Perth, Western Australia for assay.

For the 2007-2008 drilling (DDH201-222) as well as 2013-2015 drilling (DDDH230-239), the diamond core was cut and prepared at 2m intervals at Didipio. Half core was transported to the McPhar facility in Manila. McPhar-Intertek sample preparation procedure is as follows:

- Oven dry core samples;
- Crushed core to 90% passing 2mm;
- Riffle split to 1000g – 1500g, retain coarse reject;
- Pulverize 1000g – 1500g to 95% passing 75µm; and
- Riffle split to 200g – 250g, retain pulp reject;

For the 2013-2014 drilling (DDDH223-229), the diamond core was cut and prepared at 2m intervals at Didipio. Crushed cores were submitted to the SGS facility on site. SGS sample preparation procedure is as follows:

- Oven dry core samples;
- Crushed core to 75% passing 2mm;
- Rotary split to 500g – 1000g, retain coarse reject;
- Pulverize 500g – 1000g to 85% passing 75µm; and
- Scoop 250g for analysis; retain pulp reject;

Starting from 2015, PQ and HQ diamond core (BHUG1-6, 8-16; DDDH240-255; RDUG1-326) has been cut in half. Half core is assayed and the other half is retained. NQ core is submitted whole for assaying. All core is submitted in one meter sample intervals except where sample intervals are split to align with lithology. Drill cores are submitted to SGS facilities on site.

RC holes were sub-sampled either through a cone splitter (Schramm) or riffle splitter (Edson). Blast holes were sub-sampled with a riffle splitter.

Underground channel sampling is ongoing as the mine develops. These samples have been taken from the walls of ore drives with sample lengths varying between 0.2m to 2.0m where intervals are designed to align with lithology.

The SGS sample procedure is as follows:

- Oven dry samples for 8-12hrs at 105 degrees C;
- Crush using Jaw crusher into ~4mm size;
- Crush using Boyd crusher into ~2mm size – dry screen every 20th sample;
- Split 15% of the sample using BOYD-RSD;
- Pulverise 750-1000g samples into 75um – wet screen every 20th sample; and
- Riffle split to 250g for assaying – 250g as pulp retention.

11.2 Analytical Methods

Since 1989, three assay laboratories have been used; Analabs until 2007, McPhar-Intertek (Manila) in 2008, and SGS (on site) since 2012. All three laboratories are considered independent of OceanaGold. SGS laboratory facilities are located at Didipio site and are staffed by SGS employees.

11.2.1 Gold Assay Procedures

The standard gold assay procedure used by Analabs in Perth (NATA certified)2 was as follows: Laboratory Method Code 313:

- A 50g sample pulp was fired with litharge and flux and the lead-silver button cupelled. This was followed by acid dissolution of the silver-gold prill, and gold content was measured by AAS to a 0.005ppm Au lower detection limit; and
- Assaying for gold in samples from DDDH1 to DDDH6 was performed by Analabs in Manila, but this practice was discontinued in November 1989. The same procedures were used by the Manila and Perth laboratories.

The standard gold assay procedure used by McPhar-Intertek (Manila) was as follows: Laboratory Method Code PM6 (2008):

- A 50g sample pulp was fired with litharge and flux and the lead-silver button cupelled. This was followed by acid dissolution of the silver-gold prill, and gold content was measured by AAS/GTA to a 0.001ppm Au lower detection limit.

Laboratory Method Code FA30/AA (2013):

- A 30g sample pulp was fired with litharge and flux and the lead-silver button cupelled. This was followed by acid dissolution of the silver-gold prill, and gold content was measured by AAS to a 0.01ppm Au lower detection limit.

Laboratory Method Code FA50/AA (2014-2015):

- A 50g sample pulp was fired with litharge and flux and the lead-silver button cupelled. This was followed by acid dissolution of the silver-gold prill, and gold content was measured by AAS to a 0.005ppm Au lower detection limit.

The standard gold assay procedure used by SGS (on site) is as follows:

Laboratory Method Code FAA303.

- A 30g of sample pulp is fired with fire assay flux and the button is cupelled. The collected prill is dissolved in an acid. The gold in solution is then quantified using AAS at a detection limit of 0.01 ppm.

11.2.2 Copper and Silver Assay Procedures

The standard procedures used by Analabs, Perth, for copper and silver assays were as follows: Laboratory Method Code 101:

- Perchloric acid digest then AAS finish to a 4ppm lower detection limit for copper and a 2ppm lower detection limit for silver.

For samples containing >1% Cu: Laboratory Method Code 104:

- Mixed acid digest followed by volumetric dilution and AAS finish to a 25ppm copper lower detection limit.

The standard copper assay procedure used by McPhar-Intertek (Manila) was as follows:

Laboratory Method Code ICP1 (2008):

- Acid digest using HCl-HNO3 then ICP to a 1ppm copper detection limit.

Laboratory Method Code 4AH1/AA (2013):

- Acid digest using HCl-HNO3 -HClO4-HF then AAS to 1ppm copper detection limit.

Laboratory Method Code AR005/OM1 (2014-2015)

- Determination by ICP-OES following aqua regia digestion (HCl/HNO3) with test tube finish. 1ppm Cu detection limit.

The standard copper and silver assay procedure used by SGS (on site) is as follows:

Laboratory Method Code AAS22D:

- Acid digestion using HCl-HNO3-HClO4. The AAS detection ranges are 0.01%-10% and 0.5-500 ppm for copper and silver, respectively.

Laboratory Method Code XRF78S

- Copper, Iron and Sulfur Assay Procedure. XRF analysis by borate fusion method. 0.50g of sample is mixed with XRF flux to produce glass bead which is subjected to XRF for elemental analysis. Detection limit of the method is 0.01%.

11.3 Sample Security

There is no specific documentation of sample security procedures prior to OceanaGold's involvement in the project. However copper assays are consistent with mineralisation observed in core and gold assays are generally consistent with mineralised features. Metallurgical test work, independent verification work by other companies, and four years of mine versus resource model reconciliation support this view. Most of the samples pre OceanaGold's involvement in the project have now been mined out.

Since commissioning of the SGS onsite laboratory all samples have gone directly from point of collection to the onsite SGS laboratory or for drill core via the onsite core shed (used for photographing, logging, and sampling of the drill core) and are tracked using uniquely numbered sample submission sheets. In December of 2015 RSC Mining and Mineral Exploration visited site to look at process plant sampling but included a brief memo of findings having also visited the site SGS laboratory. The memo made some recommendations for improvements:

The improvements were implemented by December 2015.

- Increase the schedule of periodic auditing of the SGS laboratory by OGPI staff;
- Implement improvements to the pulp sampling methodology; and
- An update to the format and included data in the SGS QC report.

There have been no other reviews of the SGS laboratory.

11.4 Statement of Sample and Assaying Adequacy

The author considers that the sample preparation, security and analytical procedures used for the Didipio operation are appropriate and adequate for the style of mineralisation being assessed.

12 DATA VERIFICATION

12.1 Performance of Blanks, Standards, Laboratory Repeat and Field Duplicates

12.1.1 Summary

The data verification presented in this chapter reflects the drill hole sample data that was used in the current underground resource estimate dated June 2019. Drilling that supported the resource estimates for open pit which was mined to completion in 2017 is not included.

Three laboratories performed the assay analysis for the Didipio project: Analabs (1989 – 1997), McPhar (1992 – 2015) and SGS (2013 – 2019). A break down by laboratory is shown in Table 12-1.

Of the 72,059 samples sent for laboratory analysis, 9,848 samples for gold and 7,120 samples for copper were inserted as standards, blanks, field duplicates (field dups) and laboratory replicates (lab repeats). The break down is shown in Table 12-2. These assays represent 14% of total gold samples and 10% for copper samples sent for laboratories analysis.

Overall, the performances for standards, blanks, field duplicates and laboratory repeats are considered acceptable. SGS field dups returned fair precision comparing to original assays for both gold and copper. Further investigation indicates the variation more likely to be due to sampling procedures when the duplicates samples were taken. However, this issue will be eliminated by full core sampling for grade control samples.

The available resource drilling has been assessed and OceanaGold considers the data to be of a suitable quality for resource estimation purposes.

Table 12-1: Resource Estimate Assays by Laboratory

Laboratory	Years	Quantity Analysis	% of Total
Analabs	1989 - 1997	8,709	12
McPhar-Intertek	1992 - 2015	4,581	6
SGS	2013 -2019	58,769	82
Total		**72,059**	**100**

Table 12-2: QA/QC Material Statistics for Didipio Underground Resource Estimate

QC Material	Quantity Au Analysis	Quantity Cu Analysis
Standard	3,104	2,497
Blank	3,108	1,856
Field Duplicates	953	911
Lab Repeats	2,683	1,856
Total	**9,848**	**7,120**

12.1.2 Laboratory Repeats SGS and McPhar-Intertek

Overall, the performance of gold and copper standards for both SGS and McPhar-Intertek Laboratories are acceptable, with total accuracy of exceeding 95% of results within ±10% of the expected value as shown in Figure 12-1 to Figure 12-3. No trend or bias is observed throughout the range of values. Note, that mis-labelled standards were identified and removed from the calculations and figures.

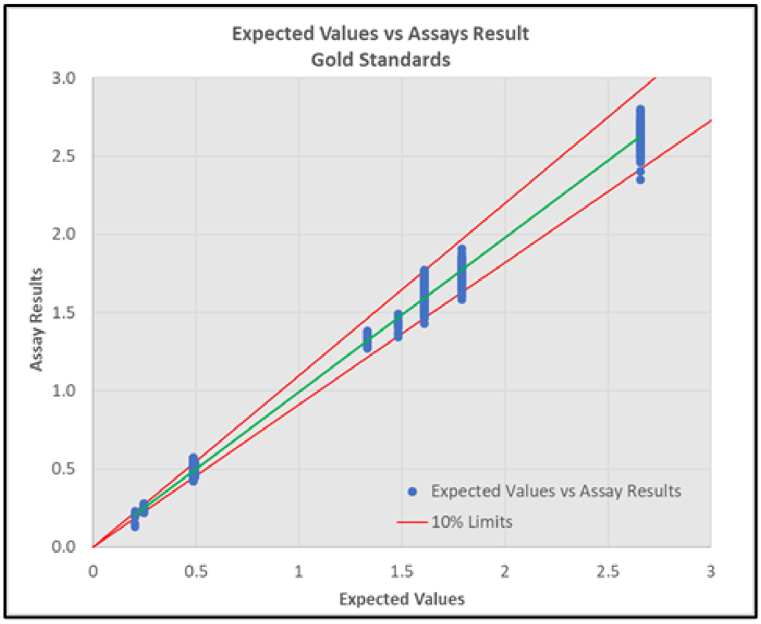


Figure 12-1: Gold (g/t Au) Standards– SGS

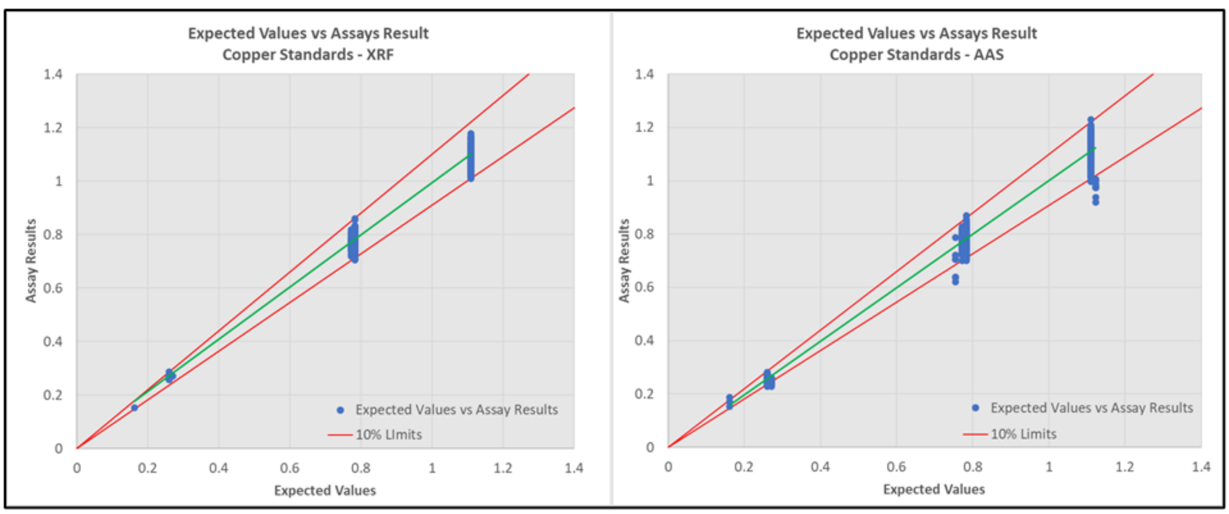


Figure 12-2: Copper (% Cu) XRF – Left, % Cu AAS - (Right) Standards – SGS

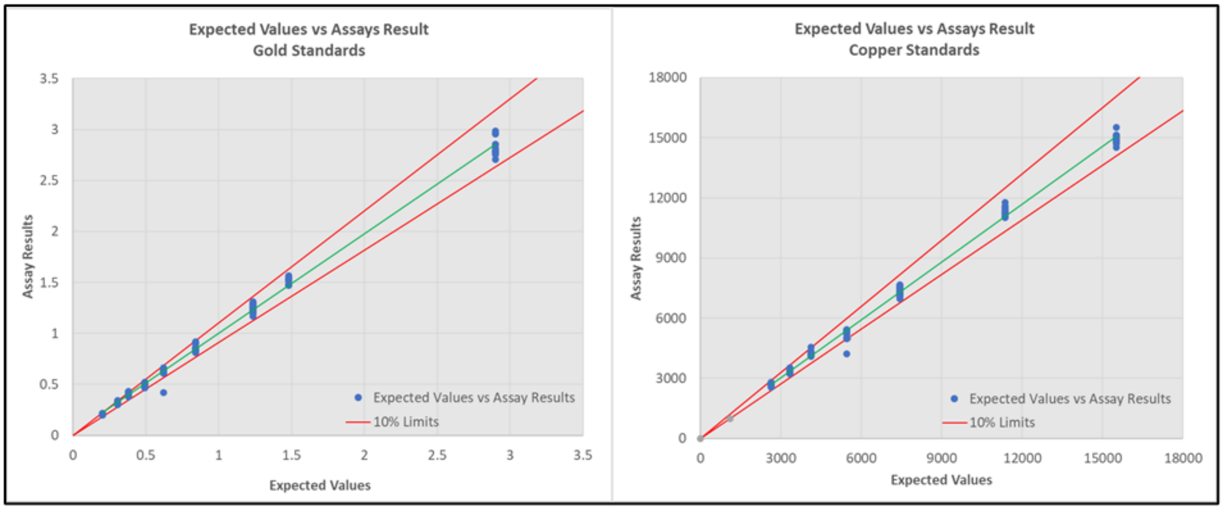


Figure 12-3: Gold (g/t Au) and Copper (% Cu) Standards – McPhar-Intertek

A total of 180 copper standards and 180 gold standards inserted to McPhar Intertek laboratory from 2008 – 2019, these standards inserted at a rate of about one every 25 samples (4%) for copper and gold assays. The insertion rate is deemed appropriate to support the mineral resource estimate.

The further analysis comparing to certified ±2STDEV of gold and copper standards for McPhar laboratory are well within acceptable range with 96% of gold standards within ±2STDEV, Figure 12-4 and 91% within ±2STDEV for copper, Figure 12-5. A 4% negative bias is seen for the OREAS 54Pa copper (%Cu) standard, albeit based on limited data. The OREAS 54Pa has not been used since 2008.

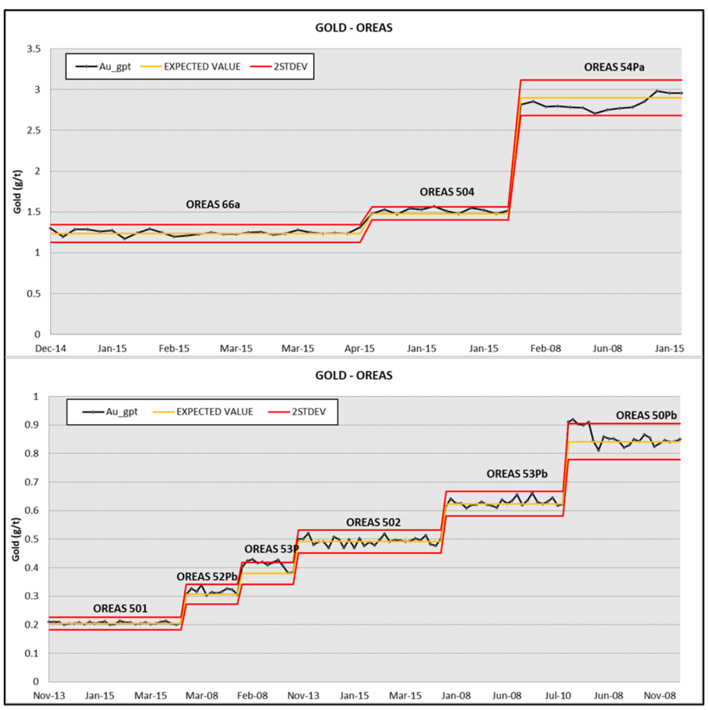


Figure 12-4: Standards for Au – McPhar-Intertek

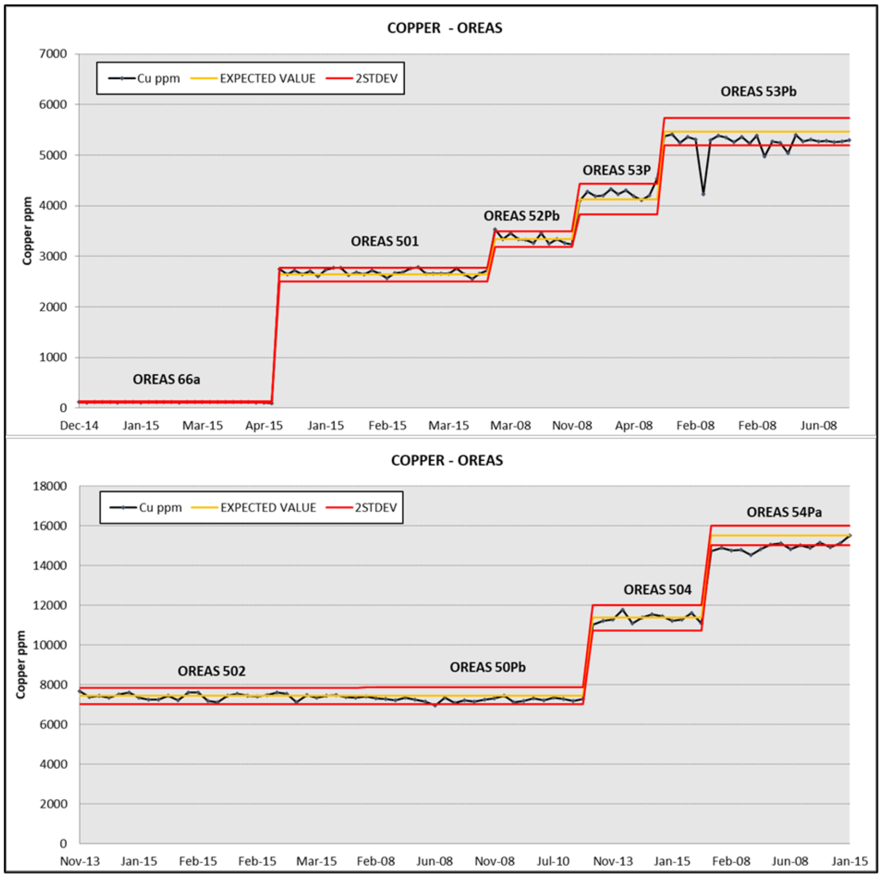


Figure 12-5: Standard for Cu - McPhar

A total of 2,317 copper standards and 2,924 gold standards inserted to SGS laboratory from 2008 – 2019, these standards were inserted one every 25 samples for copper assays (4%) and one every 20 samples for gold assays (5%). The insertion rate deemed appropriate to support the mineral resource estimate.

The analysis comparing to certified ±2STDEV of gold and copper standards for SGS laboratory were acceptable with 90% of gold standards within ±2STDEV, Figure 12-6, and 95% within ±2STDEV for copper,Figure 12-7. No trend or bias observed over period of times.

Figure 12-6: Standard for Au – SGS

Figure 12-7: Standard for Cu – SGS

12.1.3 Standard Blanks, SGS and McPhar-Intertek

McPhar's overall blank performance is acceptable for both gold and copper,Figure 12-8. Overall, 97% gold blank passed acceptable limit (< 0.05 g/t Au) and 99% copper blank passed acceptable limit (< 10ppm Cu).

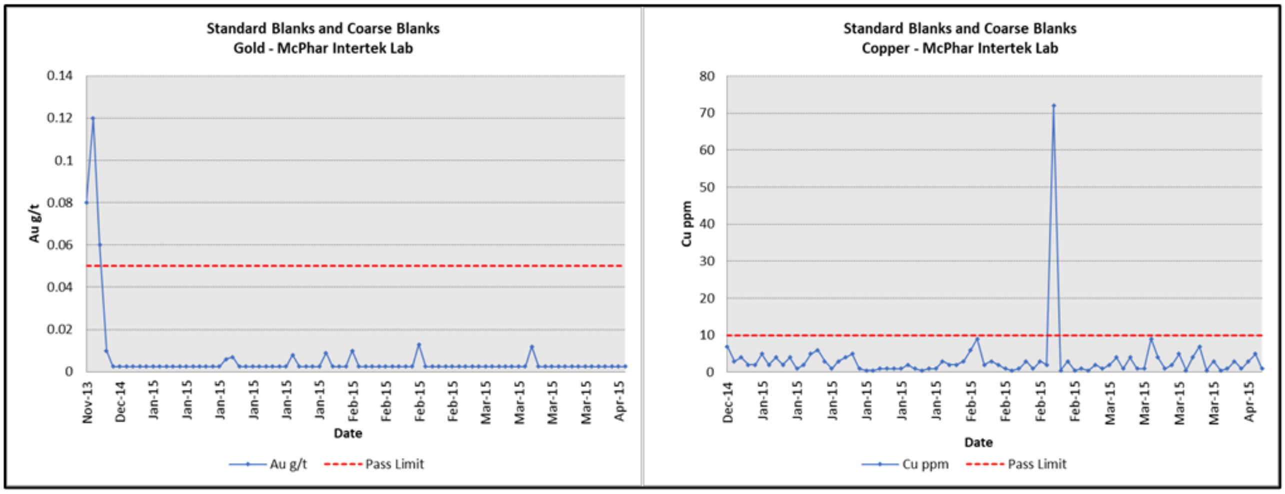


Figure 12-8: Standard Blank for Au and Cu – McPhar Intertek

SGS's overall blank performance is acceptable for both gold and copper, Figure 12-9. Overall, 99% gold blank passed acceptable limit (< 0.1 g/t Au) and 96% copper blank passed acceptable limit (< 0.1 %Cu).

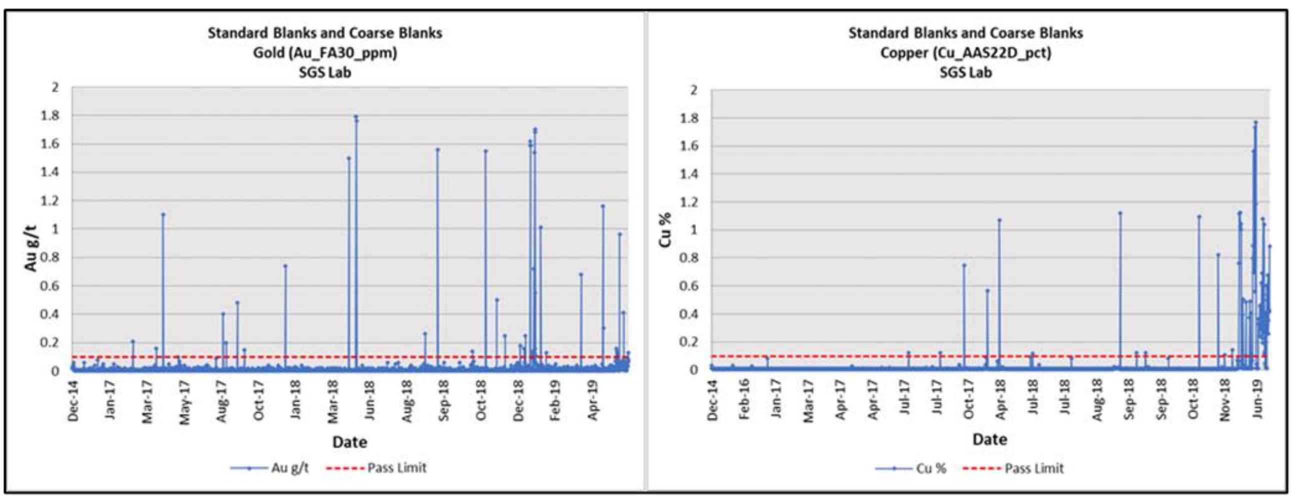


Figure 12-9: Standard blank for Au and Cu – SGS

12.1.4 Laboratory Repeats – Analabs, SGS and McPhar-Intertek

Figure 12-10 to Figure 12-12 present laboratory repeats for copper and gold.

A significant number of gold and copper laboratory repeats were completed as part of internal laboratory QAQC. In total about 1,856 copper and 2,683 gold lab repeats were compared to the original assays. Overall, good precision observed from all the laboratories. Details for each laboratory repeats are shown inTable 12-3.

Table 12-3: Laboratory Repeats

Laboratory	Total Assays	No Lab Reps		Lab Reps %	
		Cu	Au	Cu	Au
McPhar-Intertek	4,581	594	599	13%	13%
SGS	58,769	1,228	1,084	2%	2%
Analabs	8,709	34	1,000	0.40%	11%

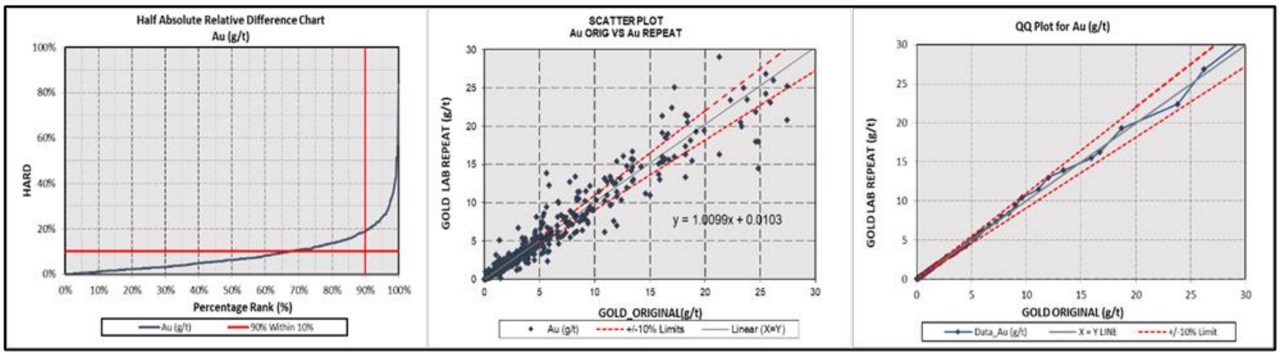


Figure 12-10: Lab Repeats for Au by Analabs Laboratory

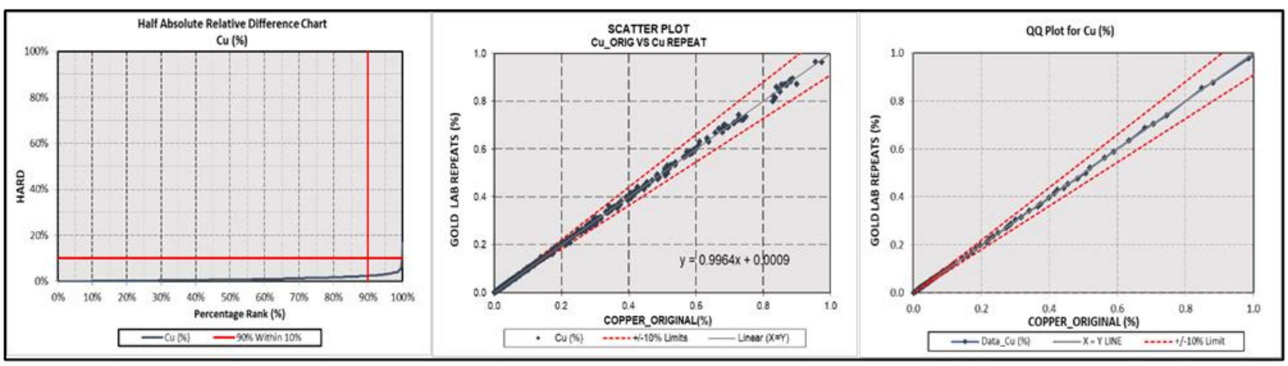


Figure 12-11: Lab Repeats for Cu by McPhar-Intertek Laboratory

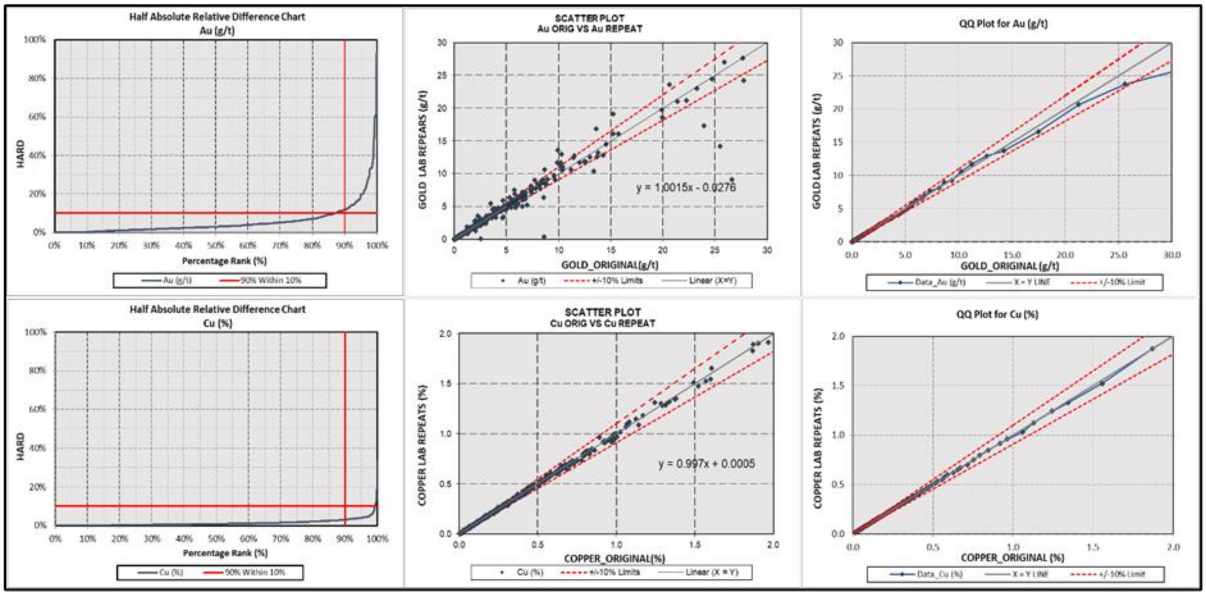


Figure 12-12: Lab Repeats for Cu and Au performed by SGS Laboratory

12.1.5 Field Duplicates – Analabs, SGS and McPhar-Intertek

A significant number of gold and copper field duplicates (field dup) were submitted as part as site QAQC procedures. In total about 911 copper field duplicates and 953 gold field dups results were compared to the original assays. Details for the field duplicates is shown in Table 12-4 and statistical analysis is shown in Figure 12-13 to Figure 12-14.

Insufficient field duplicates were submitted to McPhar-Intertek for any meaningful analysis to be made. Analabs field duplicates returned good precision compared to original assays. Field duplicates submitted to SGS laboratory returned fair precision compared to original assays for both gold and copper. Based on recent investigation, the variations more likely due to sampling procedures when the duplicate quarter core samples were taken from remaining half core. This low precision is therefore not believed to reflect actual half core sampling precision. Note that full core sampling has been and will continue to be used for grade control samples. Overall, whilst the comparison reasonably scatters the QQ plot for gold and copper (duplicate vs. original) still within the ±10% pass limit across the entire grade range; except for gold > 0.6 g/t.

Table 12-4: Field Duplicates

Laboratory	Total Assays	No Lab Reps		Lab Reps %	
		Cu	Au	Cu	Au
McPhar-Intertek	4,581	7	8	0.20%	0.20%
SGS	58,769	492	529	1%	1%
Analabs	8,709	412	416	5%	5%

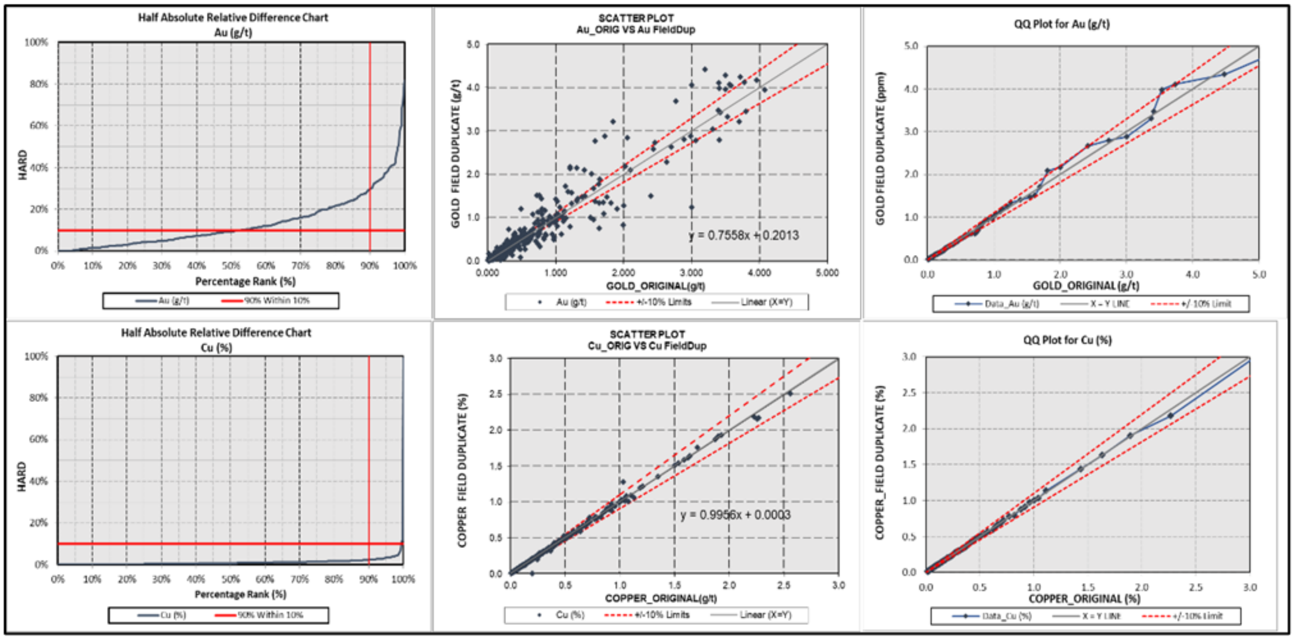


Figure 12-13: Field Duplicates for Cu and Au by Analabs Laboratory

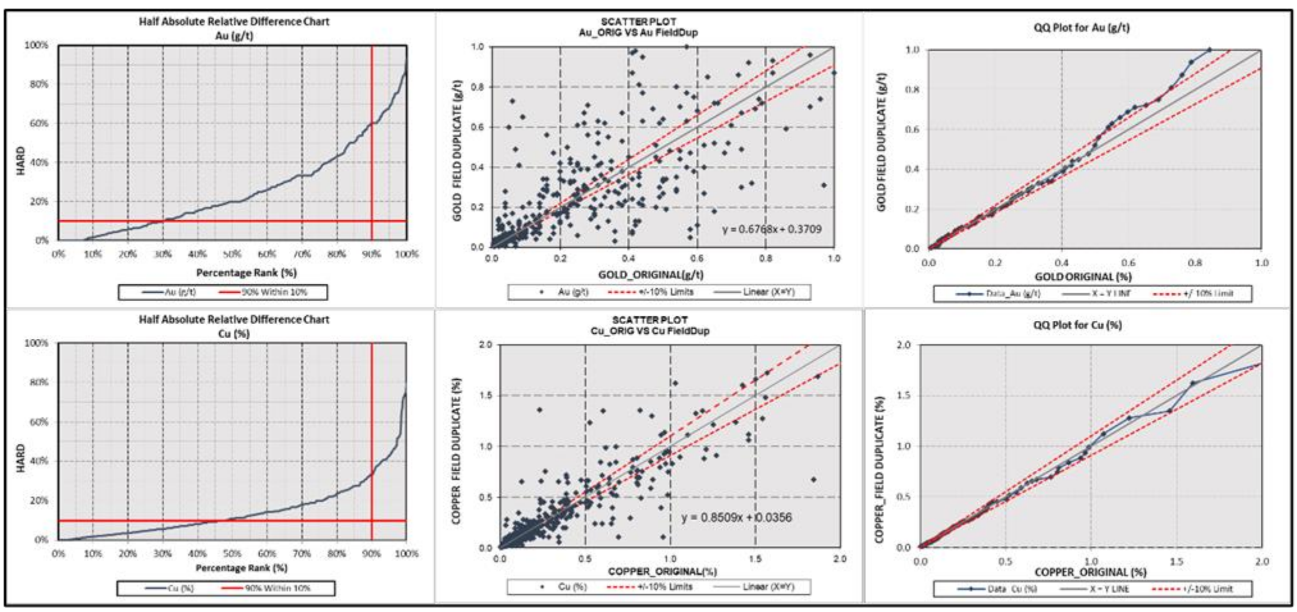


Figure 12-14: Field Duplicates for Cu and Au by SGS Laboratory

Based on the available quality assurance information for gold, copper and silver assay results, OceanaGold considers the Didipio assay data to be of suitable quality for resource estimation purposes.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Test work programmes on the gold-copper deposit at Didipio have been conducted in in a number of stages as the predominate ore source has changed from open pit to stockpiles to underground:

- The first programme was conducted from 1990-1993 and incorporated a number of bench-scale flotation tests to determine the characteristics of the materials;
- The second programme was conducted by a number of laboratories from 1994-1995 with more detailed test programmes, including locked cycle flotation tests and two mini-pilot plant studies.
- The third phase was conducted in 1997, testing primarily core from deeper drill holes, being material potentially mineable via underground methods, and included confirmatory tests based on the flow sheet developed in the previous test work;
- Test work between 2006 and 2008 managed by Ausenco and conducted by AMMTEC and internally by OceanaGold has generally confirmed the previous results;
- The plant was commissioned in Q4 2012 and upgraded to 3.5 Mtpa in Q4 2014 and operational plant performance matched predicted metallurgical performance;
- During 2017 the mill feed transitioned from open pit (unoxidised ore) to being entirely from stockpiles. Stockpile drilling and metallurgical test work commenced in 2017 to estimate partially oxidised stockpile performance with age and indicated maximum ore oxidation will be 10% which will result in a 5 to 7% drop in copper recovery. Several processing options and reagent modifications are under evaluation to increase metallurgical performance of stockpile material;
- Projected mill feed blend from 2017 onward are comprised of 30% underground ore and 70% stockpile ore; and
- Series of test work to determine underground ore grindability and metallurgical performance started in 2016, including the free gold content and estimated gravity recovery of the underground ore.

13.2 Ore Mineralogy

The Didipio mineralogy work has been based on the principal rock types (Tunja monzonite, Dark Diorite and Quan monzosyenite) together with the higher-grade breccia and the quartz-feldspar-carbonate altered zones. Volumetrically, OceanaGold estimates that the Tunja monzonite will comprise more than 75% of the projected mill feed.

Mineralogical studies were carried out from 1994-1995 by Wally Fander of Central Mineralogical Services and by Ian Pontifex of Pontifex and Associates. In addition, Amdel conducted some optical and X-ray diffraction studies. All three groups are well respected in the industry.

The principal mineralogical characteristics of the primary ore are as follows:

- Principal sulphide minerals are chalcopyrite, pyrite and bornite, with traces of chalcocite and digenite; chalcopyrite is the principal copper mineral, whilst bornite generally contributes less than 20% of the contained copper;
- Magnetite comprises approximately 5-7% of ore, but there are few composite grains with the sulphides;
- The sulphides are generally well liberated, with liberation generally >92% in the float concentrates;
- Minor or trace talc / sericite is present in the higher-grade samples; and
- There is little or no evidence of oxidation in the sulphide samples tested except for some tarnishing.

13.3 Metallurgical Samples

13.3.1 Previous Sampling

Minproc Limited

The Minproc Limited study reported on the following test work:

- The Phase one test work was based on samples obtained from early stages of deposit drilling, and as such is considered less than wholly representative;
- The Phase two test work studied five separate composites of primary material, both low-grade and high-grade, from three vertical sections of the deposit;
- Within the second phase test work, a programme was conducted on sample composites made up of a large number of mineralisation intercepts;
- Nine variability samples tested in Phase two were selected to represent ore feed for the first five years of production and to test each of the four main rock types; and
- Two pilot plant studies were carried out. The first was based on approximately 2t of sample comprising 140m of intersections from a single PQ drill hole. The second pilot plant test programme was based on 1.25t of quarter core samples selected from throughout the deposit representing approximately 600m of core.

Ausenco

- Comminution testwork was conducted on a number of composites from HQ core;
- Media competency testwork was conducted on portions of the pilot plant PQ sample; and
- In 2006 confirmatory testwork was conducted at AMMTEC's laboratory in Perth; three drill holes were sampled and composited into three samples, used for flotation tests and for comminution tests.

OceanaGold 2008

In 2008, OceanaGold completed copper flotation testing on 22 near-surface samples from dedicated diamond core (DOX series holes). The samples were taken to metallurgically define the weathering profile. The results are colour coded in Figure 13-1 to reflect the flotation recoveries (red>90%, orange>60%, yellow>40%, green>20%, blue<20%). It is worth noting that these recoveries closely match oxidation intensities that were independently logged visually in core in 2008. These modelled recoveries were successfully used as the basis for the grade control strategy whilst mining the top of the ore body in 2012/early 2013.

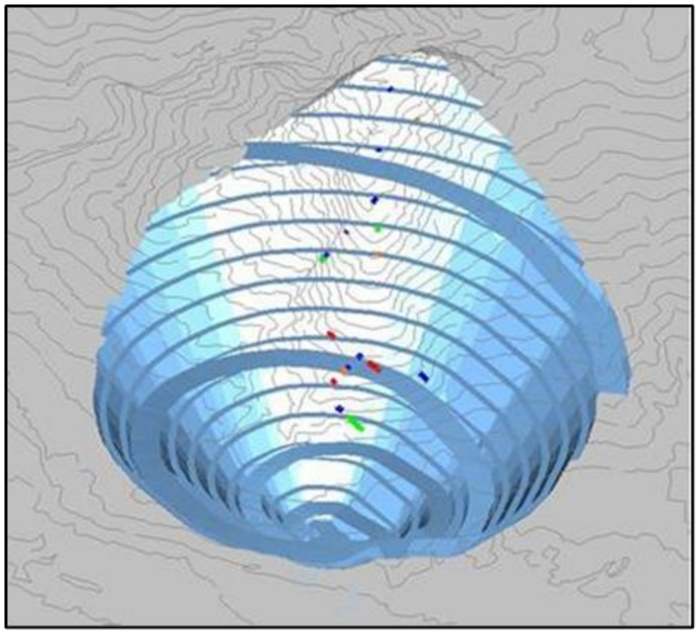


Figure 13-1: Copper Flotation Samples in 2008 Relative to the Stage 2 Pit

13.3.2 2011 Metallurgical Sampling

By 2011 numerous changes to the project had occurred since the previous round of metallurgical sampling, including changes to the relative size of the underground mine, the open pit staging, the reagent regime etc. Due to these changes, it was decided to collect supplementary test samples. The opportunity was also taken to collect samples according to broad rock types (Tunja Monzonite (yellow), Dark Diorite (maroon), and Biak Shear) and gold/copper ratios. The sampling to date has tested Stage two and the upper regions of stage three pits, these are shown in Figure 13-2 and Figure 13-3.

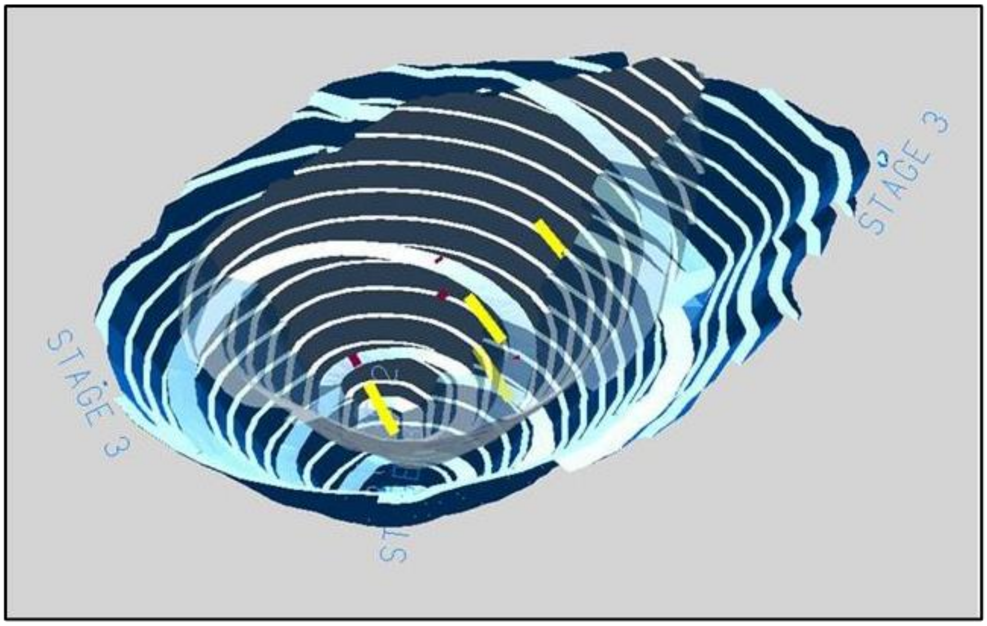


Figure 13-2: Metallurgical Samples Collected in June 2011

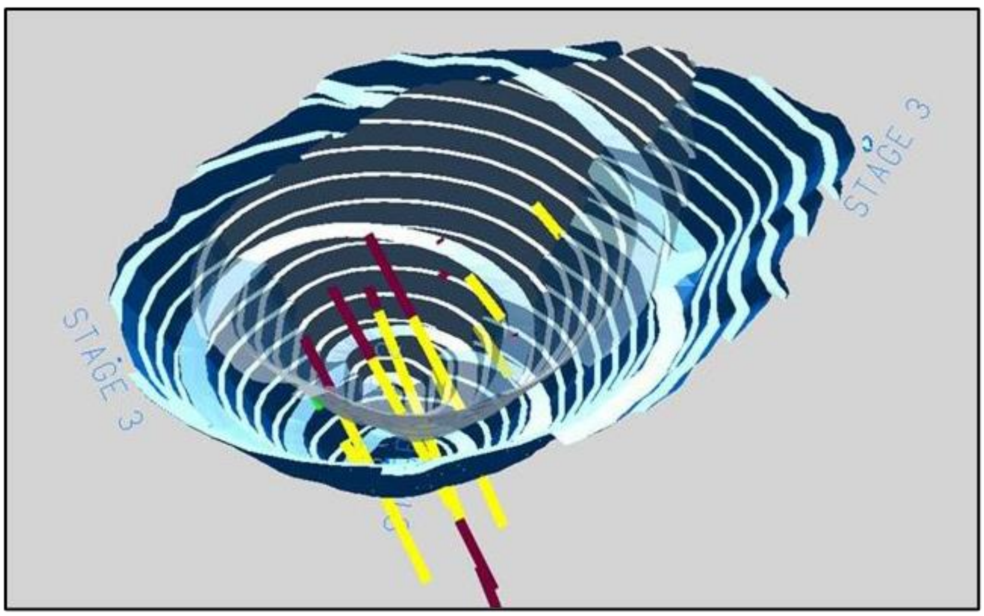


Figure 13-3: Metallurgical Samples Collected in October 2011

13.3.3 Comminution Test Work

A number of studies were conducted to investigate the physical and comminution characteristics of the various mineralised samples. Three laboratories conducted test work as follows:

- AMMTEC conducted standard comminution tests, including Bond Work Indice tests, on HQ samples from different rock types at different deposit depths and JK Tech Proprietary Limited ("JK") Pendulum tests on PQ core from the pilot plant testwork sample;
- Amdel conducted Media Competency tests on the PQ core intersections; and

- Lakefield Research in Canada conducted Aerofall grinding evaluation tests on PQ core.

Minproc Limited evaluated the data to determine the appropriate circuit design and correct mill sizing. Table 13-1 summarises the various comminution results.

Table 13-1: Measured Grinding Results

Material Type		Bond Indices			JK Tech Parameters					
		Ball-Bwi kWh/t	Rod-Rwi kWh/t	Abrasion-Ai	A	b	A*b	Dwi	ta	SG
Tunja Diorite	Range	12.3-14.8	13.2-15.2	0.204-0.315						
	Average	13.8	14.3	0.2777						
Dark Diorite	Range	13.8-15.1	15.0-17.5	0.185-0.371						
	Average	14.1	16.2	0.255						
Quan Diorite	Range	13.2-14.8	13.9-15.5	0.211-0.337						
	Average	14.1	14.9	0.295						
PQ Samples	Range	12.7-12.9	12.5-16.3		71.2	0.54	38.5		0.39	2.67
	Average	12.8	14.4							
2006 Testwork	Average	14.1	14.1	0.1456	74.6	0.9	67.2	3.9		

These results indicate that the Didipio rock types can be classified as having a low to moderate level of competency, which suggests a relatively low power consumption to reduce the material to the required particle size distribution for processing. The abrasion indices also suggest relatively low levels of abrasive wear on grinding media, liners, plant chutes and pipes. Ausenco has adopted 14.6 kilowatt-hours per tonne ("kWh/t") for the Ball Mill Work Index and 14.5kWh/t for the Rod Mill Work Index with an Abrasion Index of 0.26.

The 2006 test work programmes were carried out by JKTech and Dr Steve Morrell of SMCC Proprietary Limited. JK comments that the DWi, or drop weight index, at 3.9 is relatively low, indicating that the Didipio material is fairly soft with relatively low power requirements to grind to a specified size, with a minimum of critical size development. The parameters A, b and the product A*b also indicate a relatively soft material.

Other comminution tests conducted on the PQ samples are shown in Table 13-2.

Table 13-2: Other Measured Grinding Results

Tested	Autogenous	Unconfined Compressive Sstrength			Impact Crushing Work Indices - kWh/t				
	WI kWh/t	Range MPa	Peak Mpa	Failure	102-76mm	76-51mm	51-38mm	38-25mm	25-19mm
PW - Avg	13.2				38.9	23.2	9.4	8.7	6.7
PQ - Max					57.8	45.4	13.7	15.4	11.3
PQ - Min					28.3	16.2	6.5	3.8	3.9
Tunja Monzonite		45 - 130	130	Shear					
Dark Diorite		45 - 175	175	Shear					
Quan Monzosyenite		50 - 110	110	Cataclisis					

The impact indices indicate that there could be a need for a recycle pebble crusher after the SAG mill as the rock competency increases significantly from the 51mm fraction to the 76mm fraction. However, this is not supported by other data that suggests there will be a minor amount of critical size build-up. As a result, a Pebble Crusher was installed in 2014 as part of 3.5 Mtpa upgrade.

In 2016, OceanaGold submitted Underground breccia sample and an ore sample taken from the plant to JK Tech for standard comminution tests. The results are summarised in Table 13-3 and Table 13-4.

The DWi of the breccia sample was 1.88, hence was categorised as very soft, while the plant sample was 4.54 which is still in the soft range in terms of resistance to impact breakage. On the other hand, the calculated work indices suggest the samples can be classified as "Medium" hardness in terms of resistance to grinding.

In terms of grindability and throughput, underground ore is less competent compared to open pit and stockpile ore. The blending of the underground and stockpile ore is not expected to impact mill throughput.

Table 13-3: Measured Grinding Results from 2016 Samples

Sample Designation	DWi kWh/m3	Dwi %	M_{ia} kWh/t	M_{ik} kWh/t	M_{ie} kWh/t	A	b	SG	t_a	
Breccia	1.88	4	7.5	4.3	2.2	67	2.01	2.54	1.37	
CV003	4.54	24	14.9	10.2	5.3	70.1	0.81	2.59	0.57	
	A*b					SC SE (kWh/t				
	Value	Category	Rank	%	Value	Category	Rank	%	Value	%
Breccia	134.7	Very soft	4,143	7.0	6.25	Very soft	229	5.8	1.37	7.8
CV003	56.8	Moderately soft	2,942	34	8.37	Moderately soft	1196	30.2	0.57	35.1

Table 13-4: Measured Grinding Results from 2016 Samples – Bond Ball Mill Data

Sample Designation	F_{80} (µm)	P_{80} (µm)	Grindability (g/rev)	Aperture (µm)	Work Index (kWh/t)
Breccia	2,239	86	1.455	106	12.8
CV003	2,239	83	1.246	106	14.3

13.3.4 Gravity Gold Recovery Test Work

Consistent gold recoveries were difficult to attain based on flotation test work alone. This is not unusual with gold-copper deposits that contain high levels of gold with a significant amount of free gold. Hence it was decided to investigate the use of gravity recovery techniques prior to flotation. Optimet carried out test work on the nine variability samples based on tabling and hand panning the table concentrates. The overall recovery to a gravity product was approximately 20% or more, indicating that gravity recovery to bullion was likely to be economically viable.

Subsequently, tests were undertaken using a laboratory Knelson high G-force concentrator followed by amalgamation of the Knelson concentrates. Details of the test results have been published previously in the "Technical Report for the Didipio Project" dated July 29, 2011. Figure 13-4 shows the results of the gravity testing program showing the established relationship between feed grade and gravity-Amalgam recovery. Gold particles observed in the panned concentrates were generally much finer than 100µm in size.

When Didipio Underground was developed in 2016, Gravity Recoverable Gold ("GRG") test work was undertaken to determine mineralogy and grain size of future ore which consists of 60% low-medium grade stockpiled monzonite/diorite and 40% underground breccia.

The gold grain size of the future ore was determined to be significantly coarser at greater than 200 microns.

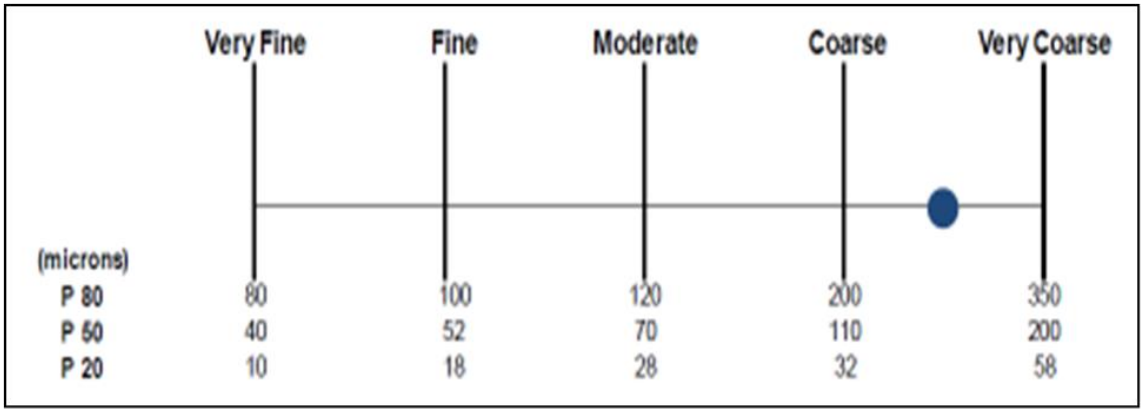


Figure 13-4: Future Ore Gold Grain Size

Two external and independent laboratories undertook the gravity test work came to a similar conclusion that earlier recovery of GRG is possible and prevent over grinding and losses of the GRG material. Table 13-5 shows the consistency in results from the different labs including that from site.

Consep Australia's laboratory developed and provided a gravity gold recovery model using KC Mod*Pro using their GRG results for the sample. From the modelling, the gold recovery to doré would be increased by more than 10% and the overall gold recovery benefit is estimated to increase by around 2%.

Met-Solve Laboratories Inc in Canada also conducted testwork on gravity recovery on samples from the underground resource and modelled simulated overall impact on gold recovery. Results of testwork programs on gravity gold recovery on underground samples is presented in Table 13-5.

Table 13-5: Gravity Test Work of Future Ore

Sample	Head Grade			Concentrate Grade			Recovery % Gold		
	% Cu	g/t Au	Type	% Cu	g/t Au	Copper	Total	Gravity	Flotation
LS0001	1	2.12	Locked Cycle	23.6	22.8	95.6	90	43.5	46.5
			Batch Locked	28.4	16.7	94.3	88.1	39.5	48.6
LS0002	1.09	2.4	Cycle Batch	26.5	23.1	94.8	91.2	49.4	41.8
			Locked Cycle	28.5	24.2	93.6	91.8	51.0	40.8
LS0003	0.81	1.17	Batch	29.2	17.6	95.9	92.9	46.6	46.3
				26.5	23.2	95.7	90.5	41.0	49.5

An additional gravity recovery Falcon SB5200 unit to process Cyclone Underflow stream was the basis of a FEED study in 2019.

In addition, a smaller gravity recovery unit, a Falcon SB750 was installed in Q4 2016 in the processing stream of rougher concentrate to capture missed GRG from the primary gravity recovery unit Falcon SB2500. The additional of Falcon SB750 gravity concentrator unit has increased gravity recovery by 5%.

In addition to improvements to overall gold recovery the gravity recovered gold has a higher payable component thatn gold in copper concentrate increasing overall revenue.

13.3.5 Flotation Recovery Test Work

Flotation test work during the prefeasibility stages was carried out in several phases broadly characterised as:

- Flotation Recovery Test Work;
- Optimisation Flotation Test Work;
- Ore Variability Test Work; and
- Pilot Plant Testing.

General conclusions were that:

- Copper flotation kinetics were rapid;
- Copper recoveries were generally high with acceptable concentrate grades;
- Over-grinding was detrimental to good metallurgical performance; and
- Gold recovery to copper concentrate generally ranged from 80-90%.

More detailed discussion and results of these programmes have been previously published in the earlier "Technical Report for the Didipio Project" dated July 29, 2011.

Flotation test work was also conducted on site in 2016 to predict the recovery response of the different types of Underground breccia ore, which is one of the predominant lithologies of the underground ore. In summary:

- Recoveries are best at higher rates of SIBX dosage (maximum 15g/t);
- Lime dosage is not necessary to increase recovery, as is the current process set-up;
- Optimum recoveries are achieved at 140µm grind; and
- Paste backfill dilution could be detrimental to copper recovery only.

13.3.6 2006 Validation Tests

A test work programme was carried out on new samples. Batch tests were conducted as well as locked cycle tests. Gravity gold was removed prior to flotation test work, Table 13-6, summarises the results, which are generally consistent with the results from the early programmes.

Table 13-6: 2006 Validation Test Work Results

Rock Type	IS50 Avg	IS50 SD	Count	Dwi	A	b	A*b
Monzonite	5.32	1.28	96	5.49	72.18	0.67	48
Diorite	7.04	2.02	93	7.99	75.2	0.5	37.41
Breccia	1.27	0.71	50	1.88	67	2.01	134.67
Survey 1				2.52	64.9	1.61	104.49
Survey 2				4.59	73.4	0.77	56.52
Survey 3				4.54	70.1	0.81	56.78

13.3.7 2017 Stockpile Flotation Recovery Test Work

Site conducted further test work programmes for the stockpile ore after experiencing gradual reduction in copper recovery since 2017. It was found that the stockpile ore had partially oxidised as a result of it being exposed to surface weathering conditions. Depending on the intensity of oxidation of the ore, there is a corresponding loss in copper recovery when compared to the fresh state. The oxidation degree was found to be correlated to the age of stockpile ore. Figure 13-5 illustrates the decreasing trend of copper recovery as an effect of oxidation as represented by the ratio of acid soluble copper to total copper in the ore, as well as the effect of Controlled Potential Sulphidisation ("CPS") method using Sodium Hydrosulphide (NaHS). Lab results indicate a recovery increase with CPS as the ore oxidation extent increases, however it will not restore recovery to the to the same level as the fresh ore. A CPS FEED study is currently under way and due for completion in 2023 and budgeted for installation by 2024 when large volumes of partially oxidised ore are forecast to be fed to the mill which will negatively influence copper recovery.

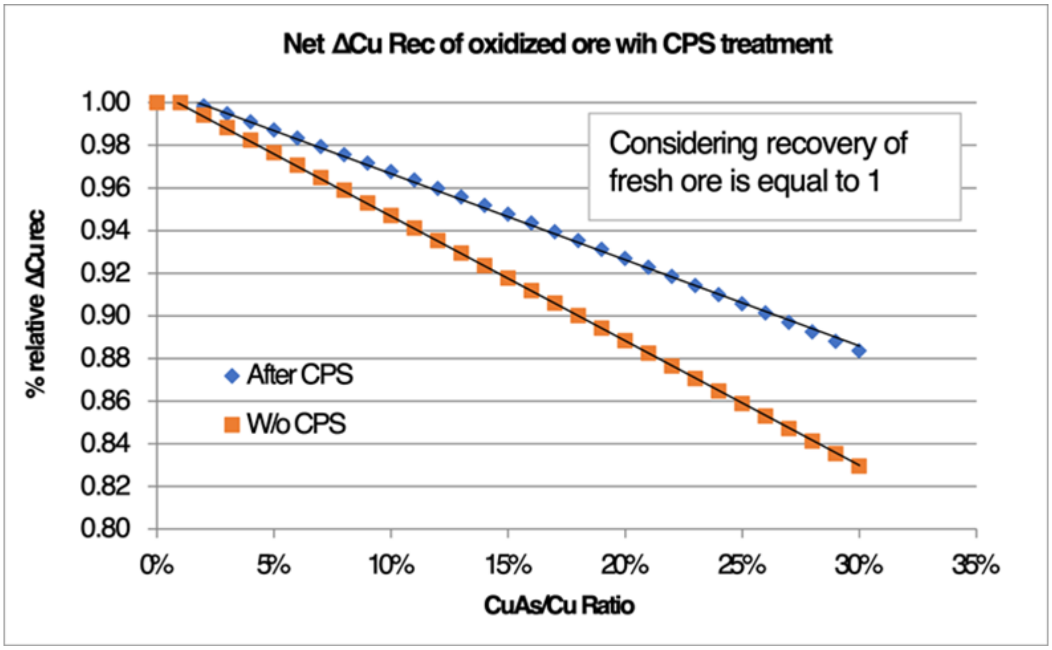


Figure 13-5: Relative Copper Recovery Change with and without CPS Compared to Fresh Ore

13.4 Metallurgical Performance of the Process Plant

Based on the test work programmes undertaken, a series of models were developed to predict flotation tail grades of copper and gold as a function of feed grade. These have been used in previous feasibility studies to calculate predicted recovery for the process plant and to establish cut off grades for the open pit and underground operations. These models were based on results of the various flotation tests and are normalised to predict performance at a primary grind size P80 of 75µm.

Bench scale testing of samples collected in 2011 by OceanaGold was completed using the final design reagent suite and tested the performance at a primary grind P80 of 75µm and 106µm. The test work indicated the recovery trade-off from coarsening the primary grind was in the order of 1% and reflected well on the established models at the finer grind size. This led to an adjustment of the models for higher planned throughputs with expected coarser grind sizes.

Since commissioning of the process plant, recovery of copper and gold ramped up in line with budget expectations as shown on Figure 13-6 below with recovery expected to meet the model within 9 months of plant operations commencing. In general, the plant copper recovery (red trace) can be seen to meet or exceed the model-based recovery (green trace). Similarly, the overall plant gold recovery (gold trace) has met or slightly exceeded the modelled recovery (blue trace).

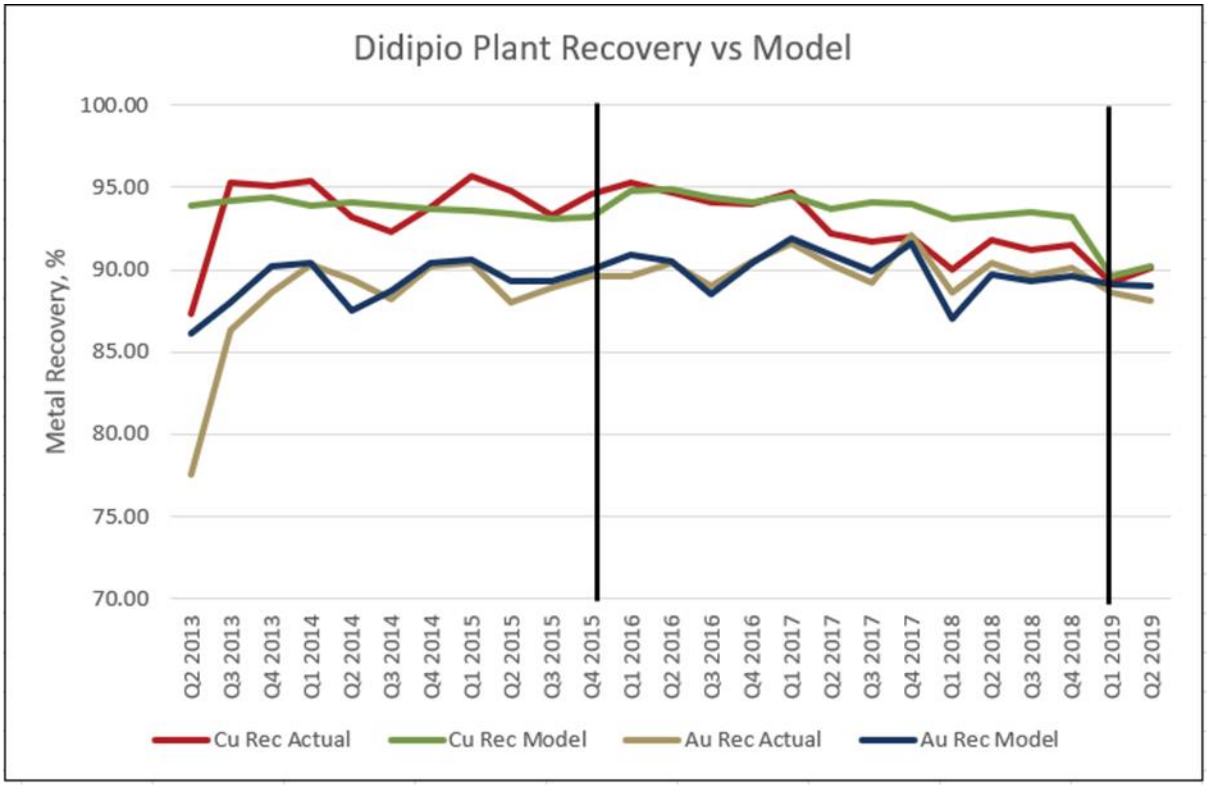


Figure 13-6: Didipio Plant Recovery Since Start-up

During Q2 and Q3 2014 stockpiled transitional material was added to the mill feed blend at up to 15% of the feed tonnes. This transitional material was not in the mine reserves but was stockpiled during early mining based on internal tests indicating a 70% recovery was achievable and higher contained copper grades.

The production data from start-up in Q3 2013 to 2015 validated the recovery models in use to predict recovery of the orebody and to allow forward production planning to be undertaken. But as throughput increased, the sensitivity of gold recovery to grind also increased, hence the model was refined to incorporate the grind size. While the copper recovery is not significantly affected by the variation of grind size, the copper recovery model was still updated to be more sensitive to head grade. As can be observed on the above graph, the actual recoveries agreed more with the model when it was changed in 2016. However, the copper recovery started to deviate again due to oxidation of stockpile ore. A model incorporating the oxidation factor has been developed and was implemented in 2019, this model now more accurately aligns with actual plant performance as shown in Figure 13-7 below with actual copper recovery shown compared to the model used for production forecasting that incorporates the laboratory testwork models, grind size adjustment and stockpile oxidation impact based on the ratio of acid soluble copper in the feed over a period of approximately 24 months.

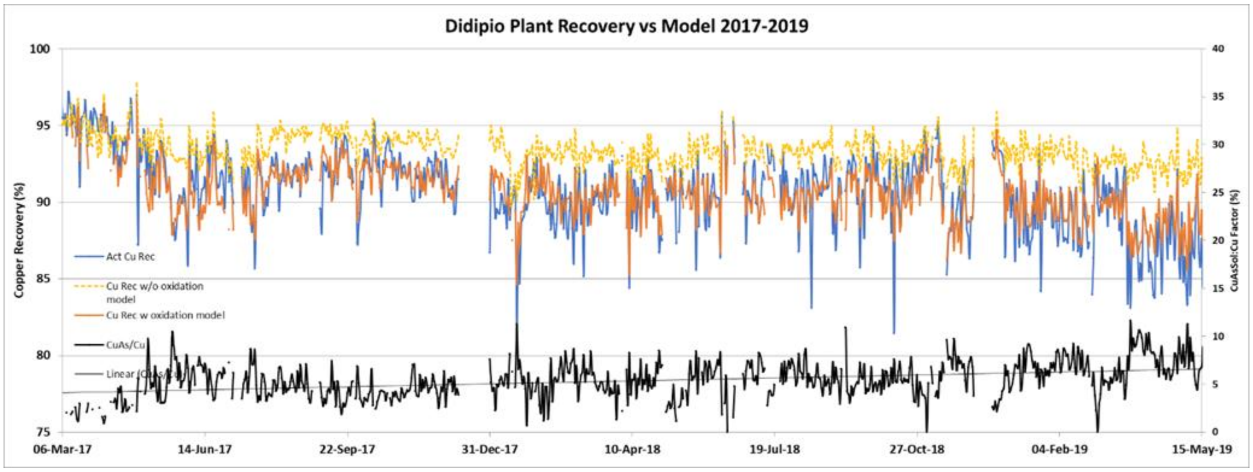


Figure 13-7: Plant actual vs forecast copper recovery for 2017-2019

13.5 Future Ore Testing

To further investigate the variability of the different ore types at Didipio, a geometallurgical study is planned to be undertaken in collaboration with the University of Queensland in 2022. The project aims to evaluate the variability in ore properties (mineralogy and texture) and metallurgical parameters (A*b, work index, copper and gold recoveries) between the ore types sampled from the underground. The data will also be used to develop geometallurgical models that will estimate the influence of geological and mineralogical attributes of these ore types to plant performance.

13.6 Competency Testing

As part of the review of plant performance and evaluation of options to increase plant capacity to 3.5Mtpa

As part of the review of plant performance and evaluation of options to increase plant capacity to 3.5Mtpa the impacts of variation in ore competency were considered as a risk factor. A programme was instigated with the geotechnical team to undertake Point Load Index ("PLI") measurements on existing diamond core reserves held in storage for the ore zones.

Samples representing the original Stage three and four pit shells were selected and testing of all of the available drill core (including all Monzonite, Dark Diorite and mineralisation in proximity to the Biak shear) was completed as the first priority with the deeper stages and underground to be progressively tested. In parallel, selected core intervals are being selected for SMC testing to provide a lithology-based reference model to identify any areas of concern from higher expected competency that may affect mill scheduling. Table 13-7 shows preliminary results of the point load measurement data along with two recent plant surveys being used to build up a more detailed knowledge of expected ore competency variability.

Table 13-7: Recent Ore Competency Measurements from Core Table

Rock Type	IS50 Avg	IS50 SD	Count	Dwi	A	b	A*b
Monzonite	5.32	1.28	96	5.49	72.18	0.67	48
Diorite	7.04	2.02	93	7.99	75.2	0.5	37.41
Breccia	1.27	0.71	50	1.88	67	2.01	134.67
Survey 1				2.52	64.9	1.61	104.49
Survey 2				4.59	73.4	0.77	56.52
Survey 3				4.54	70.1	0.81	56.78

Amongst the key items of information found in the PLI measurements taken to date are:

- The north side of the ore zone has a lower PLI measurement compared to the south;
- The north side of the deposit correlates with the higher-grade zones of mineralisation; and
- There is no appreciable increase in PLI measurement with increasing depth in the deposit.

Full grinding circuit surveys were used to produce a JKSimmet model of the plant to allow the variation in expected ore competency from the PLI program to be evaluated in terms of predicted plant throughput. Metso Technology provided the technical assistance in modelling the competency data and plant survey data and to provide a series of circuit simulation scenarios demonstrating the expected throughputs that would be expected with the inclusion of a pebble crusher. The work provided the bais for the conversion of the grinding circuit from a SAB to a SABC circuit to achieve the target of 3.5Mtpa with modest capital outlay.

Infill drilling into the lower open pit/underground resource was undertaken by OceanaGold in 2013 and 2014 and PLI measurements are now part of the standard geotechnical logging procedure to continue to expand the dataset of measurements.

14 MINERAL RESOURCE ESTIMATE

14.1 Introduction

The first OceanaGold estimate was completed in 2007 by Hellman and Schofield ("H&S") to satisfy NI 43-101 compliance for OceanaGold's initial TSX listing. Earlier resource estimates used grade-based wireframes to constrain the high grades. These wireframe constraints were removed in 2007, which resulted in significantly lower estimated grades (subsequent estimates have incorporated additional drilling and translated the block model into UTM underground grid, but otherwise are premised on a similar estimation approach). Resource estimate to mine reconciliations from August 2012 onwards have validated the removal of the high-grade wire frame constraints.

The current resource estimate update was completed June 2019 and used ordinary kriging to estimate Au, Cu, and Ag grades.

Up until 2017 the resource estimate covered both the open pit and underground extents of the mineralisation. However, in April 2017 open pit mining was completed to final design and subsequent resource estimates only covered the underground. The block size was changed from 15mE x 15mN x 10mRL to 10mE x 5mN x 15mRL, rotated into an underground mine grid which is orientated with grid east parallel to strike.

The estimates for the remaining stockpiles are based upon the ordinary kriging of closely spaced grade control samples.

14.2 Geological Interpretation

The Dark Diorite, Tunja Monzonite, Quartz Breccia, Monzonite Breccia, Bufu Syenite and Biak Shear, as shown in Figure 14-1, were coded into the block model. In 2007, 3D comparisons of interpreted geology, gold and copper grades, and magnetic susceptibility led to the conclusion that; of the key interpreted geological entities (Dark Diorite, Tunja Monzonite, Quartz Breccia, Bufu Syenite and Biak Shear), only the Biak Shear and Bufu Syenite represented "hard" grade boundaries, and that all other geological components, while contributing to the distribution of mineralisation, did not tightly constrain the mineralisation.

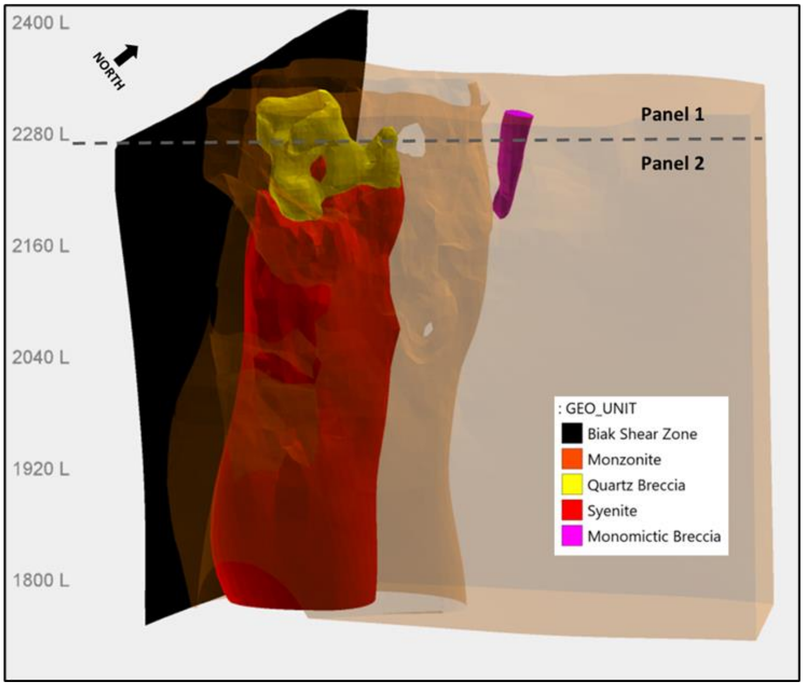


Figure 14-1: Oblique View (-20 to 030) of Simplified Didipio 3D Geological interpretation

Figure 14-2 is a plan view (2680mRL) showing the key modelling domains (Tunja, Dark Diorite and Biak) superimposed over the grade control block model grade contours (0.5, 1.0 and 2.0g/t AuEq in blue, orange and red respectively). This view demonstrates the diffuse nature of grade across the interpreted Dark Diorite/Tunja boundary versus the sharp grade boundary between the Tunja and the Biak, which is consistent with OceanaGold's domaining strategy.

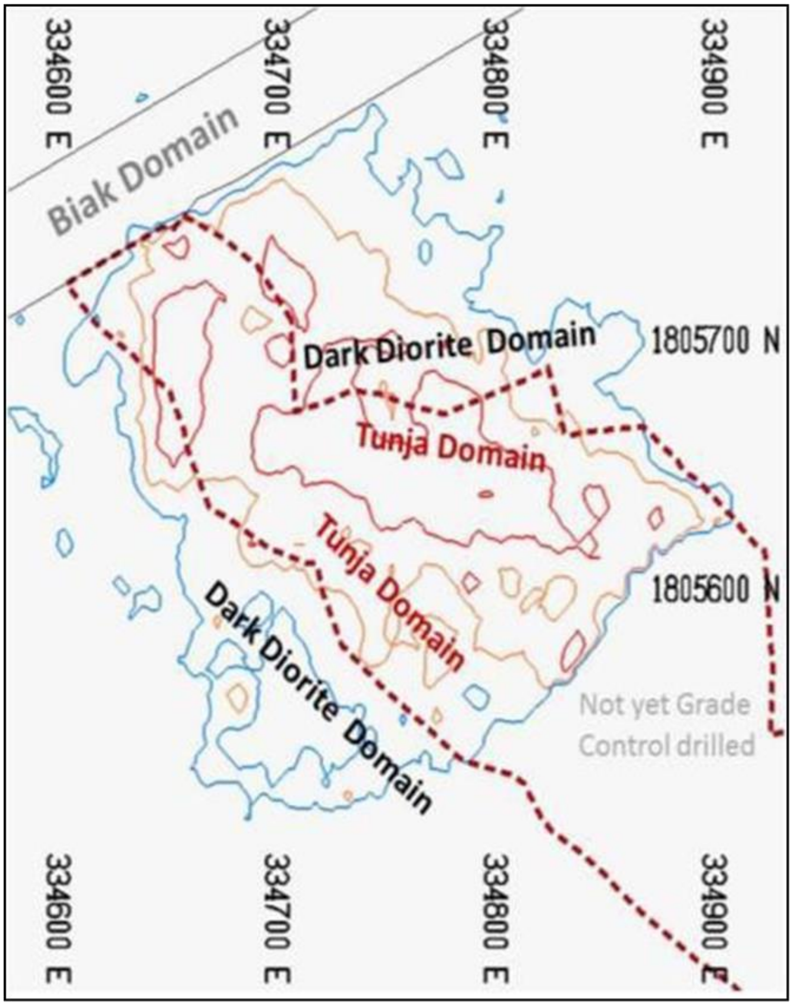


Figure 14-2: 2680mRL Floor, Grade Control Model (AuEq) contours with Biak Shear Interpretation

14.2.1 Data Analysis

The majority of drill holes were sampled at 1m intervals. These were subsequently composited to 3m for estimation into 10mE x 5mN x 15mRL blocks. 3m composite lengths provided some resolution along grade boundaries and transitions and was considered an appropriate composite length for estimation, given the block dimensions and mining selectivity.

Table 14-1 shows the 3m composited drill hole samples statistics for gold, silver, and copper grade by geological domain.

Table 14-1: Gold and Copper Summary Statistics

	Dark Diorite	Biak Shear	Biak Hanging Wall	Tunja Monzonite	Bufu Syenite	Quartz Breccia	MBX
Gold							
No Samples	7,197	497	688	18,727	1,531	858	167
Mean	0.37	0.32	0.11	1.06	0.99	6.1	1.82
Median	0.15	0.13	0.03	0.56	0.48	3.57	0.72
Maximum	25.9	12.3	16.7	77.9	24.1	73.6	54
CV	2.57	2.36	6.01	1.78	1.63	1.28	2.57
Copper							
No. Samples	7,062	478	530	18,684	1,515	855	167
Mean	0.15	0.1	0.04	0.4	0.17	0.8	1.11
Median	0.08	0.05	0.02	0.28	0.11	0.64	0.62
Maximum	5.42	1.57	0.93	10.03	2.54	10.1	10.3
CV	1.57	1.49	1.95	1.05	1.21	0.98	1.56
Silver							
No. Samples	5,457	312	242	17,159	1,360	844	132
Mean	1.14	1.04	1.31	1.81	0.9	3.29	3.32
Median	0.5	0.5	1.3	1.15	0.5	2.4	1.8
Maximum	27.6	24	13.4	67.7	7.68	39.9	27.3
CV	1.19	1.9	1.3	1.3	0.86	1.1	1.44

Table 14-1 above shows the sample statistics for the Tunja Monzonite, Bufu Syenite, QBX and MBX, the predominate copper/gold mineralised units. The QBX being the most strongly mineralised in copper, gold, and silver. The histograms of the 3m composites for the mineralised lithologies are presented on Figure 14-3 to Figure 14-6.

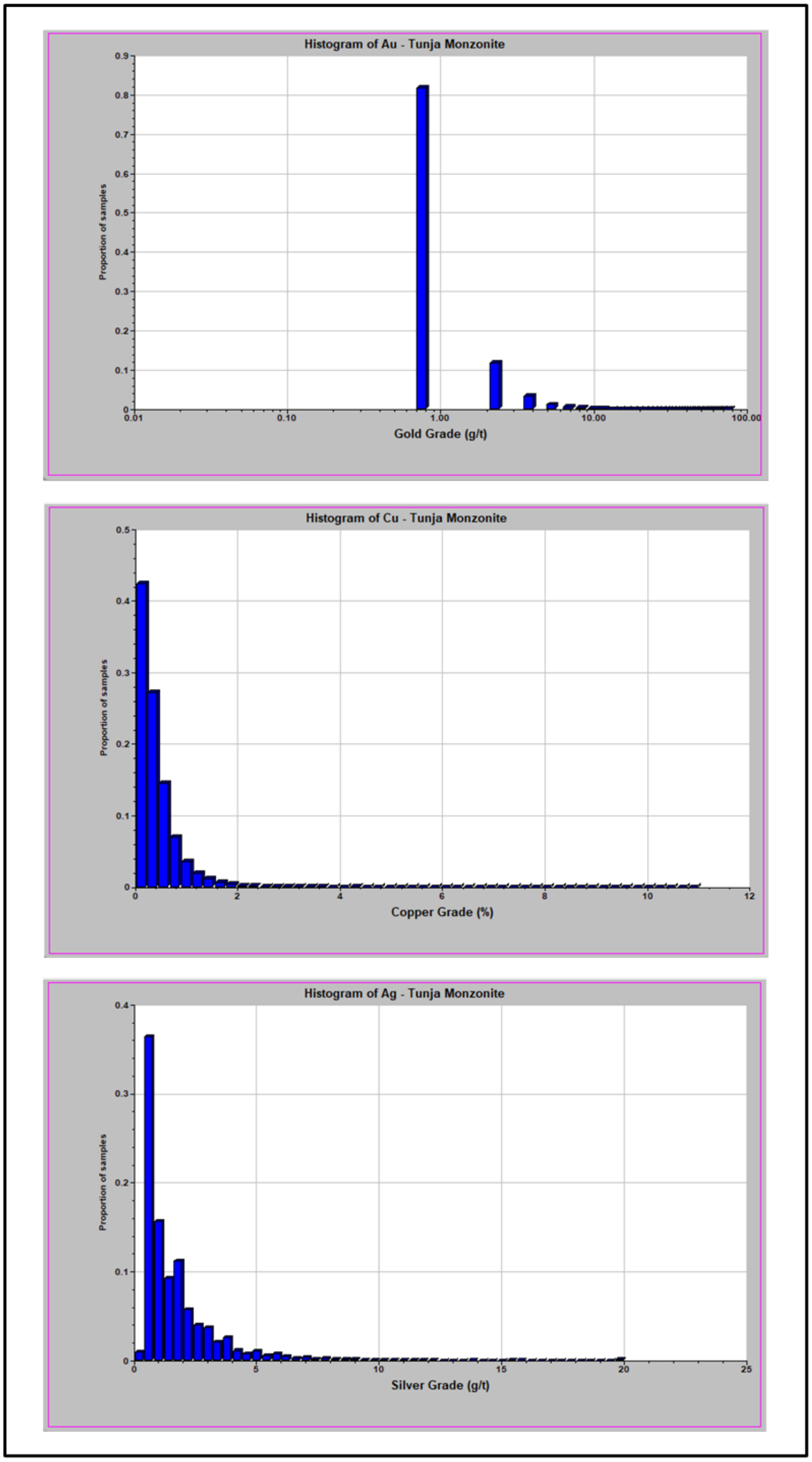


Figure 14-3: Histogram of 3m Composited Gold, Copper and Silver grades for Tunja Monzonite

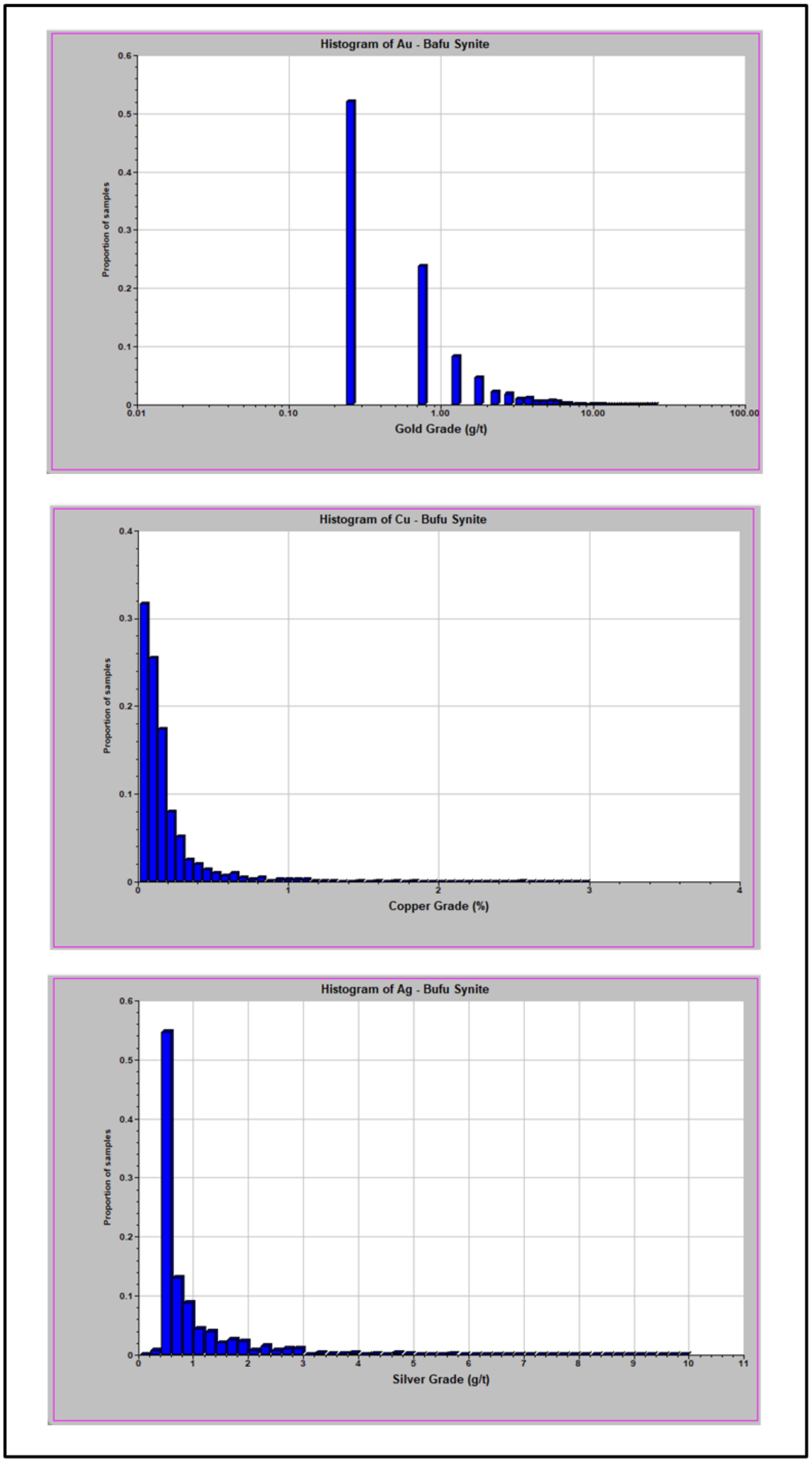


Figure 14-4: Histogram of 3m Composited Gold, Copper and Silver Grades for Bufu Syenite

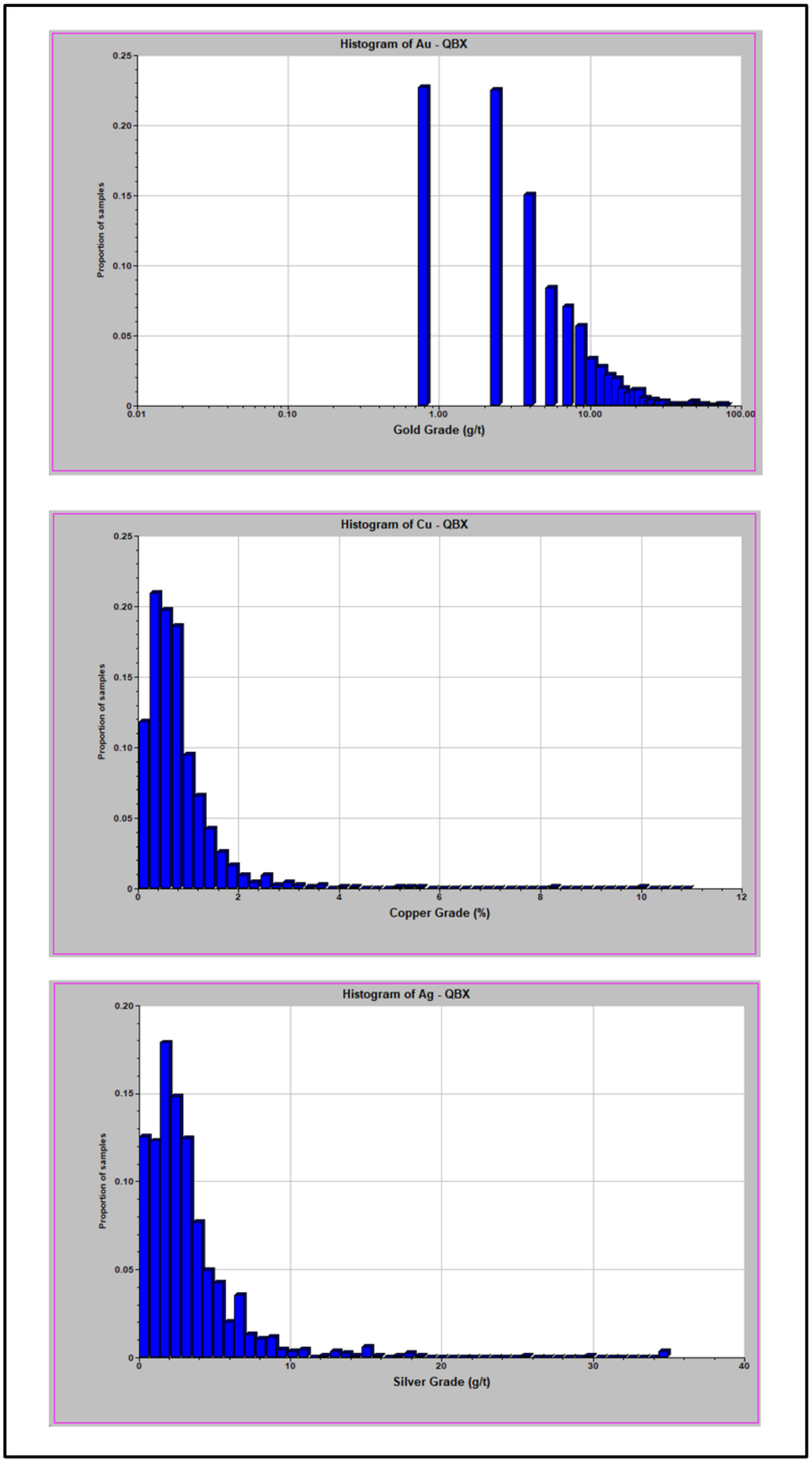


Figure 14-5: Histogram of 3m Composited Gold, Copper and Silver Grades for the Quartz Breccia

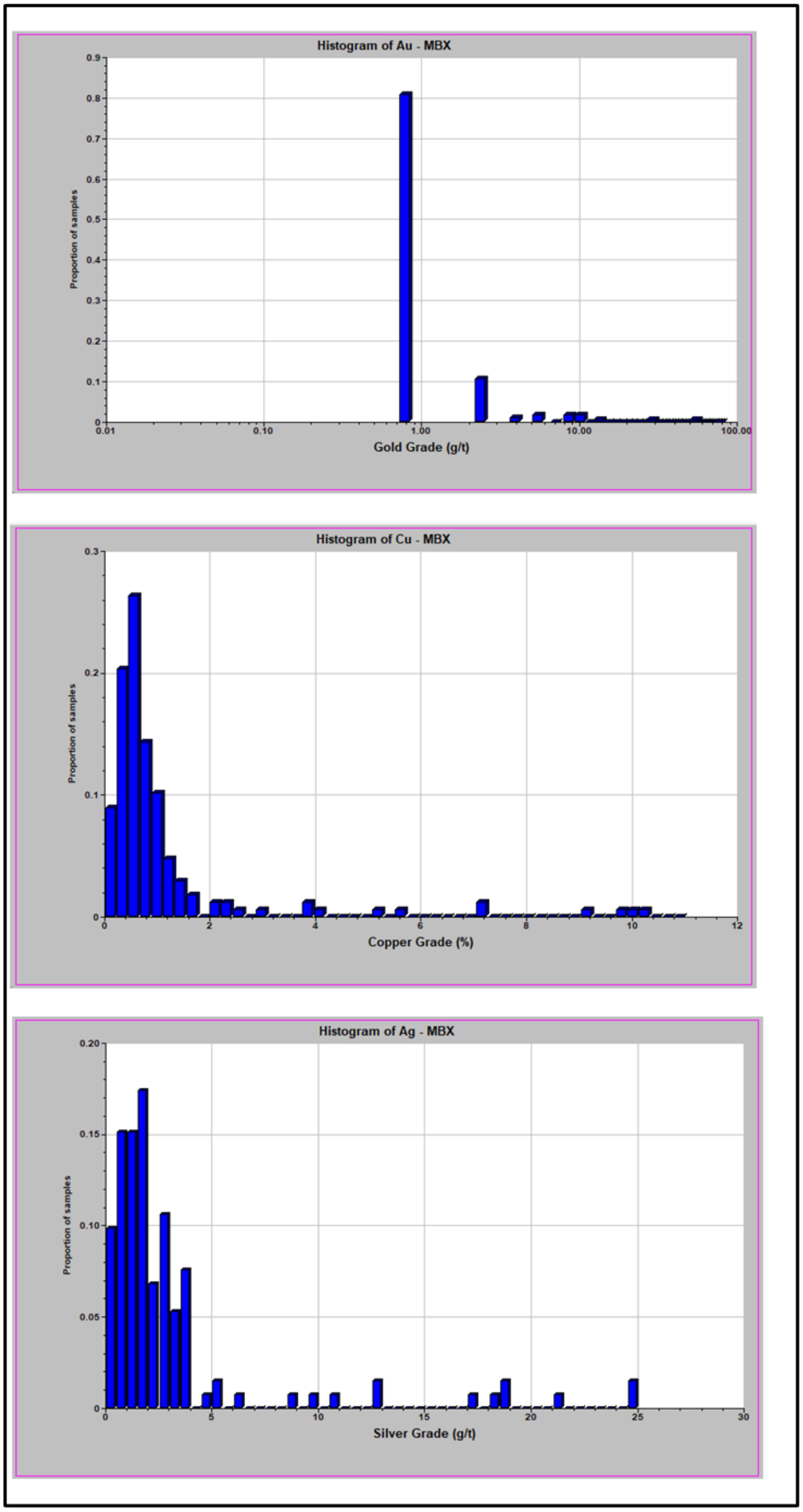


Figure 14-6: Histogram of 3m Composited Gold, Copper and Silver Grades for the Monzonite Breccia

14.3 In Situ Density Determinations

In situ density determinations have been carried out at regular intervals on a number of drill core samples. The method involved drying and sealing the selected sample with a waterproofing compound, then weighing the sample both in air and in water. Each sample comprised approximately 10cm of half drill core. The measurements were then averaged for each lithology domains, a 6% factor was applied to the Syenite domain to account for the miarolitic cavities observed in the syenite.

Data from a total of 1,513 samples were statistically analysed. The average of bulk density ("BD") calculated by rock type, then loaded into Minesight for 3D geological coding. The BD statistics and value used in the resource model are tabulated in Table 14-2. Although not material, a small discrepancies between BD statistics and values used for block model were observes and will be reviewed in the next model update.

Table 14-2: Assigned Lithological Density Values

Lithology Domain	Diorite -10	Biak (11,12)	Monzonite Composite -20	Syenite -40	Balut -51	Breccia (61,62)
No Samples	674	66	735	42	15	41
Mean	2.73	2.69	2.53	2.37	2.74	2.47
Median	2.75	2.74	2.53	2.39	2.62	2.46
Mean Less Extremes	2.73	2.69	2.52	2.40	2.74	2.47
Minimum	2.00	2.20	1.21	1.37	2.09	2.17
Maximum	3.65	3.11	8.72	2.66	3.36	2.79
Value Used	2.72	2.72	2.50	2.35	2.50	2.50

14.4 Variography

Spatial analysis of grades (variography) commenced with variogram maps to determine the principal directions of continuity. Both gold and copper show a strike slightly west of north and a steep easterly dip, consistent with the observed geology (Figure 14-8).

The nugget for gold and copper generally modelled between 10% - 33%, which appropriate for this type of deposit. The main direction along strike has a range between 20m – 50m, down dip has a range between 20m – 30m with view exception and across strike have range 6m – 20m. Details of the variogram models are shown in Table 14-3 below.

Table 14-3: Details of Variogram Models

Domain	Nugget	Sill 1	Range Structure 1			Rot'n Structure 1			Sill 2	Range Structure			Rot'n Structure 2		
			Along Strike	Down Dip	Across Strike	Rot 1	Rot 2	Rot 3		Along Strike	Down Dip	Across Strike	Rot 1	Rot 2	Rot 3
au10	0.20	0.20	35	50	6	254.28	79.5	-78	0.22	150	150	45	254.28	79.5	-78
au11	0.12	0.05	34	11.8	6	181.58	63.2	-67.3	0.19	120	60.4	15.8	181.58	63.2	-67.3
au12	0.15	0.17	36.6	20	6	169	72	-55.7	0.23	100	50	15	169	72	-55.7
au20	0.36	1.20	30	20	6	175	85	0	1.59	100	80	40	175	85	0
au40	0.78	0.79	30	20	6	167	85	0	1.60	80	60	15	167	85	0
au51	0.59	0.98	30	20	15	170	81	0	0.98	70	60	30	170	81	0
au61	19.00	20.00	30	30	10	158	87	0	21.70	70	50	17	158	87	0
au62	0.10	0.34	10	10	4	114	80	90	0.33	30	12	8	114	80	90
cu10	0.015	0.019	50	30	20	254.28	79.5	-78	0.021	150	150	40	254.28	79.5	-78
cu11	0.001	0.001	30	30	8	181.58	63.2	-67.3	0.006	150	60	15	181.58	63.2	-67.3
cu12	0.001	0.003	36.6	20	8	169	72	-55.7	0.003	110	50	20	169	72	-55.7
cu20	0.036	0.069	20	20	20	175	85	0	0.075	120	80	50	175	85	0
cu40	0.008	0.012	36.9	42	10	167	85	0	0.016	105	65	20	167	85	0
cu51	0.031	0.060	29	20	15	170	81	0	0.110	85	57	25	170	81	0
cu61	0.080	0.050	50.3	30	10	158	87	0	0.280	110	80	25	158	87	0
cu62	0.130	1.070	4	10	4	114	80	90	2.000	21	12	8	114	80	90
ag10	0.45	0.700	25	70	25	254.28	29.5	-78	1.02	150	150	45	254.28	29.5	-78
ag11	0.57	1.850	40	25	6	181.58	63.2	-67.3	2.50	90	60	14	181.58	63.2	-67.3
ag12	0.46	0.440	35	20	6	169	72	-55.7	0.84	90	50	15	169	72	-55.7
ag20	2.00	1.14	25	20	20	175	85	0	2.30	90	75	40	175	85	0
ag40	0.21	0.290	20	30	10	167	85	0	0.38	60	60	20	167	85	0
ag51	0.90	0.670	30	20	15	170	81	0	3.29	72.3	60	25	170	81	0
ag61	2.00	1.530	55	30	10	158	87	0	8.32	110	80	20	158	87	0
ag62	0.41	0.79	4	10	4	114	80	90	0.66	21	12	8	114	80	90

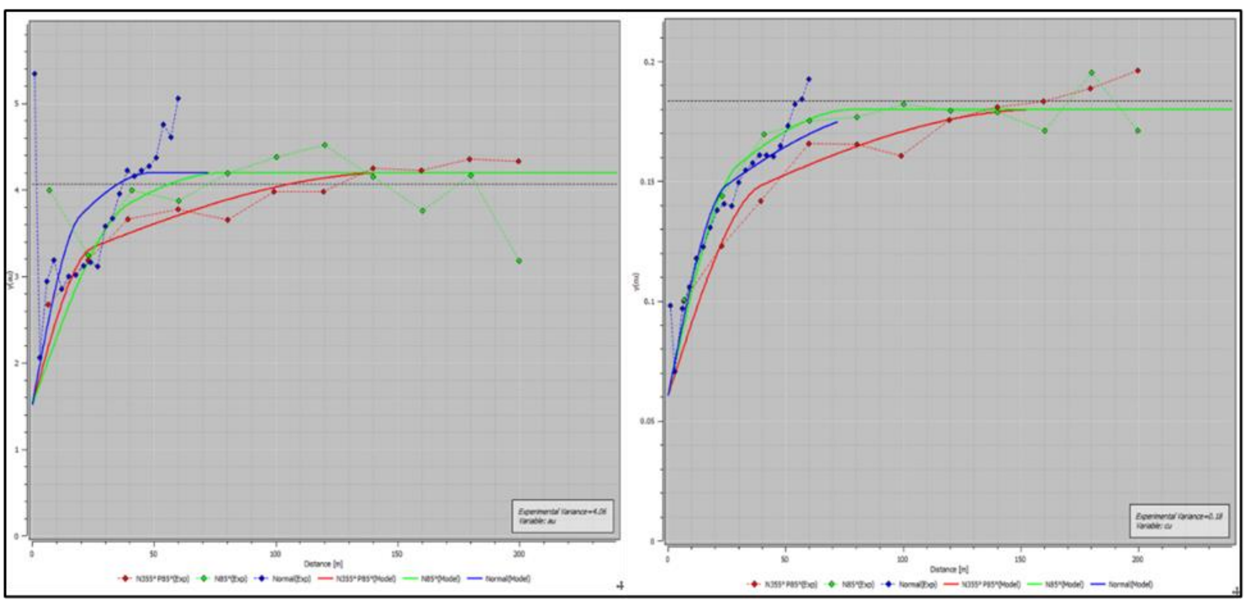


Figure 14-7: Variogram Model for Tunja Monzonite (LHS=Au g/t, RHS=% Cu)

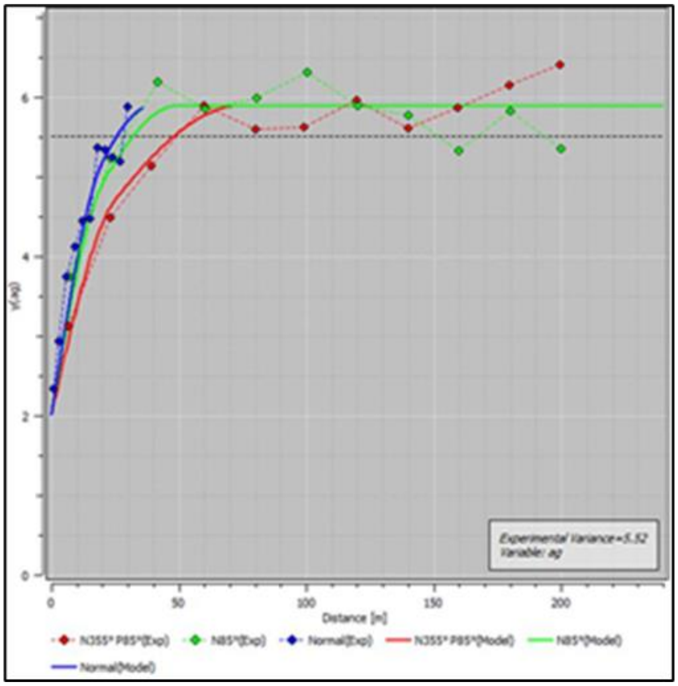


Figure 14-8: Ag Variogram Model for Tunja Monzonite

Ordinary kriging was considered the appropriate estimation method for gold, copper and silver because these elements have manageable coefficients of variation and their grade distributions are reasonably smooth and gradational, i.e., there is generally a smooth transition from high to low grades.

14.5 Search Strategy

The search strategy by geological domain, element and pass is shown in Table 14-4.

For the Monzonite Domain a primary 100mE x 80mN x 40mRL search (rotated 175 degrees clockwise, and 85 degrees dip measured from horizontal) with a minimum of eight samples, maximum of 24 samples and maximum four samples per drillhole. Octant restriction was used with maximum of four samples per octant. A secondary search extended 2x primary search distances with identical estimation parameters.

Diorite, Biak shear zone and Biak hanging wall were estimated using soft boundaries. All other domains were estimated with hard boundaries.

14.6 Top Capping

The maximum grade and CV values for the domains are presented in Table 14-4. No top capping was applied. Reconciliation to-date both for the open pit and underground provides no evidence for grade disparities. Nonetheless, the top capping strategy will continue to be reviewed in for each model update.

Table 14-4: Search Parameters and Rotations by Geological Domain, Element and Pass

		First Pass														Second Pass							
Domain	Element	Max Comp per Octant	Min Comp	Max Comp	Max Comps per Hole	Primary Search Distance (m)	Major Axis (m)	Minor Axis (m)	Vertical Axis (m)	MEDS Rot 1	MEDS Rot 2	MEDS Rot 3	Informing Domains			Max Comp per Octant	Min Comp	Max Comp	Max Comps Per Hole	Secondary Search Distance	Major Axis (m)	Minor Axis (m)	Vertical Axis (m)
	Au	4	8	24	6	150	150	150	45	254.28	79.5	-78	10	11	12	4	4	24	6	300	300	300	90
Diorite Dom 10	Cu	4	8	24	6	150	150	150	40	254.28	79.5	-78	10	11	12	4	4	24	6	300	300	300	80
	Ag	10	8	30	6	200	150	150	45	254.28	29.5	-78	10	11	12	10	4	30	6	400	300	300	90
	Au	4	8	24	6	100	120	60.4	15.8	181.58	63.2	-67.3	10	11	12	4	4	24	6	200	240	120.8	31.6
Biak Shear Zone Dom 11	Cu	4	8	24	6	100	150	60	15	181.58	63.2	-67.3	10	11	12	4	4	24	6	200	300	120	30
	Ag	10	8	24	6	100	90	60	14	181.58	63.2	-67.3	10	11	12	10	4	24	6	200	180	120	28
	Au	4	8	24	6	100	100	50	15	169	72	-55.7	10	11	12	4	4	24	6	200	200	100	30
Biak Hanging Wall Dom 12	Cu	4	8	24	6	100	110	50	20	169	72	-55.7	10	11	12	4	4	24	6	200	220	100	40
	Ag	10	8	36	6	100	90	50	15	169	72	-55.7	10	11	12	10	4	36	8	200	180	100	30
Monzonite Composite Dom 20	Au		8	24	6	100	100	80	40	175	85	0	20			4	4	24	4	200	200	160	80
	Cu	4	8	24	6	100	120	80	50	175	85	0	20			4	4	24	6	200	240	160	100
	Ag	10	8	40	6	100	90	75	40	175	85	0	20			10	4	40	8	200	180	150	80
	Au	4	8	24	6	80	80	60	15	167	85	0	40			4	4	24	6	160	160	120	30
Syenite Dom 40	Cu	4	8	24	6	80	105	65	20	167	85	0	40			4	4	24	6	160	210	130	40
	Ag	10	8	30	6	70	60	60	20	167	85	0	40			10	4	30	6	140	120	120	40
	Au	4	8	24	6	50	70	50	17	158	87	0	61			4	4	24	6	100	140	100	34
Breccia Complex Dom 61	Cu	4	8	24	6	50	110	80	25	158	87	0	61			4	4	24	6	100	220	160	50
	Ag	10	8	24	6	50	110	80	20	158	87	0	61			10	4	24	6	100	220	160	40
	Au	4	8	24	6	100	30	12	8	114	80	90	20	62		4	4	24	6	200	60	24	16
East Breccia Pod Dom 62	Cu	4	8	24	6	100	21	12	8	114	80	90	20	62		4	4	24	6	200	42	24	16
	Ag	10	8	30	6	75	21	12	8	114	80	90	20	62		10	4	30	6	150	42	24	16

14.7 Block Model Dimensions

The block dimensions in the resource block model are as follows:

Minimum (m) - 1,050mE	5,200mN	1,500mRL
Maximum (m) - 1,800mE	5,700mN	3000mRL
Block Size (m) - 10mE	5mN	15mRL
No. of Blocks - 75	100	100

14.8 Resource Classification

Resource classification is a reporting-based scheme of categorisation that relates to the confidence of estimates made within reasonable range of the reporting cut-off grades. The confidence in estimates declines as the drill spacing get wider. Therefore, a combination of geology, drill hole spacing, and kriging metrics were used to resource classification.

- Classification is based primarily on estimation quality which is itself mainly dependent on drilling density. It is considered that all other factors that may influence classification are adequately encapsulated within the resource estimation methodology (e.g., Kriging was used to store metrics of sample geometry and estimation quality to individual blocks);
- Inferred Resources are defined where the drill hole spacing is greater than 45m x 45m;
- Indicated Resources are defined where drill hole spacing is up to 45m x 45m, but typically considerably significantly less. A minimum of 10 samples are found inside the search elipse, and the kriging slope of regression is ≥0.25. However, the vast majority of slope regression within indicated resources is > 0.90. As a result, the average kriging slope regression is 0.95; and
- Measured Resources are defined based on a volume interpreted around the area of completed grade control infill drilling within which no further sampling prior to mining is anticipated. Within the volume defined as Measured, drill hole spacing is up to 25m x 25m and the average kriging slope of regression is 0.98.

14.9 Mineral Resources

14.9.1 Reporting Date

Mineral Resources for the Didipio underground are reported as at 31 December 2021 and have been depleted for mining as at 31 December 2021.

14.9.2 Qualified Persons

The mineral resources were prepared by and under the supervision of Jonathan Moore, Chief Geologist for OceanaGold, with assistance from the Didipio Mine Geology team.

14.9.3 Resource Statement

The underground, stockpile and combined Mineral Resource estimates are reported in Table 14-5 to Table 14-7, classified in accordance with the JORC 2012 Code and the CIM Definition Standards for Mineral Resources and Mineral Reserves.

The JORC 2012 Code and CIM Standards are identical except that JORC 2012 Code requires additional disclosure around resources extrapolated beyond actual sample data. All Mineral Reserves reported are included within the Mineral Resources reported for the same deposit. There is no certainty that Mineral Resources, not included as Mineral Reserves, will convert to Mineral Reserves.

The underground resource estimate is reported below the 2460mRL (base of the completed open-pit) and the base of Panel two at 1980mRL.

The equation for contained gold equivalent is g/t AuEq = g/t Au + 1.39 x % Cu. Silver is reported as an incidental by-product and does not contribute to gold equivalence.

The underground resource is reported at 0.67 g/t AuEq within a volume guided by an optimised stope design which was based on metal prices of US$1,700 per ounce for gold and US$3.50 per pound for copper (the reserve assumptions are US$1,500 per ounce for gold and US$3.00 per pound for copper).

The resources have been depleted for mining as at 31 December 2021.

Surface stockpiles are reported, resulting from open pit mining during 2012 to 2017 mined to a 0.4 g/t AuEq cut-off. These include 5.3 Mt of low grade at a 0.27 g/t AuEq cut-off.

Table 14-5: Stockpiles

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	22.9	0.33	1.99	0.29	0.25	1.46	0.067
Indicated	-	-	-	-	-	-	-
Measured & Indicated	**22.9**	**0.33**	**1.99**	**0.29**	**0.25**	**1.46**	**0.067**
Inferred	-	-	-	-	-	-	-

Table 14-6: Underground Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	12.6	1.94	2.09	0.49	0.79	0.84	0.062
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.043
Measured & Indicated	**24.9**	**1.45**	**1.78**	**0.42**	**1.16**	**1.42**	**0.10**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

Table 14-7: Combined Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	35.5	0.90	2.03	0.36	1.04	2.3	0.13
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.043
Measured & Indicated	**47.8**	**0.92**	**1.88**	**0.36**	**1.41**	**2.88**	**0.17**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

14.9.4 Comparison with December 31, 2020 Mineral Resource Inventory

The combined underground and stockpile inventory remains relatively unchanged between December 31, 2020 and December 31, 2021 as shown in Table 14-8 in most part due to mining and processing not re-starting until November 2021. As a result resource depletion is only 629kt.

Table 14-8: Comparison EoY2020 to EoY2021 Resource Estimates

Stockpiles - Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (kt)
Measured	23.3	0.33	1.99	0.29	0.25	1.49	0.07
Indicated							
Measured & Indicated	**23.3**	**0.33**	**1.99**	**0.29**	**0.25**	**1.49**	**0.07**
Inferred							

Underground - Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (kt)
Measured	12.8	1.95	2.09	0.49	0.8	0.86	0.06
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.04
Measured & Indicated	**25.1**	**1.46**	**1.78**	**0.42**	**1.18**	**1.44**	**0.11**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

Combined - Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (kt)
Measured	36.1	1.95	2.09	0.49	1.05	2.35	0.13
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.04
Measured & Indicated	**48.4**	**0.92**	**1.88**	**0.36**	**1.43**	**2.93**	**0.17**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

Mineral Resource Inventory as at December 31, 2021

Stockpiles - Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (kt)
Measured	22.9	0.33	1.99	0.29	0.25	1.46	0.07
Indicated							
Measured & Indicated	**22.9**	**0.33**	**1.99**	**0.29**	**0.25**	**1.46**	**0.07**
Inferred							

Underground - Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (kt)
Measured	12.6	1.94	2.09	0.49	0.79	0.84	0.06
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.04
Measured & Indicated	**24.9**	**1.45**	**1.78**	**0.42**	**1.16**	**1.42**	**0.10**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

Combined - Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (kt)
Measured	35.5	0.9	2.03	0.36	1.04	2.3	0.13
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.04
Measured & Indicated	**47.8**	**0.92**	**1.88**	**0.36**	**1.41**	**2.88**	**0.17**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

14.10 Model Validation

Both visual and statistical validation has been undertaken. Numerous sensitivity models were built in the evolution of this estimate.

Bench by bench comparisons of modelled grade versus composite grades are presented in Figure 14-9 and Figure 14-10 for both copper and gold. Declustered 3m composites are presented also and provide a more meaningful comparison.

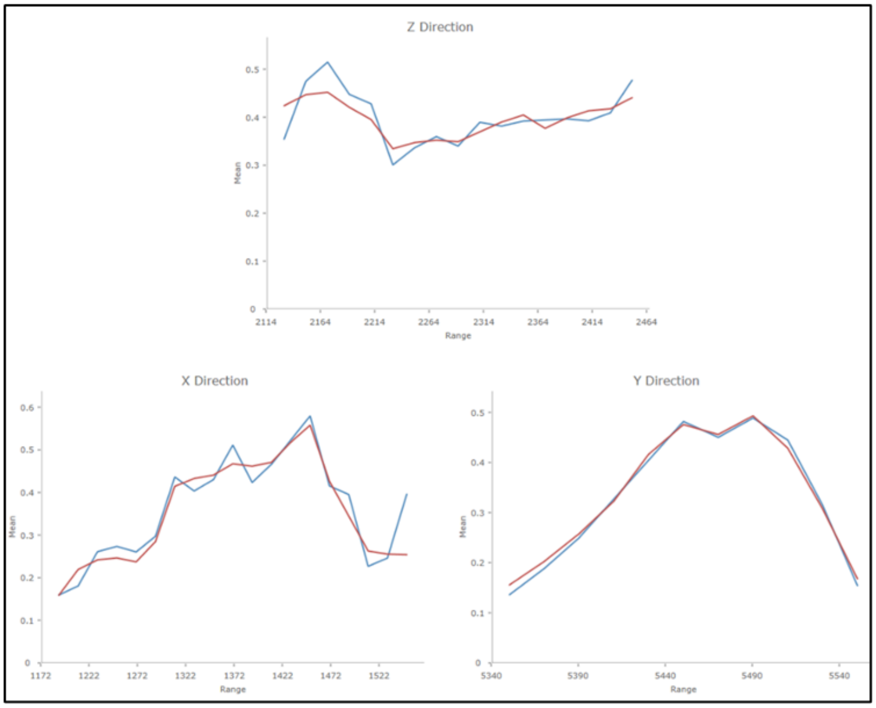


Figure 14-9: Resource Estimate versus Sample Gold Grades
(Red=Block Model, Blue= Composite {Declustered})

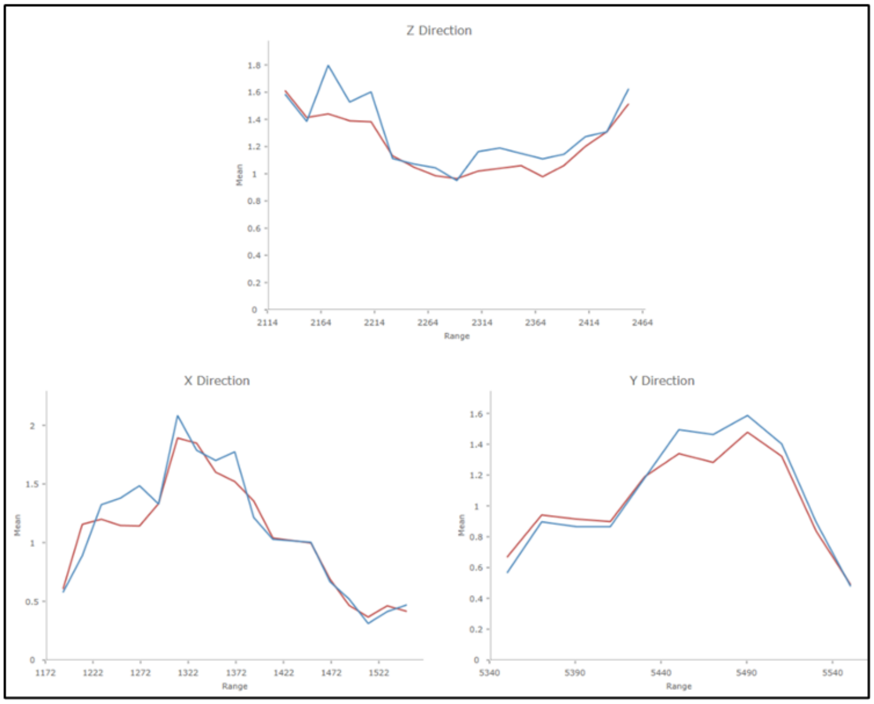


Figure 14-10: Resource Estimate versus Sample Copper Grades (Red=Block Model, Blue=Composite {Declustered})

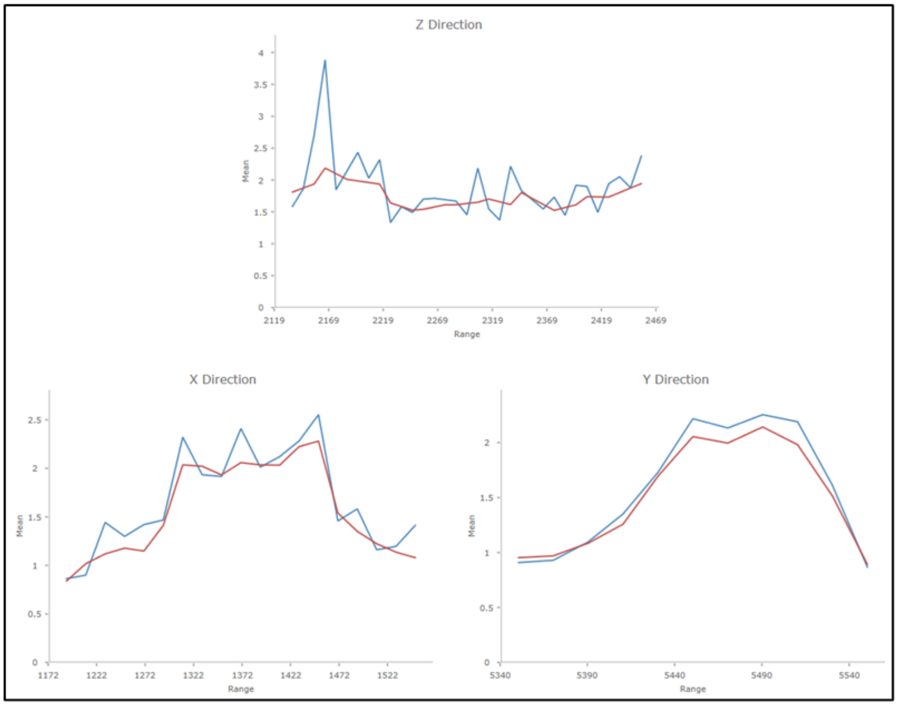


Figure 14-11: Resource Estimate versus Sample Silver Grades (Red=Block Model, Blue=Composite {Declustered}).

The resource estimates have been both internally reviewed and reconciled against production:

An internal review of the resource estimate was completed in December 2021 which included independently estimating the resource with independently determined estimation parameters. The independently estimated and reported resources were +1% for contained gold and +2% contained copper relative to those presented in Table 14-9. The resource estimate has not been externally audited.

Long term open pit and underground mine to mill reconciliation performance which is presented below.

14.11 Reconciliation

14.11.1 Open Pit

The following section presents the performance of the 2014 open pit resource estimate versus mill-adjusted mined comparisons in Table 14 9 at 0.5g/t AuEq in Table 14 9 for the open pit which was completed in April 2017. The open pit resource estimate used similar assumptions to that of the current underground estimate. The 2012 to 2017 open pit reconciliation demonstrates acceptable, if a little conservative, long term resource model performance.

The grade control estimates for the resource mined up until May 2014 were based on blast hole samples. Blast hole sampling was replaced with RC grade control sampling in May 2014 to improve sampling quality as well as the inability to provide reliable short term scheduling models (due to 7.5m drill hole reach, as opposed to 30m for RC grade control).

For the period, August 1, 2012, up until April 31, 2017, OceanaGold had mined 38.5Mt of ore at a cut-off of 0.5g/t. Of this, 14.5Mt was trucked to the ROM pad for processing, whilst the remaining 24Mt of medium grade (typically 0.5g/t to 1.5g/t AuEq) was stockpiled. A further 5.3Mt of low grade (< 0.5g/t AuEq) was also stockpiled. The medium grade open pit stockpiles have subsequently provided mill feed in conjunction with underground mill feed. Approximately 22.9Mt of stockpiles remained as at 31 December 2021.

Table 14-9: Resource Estimate versus Trucked Estimates at 0.5 AuEq cut-off

Year	Resource Model					Mill-Adjusted Mine					Mill/Resource Model				
	Mt	Au	Cu%	Au Moz	Cu Mt	Mt	Au	Cu%	Au Moz	Cu Mt	Mt	Au	Cu%	Au Moz	Cu Mt
2017	3.76	1.42	0.47	0.17	0.018	3.67	1.68	0.55	0.20	0.020	0.98	1.18	1.16	1.15	1.13
2016	9.92	0.78	0.39	0.25	0.039	9.11	0.86	0.45	0.25	0.041	0.92	1.11	1.14	1.02	1.04
2015	7.36	0.82	0.45	0.19	0.033	7.13	0.82	0.47	0.19	0.033	0.97	1.00	1.05	0.9	1.01
2014	7.95	0.68	0.52	0.17	0.014	8.06	0.68	0.54	0.18	0.043	1.01	0.99	1.03	1.01	1.05
2013	7.82	0.61	0.59	0.15	0.046	8.82	0.55	0.58	0.16	0.052	1.13	0.9	1.00	1.02	1.13
2012	0.67	0.29	0.59	0.01	0.004	0.28	0.29	0.49	0.00	0.001	0.42	1.00	0.84	0.42	0.35
Total	**37.5**	**0.78**	**0.48**	**0.94**	**0.181**	**37.5**	**0.82**	**0.52**	**0.99**	**0.194**	**1.00**	**1.04**	**1.07**	**1.04**	**1.07**

14.11.2 Underground

Underground mining ramped up in 2017, with underground ore trucked to the ROM pad and blended with open pit stockpile (as well as with 800kt of in-pit mined breccia) mill feed. Whilst the reconciliation process for the combined open pit and underground mine against mill feed is relatively straight forward, the allocation of metal between the underground and open pit feed sources is less definitive. To-date the allocation has been based upon mine claim ratios. Table 14-10 below indicates that the combined feed sources reconcile well against the mill. That the combined mine to mill reconciliation during 2018 and 2019 was reasonable provides no evidence for poor performance for either mill feed source. The 2021 reconciliation during ramp up is less favourable, albeit is based upon a relatively small tonnage. Mining of a crown pillar at the base of the open pit to allow geotechnical strengthening with cement commenced in 2021 and provided the main source of mill feed. Grade control sampling of the crown pillar was sub-optimal because the focus was on geotechnical strengthening rather than ore extraction. The underground reconciliation is expected to improve as the crown pillar is exhausted in early 2022.

Table 14-10: Combined Open Pit and Underground vs Mill

Year	Resource Estimate					Mill					Reconciliation Ratios				
	Mt	Au g/t	Cu%	Au Moz	Cu Mt	Mt	Au g/t	Cu%	Au Moz	Cu Mt	Mt	Au g/t	Cu%	Au Moz	Cu Mt
2021	0.64	1.07	0.38	0.022	0.002	0.63	0.92	0.43	0.019	0.003	0.98	0.86	1.12	0.84	1.10
2020															
2019	2.23	1.26	0.44	0.090	0.010	2.33	1.21	0.44	0.090	0.01	1.04	0.96	1.00	1.00	1.05
2018	2.27	1.16	0.49	0.084	0.011	2.22	1.26	0.49	0.090	0.011	0.98	1.09	0.99	1.07	0.97
Total	**5.15**	**1.19**	**0.46**	**0.197**	**0.023**	**5.19**	**1.19**	**0.46**	**0.199**	**0.024**	**1.01**	**1.00**	**1.01**	**1.01**	**1.02**

Note: 2018 only includes May to December to reflect the ramp up into underground mining

As the underground operation ramps up towards steady state, the allocation process will transition to attributing the open pit stockpiles their full claim; the stockpiles have been grade controlled with closely spaced sampling and the open pit feed has shown good reconciliation performance (2013 to 2017). Once steady state underground production is reached, the stockpiles will contribute approximately 25% of the contained gold to mill feed. On this basis, a +/-5% error (for a three-month period) in the stockpile grade estimate would project less than +/-2% error onto the underground feed. This is believed to be an acceptable approach given the absence on full stream belt cutters or other feed source samplers.

14.11.3 Issues Affecting Mineral Resources

The author is not aware of environmental, permitting, legal, title, taxation, socio-economic, marketing, political or other relevant issues that will materially affect the resource estimate.

15 MINERAL RESERVE ESTIMATE

15.1 Reporting Standard

The Mineral Reserves were compiled with reference to the NI 43-101 and JORC.

This section summarises the main considerations in relation to preparation of reserves and provides references to the sections of the study where more detailed discussions of particular aspects are covered.

The basis for the estimation of Mineral Reserves is metal prices of US$1,500 per ounce for gold and US$3.00 per pound for copper.

15.2 Reporting Date

The Didipio operation Reserves were first quoted in the NI 43-101 technical report filed in July 2011. They have been depleted and reported annually since. Mineral Reserves for Didipio open pit and underground are reported as at December 31, 2021.

15.3 Qualified Persons

The qualified person responsible for the reporting of Mineral Reserves at Didipio operation is Mr. Phillip Jones MAusIMM (CP), Group Mining Engineer of OceanaGold Corporation. The Mineral Reserves for Didipio have been verified and approved by, or are based on information prepared by, or under the supervision of, Mr Phillip Jones.

15.4 Mineral Reserves at December 31, 2021

The combined Mineral Reserves for Didipio Underground and Open Pit (Stockpiles) are summarised in Table 15-1:

Table 15-1: Combined Open Pit and Underground Mineral Reserve Estimate

Reserve Area	Reserve Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Underground	Proven	12.7	1.83	1.98	0.46	0.75	0.81	0.06
	Probable	7.33	1.03	1.44	0.34	0.24	0.34	0.03
Open Pit (Stockpiles)	Proven	22.2	0.34	1.99	0.29	0.24	1.42	0.07
	Probable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Proven		**35.6**	**0.87**	**1.99**	**0.35**	**0.99**	**2.23**	**0.12**
Total Probable		**7.33**	**1.03**	**1.44**	**0.34**	**0.24**	**0.34**	**0.03**
Didipio Total (Dec 2021)		**42.2**	**0.91**	**1.89**	**0.35**	**1.23**	**2.57**	**0.15**

- Mineral Reserves are reported to a gold price of US$1500/oz and US$3.00lb for copper
- Cut-off grade for open pit stockpile material is 0.40g/t AuEq. Stockpiles include 5.3 Mt of low grade at a 0.27 g/t AuEq cut-off
- Cut-off grade for underground material is 1.16g/t AuEq
- Gold Equivalence grade is calculated as: Grade (AuEq) = Grade Au (g/t) + (1.37 x Grade Cu (%)
- Dilution (waste) is applied and ranges from 0% to 5% depending on activity type
- Mining recovery (ounces) is applied and ranges from 95% to 100% depending on activity type
- Mineral Reserves are inclusive of Mineral Resources. All figures are rounded to reflect the relative accuracy of the estimates.
- Totals may not sum due to rounding.
- Mineral Reserves have been stated on the basis of a mine design, mine plan, and cash flow model

15.5 Comparison with Previous Mineral Reserve Statement (December 31, 2020)

The change in Mineral Reserves reported as at December 31, 2021 compared with December 31, 2020 is reported in Table 15-2. The changes in Mineral Reserves between 2020 and 2021 is due to mining and stockpile depletion following the restart of operations in 2021. In addition, a small amount of lower grade material at the tail end of the LoM plan has been excluded following optimised mine and processing schedules.

Table 15-2: Dec 2021 Reserve Estimates vs. Dec 2020 Reserve Estimates

December 31 2020 - Reserve

Reserve Area	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Underground	21.2	1.51	1.78	0.38	1.03	1.21	0.08
Open Pit/Stockpile	23.3	0.33	1.99	0.29	0.25	1.49	0.07
Didipio Total (Dec, 2020)	**44.5**	**0.89**	**1.89**	**0.33**	**1.28**	**2.70**	**0.15**

December 31 2021 Reserve

Reserve Area	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Underground	20.0	1.54	1,79	0.42	0.99	1.13	0.08
Open Pit/Stockpile	22.2	0.34	1.99	0.29	0.24	1.42	0.07
Didipio Total (Dec, 2021)	**42.2**	**0.91**	**1.89**	**0.35**	**1.23**	**2.57**	**0.15**

15.6 Open Pit

15.6.1 Open Pit Mineral Reserves

Major Open Pit Mining was completed in May 2017. Low grade stockpiles which were mined prior to the cessation of open pit mining provides supplementary mill feed to underground ore. For Mineral Reserves purposes, these stockpiles are defined as Open Pit Reserves at Didipio.

Since the completion of major Open Pit Mining, a small amount of material has been mined via the Open Pit as part of the Breccia Pit and Crown Stabilisation Projects, which have been aimed at maximising recovery of the resource via underground methods beneath an engineered crown pillar. These areas are discussed in detail in Chapter 16. As at the end of 2021, there remained a small amount of ore to be mined as part of the Crown Stabilisation Project (186kt), however this material is included in the Underground portion of the Mineral Reserves.

The Didipio operation's open pit stockpile Mineral Reserves are shown in Table 15-3. Note that stockpile material has a cut-off grade of 0.40g/t AuEq.

Table 15-3: Open Pit Stockpile Mineral Reserves, December 31, 2021

Reserve Area	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Proven	22.2	0.34	1.99	0.29	0.24	1.42	0.07
Probable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stockpile Total (Dec, 2021)	**22.2**	**0.34**	**1.99**	**0.29**	**0.24**	**1.42**	**0.07**

15.7 Underground

15.7.1 Underground Mineral Reserves

Using a cut-off grade of 1.16g/t AuEq, the Didipio underground Mineral Reserves are shown in Table 15-4. Note that these include approximately 186kt of material to be mined as part of the Crown Stabilisation Project.

Table 15-4: Underground Mineral Reserves, December 31, 2021

Reserve Classification	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Proven	12.7	1.83	1.98	0.46	0.75	0.81	0.06
Probable	7.3	1.03	1.44	0.34	0.24	0.34	0.02
Underground Total (Dec, 2021)	**20.0**	**1.54**	**1.79**	**0.42**	**0.99**	**1.15**	**0.08**

15.7.2 Ore Recovery and Dilution

The underground mine plan is based on a Long Hole Open Stoping ("LHOS") mining method, with paste backfill incorporated to enable a primary/secondary extraction sequence. Stope designs vary depending on their location within the orebody. Stopes located in the monzonite zone are in generally good ground and have dimensions up to 20mW x 20mL x 60mH. Stopes located within the breccia zone are subject to poorer ground conditions and therefore smaller dimensions of 20mW x 20mL x 30mH. Paste dilution is anticipated to be higher for secondary stopes compared to primary stopes, however for LoM planning purposes, all stopes are assigned a 105% tonnage factor and 95% metal recovery factor. Loss and dilution factors were applied as follows in Table 15-5.

Table 15-5: Ore Recovery and Dilution Parameters

	Dilution %	Tonnage	Metal
Lateral Development - Waste	10%	110%	-
Lateral Development - Ore	0%	100%	100%
Vertical Development - Waste	0%	100%	-
Stope – Primary	105%	105%	95%
Stope – Secondary	105%	105%	95%

Dilution grades were assumed to have zero grade, to account for minimal remnant grade in the placed paste backfill, principally comprised of mine tailings.

15.7.3 Underground Mineral Reserve Categories

The Underground Mineral Reserves are derived from the Measured and Indicated Mineral Resource category blocks in the Mineral Resource estimate. Proven Mineral Reserves are taken from Measured Mineral Resources and Probable Reserves are taken from Indicated Resources. Inferred Resources have not been considered in mining schedules or financial analyses in this report, except where Inferred material is within Proved and/or Probable stopes and is assigned zero grade.

16 MINING METHODS

16.1 Deposit

This Technical Report relates only to the Didipio deposit, and no other nearby deposits are included in the evaluation of mining methods. Gold, silver and copper grades are zoned from a high-grade core outwards to a lower-grade halo. Since commencement of the project mining has transitioned from open pit mining to underground mining. A small amount of mining remains as part of the Crown Stabilisation Project (“CSP”), which will be completed in early 2022. The remaining LoM mining schedule consists of underground material (not including surface stockpiles which also contribute to mill feed).

16.2 Survey Control

To better align the underground geology and mine designs, a new grid was established for the underground mine. The underground mine operates on a mine grid rotated 44° east of the UTM WGS84 Zone 51 grid using the translation points shown in Figure 16-1 below. This results in the orebody and designs aligning in a North-South direction.

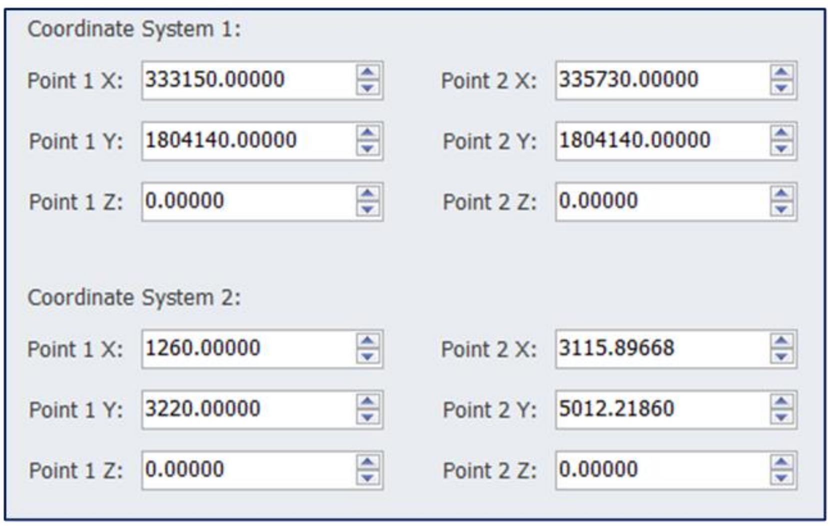


Figure 16-1: Underground Mine Grid Rotation Points6

Underground lateral development is surveyed using Leica Total Stations. Vertical development and stope voids are scanned using both cavity monitoring systems (CMS) and cavity auto-scanning laser systems (C-ALS). For surface works and pit scanning, Trimble Total Stations and GPS are utilised. Survey master files are updated regularly using Surpac software, with development advance reconciled monthly.

16.3 Technical Studies

Several internal and external technical reports have been completed to support understanding of current and future operations at Didipio. The summary findings of those studies are included in this NI 43-101 Technical Report. The technical studies completed are:

- Geotechnical Engineering:
  - Pit Slope Stability (AMC, OceanaGold);

  - Underground Geotechnical Design (AMC, OceanaGold); and
  - LoM Numerical Modelling (Beck Engineering).
- Hydrology and Hydrogeology:
  - Groundwater Modelling (GHD, OceanaGold);
  - Water Inflow Risk Zone (WIRZ) Modelling (GHD, OceanaGold); and
  - Groundwater Chemistry (OceanaGold).
- Paste Backfill (OceanaGold):
- Tails Storage Facility Design Review (GHD);
- Crown Pillar Optimisation (AMC, OceanaGold);
- Underground Mine Design and Scheduling (OceanaGold); and
- Economic Evaluation (OceanaGold).

16.3.1 Geotechnical Engineering

OceanaGold commissioned AMC to complete geotechnical studies on open pit slope stability, underground design, and waste dumps in 2013 and 2014. Data collection for geotechnical studies has subsequently been carried out by OceanaGold and includes drilling, core logging, laboratory analysis of core samples, geotechnical pit and underground mapping, photogrammetry, and acoustic televiewer surveys. A substantial amount of geotechnical data based on historical performance has been collected resulting in several reviews and updates to the geotechnical criteria and design parameters of the open-pit slope design and underground mine design. The slope design optimisation for the open pit was completed in 2016 by OceanaGold whilst the underground geotechnical guidelines and design criteria was updated in 2018 by OceanaGold. LoM Numerical Modelling (stope stability and deformation assessment) was undertaken by Beck Engineering in 2016 and 2017, resulting in a top-down mining sequence that delivers a number of geotechnical and operational benefits.

16.3.2 Hydrology

OceanaGold previously engaged GHD (Australia) to review the site water balance and surface water management. The study has produced a number of recommendations which were incorporated under the Water Management Plan (“WMP”) in 2015.

In 2016, an internal review of the implemented surface water management systems within the mine was conducted. The review focused on the main objective of these systems which is to minimise surface water runoff into the open pit to reduce pumping costs, improve mine safety and production, decrease risk of slope failure, and maximize clean water reporting to the river systems. Continuous improvement of these systems and facilities is being conducted through the annual update of the WMP.

16.3.3 Hydrogeology

GHD were engaged to undertake review and testing of the hydrogeology conditions affecting the open pit and the underground mine. The focus of the hydrogeology study was to review existing groundwater inflow predictions and produce a new groundwater model based on the revised designs.

A first iteration of the Water Inflow Risk Zone ("WIRZ") model was developed by OceanaGold in 2018 with the objectives of serving as a tool to:

- Plan for adequate dewatering systems before entering high inflow zones;
- Identifying areas where active dewatering would be beneficial; and
- Aiding mine planning in scheduling development and stoping.

Initial findings showed that there is a weak correlation between the zones identified in the model and the RQD values. The model is regularly reviewed and updated as data becomes available.

OceanaGold continue to engage GHD in reviewing, validating, and calibrating the groundwater model. Previous models focused on predicting mine inflows. The latest groundwater model released in 2019 incorporated the impact assessment of underdrainage associated with the influence of mining to the groundwater levels. This model was able to quantify this impact and predict the longevity and scale of potential further impacts.

16.3.4 Paste Backfill

OceanaGold previously engaged AMC (Australia) to undertake backfill test work to verify the suitability of the processed tailings for paste backfill. The analysis also included a preliminary review of fill mass stability, mix design, system rates, fill plant flow rates and utilisation, backfill demand, paste plant conceptual process flow and specification.

Further work was conducted by Outotec in 2015 to assess the optimal paste manufacturing process for Didipio. The objective was to complete the testwork and quantify the sensitivity of Didipio binder requirements to important paste mix variables such as particle size grading, mix solids content (yield stress) and hydration time. In addition, for the purpose of quantifying the infrastructure requirements cyclone trials, rheology testing and filtration testing was also undertaken.

Studies are ongoing around paste filling methodologies for crown pillar stopes beneath CRF on the upper levels of the mine.

16.3.5 TSF Design Review

GHD conducted a review of the 2019 LoM which showed the forecast tailings tonnages have increased since the previous study. As a result, the TSF height needs to be lifted and an updated study is required to provide construction concepts, timings, and material sourcing logistics for the revised TSF height.

Associated works with lifting the TSF height included an update of the tailings management plan and updated closure spillway design. The purpose of the review was to summarise the tailings deposition and management plan along with required associated infrastructure changes. A further review is underway with the updated production forecast from the 2021 LoM and is expected to be completed in 2022.

16.3.6 Crown Pillar Optimisation

Studies have been conducted to optimise the transition from open pit mining to underground mining. Previous versions of the Didipio underground mine plan involved a crown pillar to be mined beneath the open pit, with low recovery and operational/geotechnical risks. Since major open pit mining ceased in 2017, a small amount of material has been mined from the pit floor as part of the Breccia Pit and Crown Stabilisation Projects ("CSP"), which has sought to maximise throughput and recovery of ounces, whilst providing an engineered crown pillar solution for the underground mine. In 2018, material on the western side of pit floor (Breccia Pit) was mined and filled with cemented rock fill ("CRF"). Stopes have since been mined successfully beneath this zone with minimal crown overbreak.

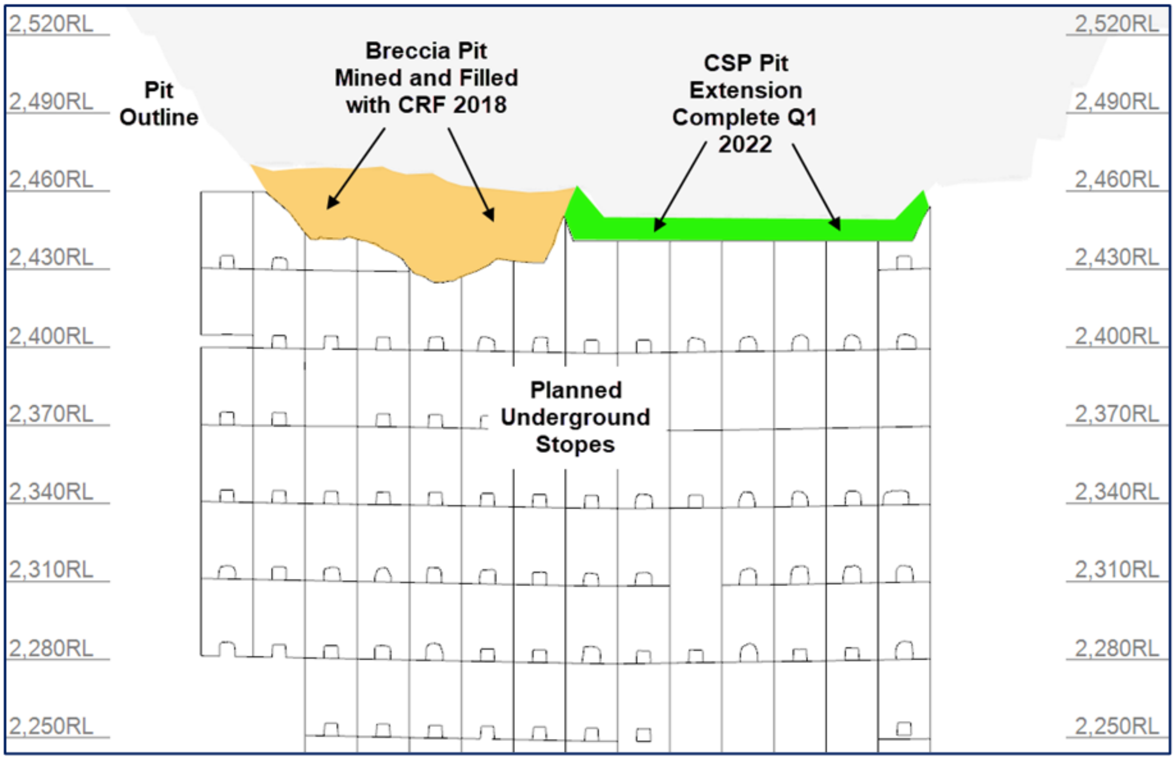


Figure 16-2: Section View of CSP Pit Extension in 2021

In May and June 2019, a 10m bench was mined via the open pit on the eastern side of the pit to the 2450mRL. Open pit work was then halted during the FTAA renewal process. In Q4 2021, work recommenced, and open pit material (approximately 370kt) was mined from the eastern side of the pit down to the 2441mRL. The extent of the CSP project as at December 31, 2021 is shown in Figure 16-2. Upon completion of open pit mining, which is expected to be in early 2022, CRF will be placed in the pit floor in three stages, starting in 2022 and to be completed in 2024 as shown in Figure 16-3. This process will facilitate safe and efficient extraction of underground stopes directly beneath and adjacent to the pit floor.

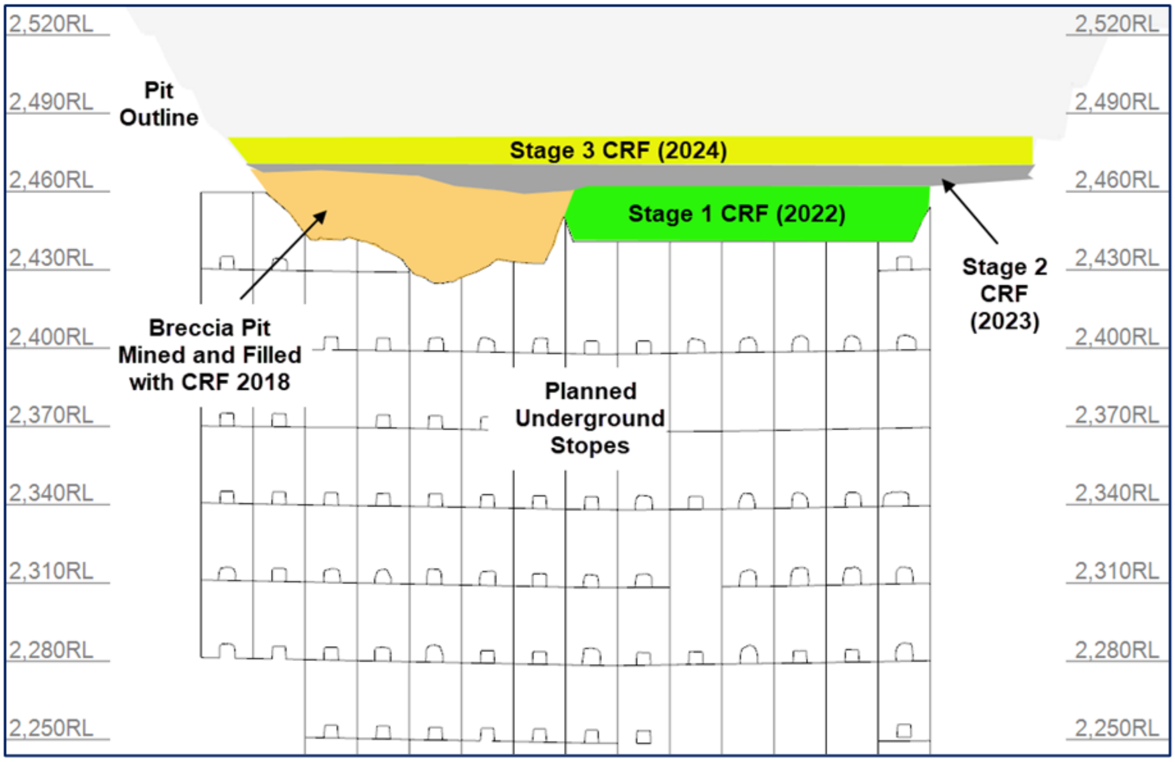


Figure 16-3: Section View of Planned CRF Filling

16.4 Open Pit Mining

16.4.1 Mining Method

Large scale open pit mining is complete however a small amount of material remains as part of the CSP. The mining method for the removal of the CSP material via the open pit is conventional drill, blast, load and haul with standard mid-sized mining equipment comprising 90 tonne class off-road haul trucks and 200 tonne excavators.

16.4.2 Mining Contract

OceanaGold has had a mining contractor, Delta, for surface operations, who have been in place since commencement of the pre- strip in January 2012. Works are done under a schedule of rates for:

- Clear and grub;
- Drilling and blasting, includes drilling, charging, firing, and any blasting accessories;
- Load and hauling, which includes excavation, in-pit road formation, road and pit bench and dump maintenance, rates for each 15 m vertical interval in each pit stage;
- Pit dewatering;
- Crusher feeding and stockpile reclaim; and
- Variation works outside of the schedule of rates are done under day rates.

The mining fleet and ancillary fleet are owned and financed by Delta. Open pit mining of the last remaining material as part of the CSP is expected to be complete in Q1 2022.

16.4.3 Geotechnical Engineering

The focus of previous open pit geotechnical studies was to optimise the open pit design and ensure overall slope stability below critical infrastructure. In 2014, OceanaGold conducted a peer review on the geotechnical assessments by AMC. The assessments undertaken by OceanaGold indicated an opportunity to steepen batter face angles in most pit sectors and domains by five degrees to 10 degrees. The geotechnical design parameters for the final stage of the open pit at Didipio were re-assessed in September 2016.

Open Pit Design

Open pit designs were previously based on the latest geotechnical model to ensure optimum batter face angles and berm widths for each geotechnical domain. This basic geometry defines the inter-ramp angles, and when combined with suitable haul roads and ramps, leads to an overall slope angle. This is based on the kinematic feasibility and probability of failure for each geotechnical domain in relationship to the slope design acceptance criteria. The acceptance criteria adopted at Didipio Mine are summarized in Table 16-1. The north wall has more conservative design parameters considering the increased consequence of failure with respect to the river diversion and the location of the metallurgical processing plant.

Table 16-1: Open Pit Acceptance Criteria

Scale	General Factor of Safety	General Probability of Failure	North Wall Factor of Safety	North Wall Probability of Failure
Batter Face	> 1.05	25% - 30%	> 1.1	20% - 25%
Inter-ramp slope	> 1.15	5% - 10%	> 1.3	3% - 5%
Overall Slope	> 1.35	2% - 5%	> 1.5	1% - 3%

Open Pit Geotechnical Structures

The structural geology model has evolved over time with regular updates based on mapping, core logging and Sirovision data from both the open pit and underground. The major structure running across the pit is the Biak Shear Zone, which is predominantly a right-lateral strike-slip fault with a 40 to 60-metre damage zone. The North-West Fault is mapped as a left-lateral strike-slip fault, which is inferred to be a resultant slip from the Biak shearing event. Figure 16-4 shows an oblique view of the latest structural geology model of the open pit area.

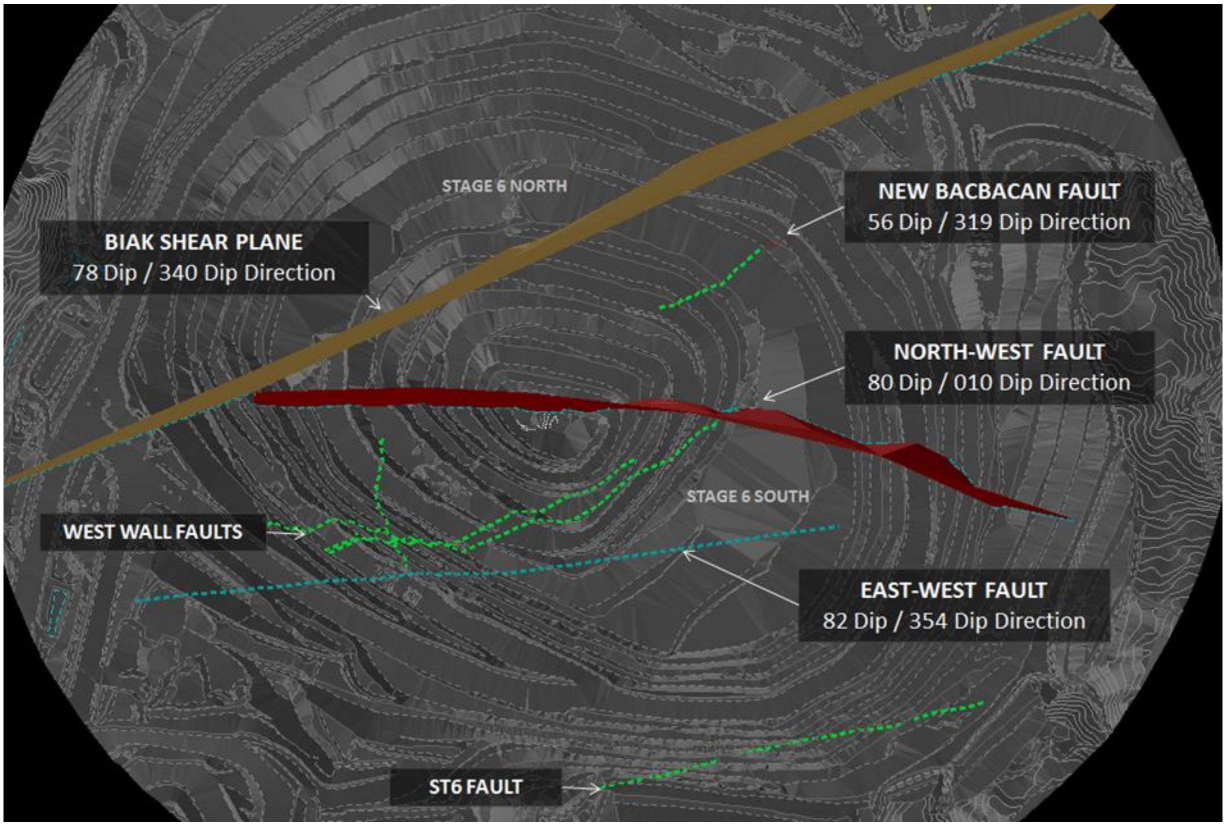


Figure 16-4: Open Pit Structures

Surface Geotechnical Monitoring

The Didipio mine has several geotechnical monitoring systems strategically placed in the open-pit and surrounding landforms. The monitoring system is a combination of different instruments and devices which measures ground displacement in the surface, and the sub-surface. Presented in Table 16-2 are the monitoring instruments and their capabilities.

Table 16-2: Surface Geotechnical Monitoring

Instrument	Quantity	Capabilities	Location	Monitoring Frequency
Vertical Inclinometer	5 locations	Monitor subsurface deformation and shearing	Southern and northern saprolite boundaries of the	Once a week; or after a heavy rainfall or earthquake events
Electronic Distance Monitoring (EDM) Prisms	~500 prisms around the pit walls and surrounding landforms	Calculates slope distance from survey pillars to the targeted prisms and calculates changes of XYZ of prisms	Installed along the final benches in the pit to monitor slope movement	Once a week with increased frequency delegated to critical areas.
Slope Monitoring Radar System	1 unit	Synthetic aperture radar (SAR) system that uses interferometric technology to scan the walls of the pit and generate displacement and velocity maps. Alarms are triggered by the hazard map which is set with certain thresholds in each domain or critical areas of the pit. Alerts are received through email, text message, computer screen, and alarm sound.	Currently located in the East wall and has a good view to the North and West walls. The radar is a mobile-type and can be moved anywhere. It has a horizontal and vertical field of view of 270 degrees, and 180 degrees, respectively	Every 2-3 minutes
Crack pin monitoring	>15 sets; and installed as required	Monitor enlargement or movement of ground cracks	Installed on areas where a ground crack is observed. Currently installed at the following areas: Raw Water Pond, Stage 6 Drain, Magazine, PB04, Magazine and at the Globe Tower	Once a week

Open Pit Slope Stabilisation

Several slope stabilisation measures have been implemented in the open pit to minimize the potential for damage to critical infrastructure due to slope failures:

- North Wall Gabions - The gabion wall and intensive ground support works at its base provides adequate support to the weak clays and silts on which the main haul road is located and prevents the Dinauyan River diversion from breaking through into the pit. Continuous geotechnical monitoring is conducted weekly (prism monitoring, inclinometer monitoring and visual inspections of the gabion wall). The north wall is monitored continuously by the slope monitoring radar system;
- Northwest Fault Zone Stabilisation - Pressure grouting has been used to enhance the shear strength and interlocking strength of the moderately poor ground. Cable bolts have also been installed to improve ground stability and act as a passive long-term support;
- Biak Shear Ground Support - Underground ground support techniques were used on the pit-bottom section of the Biak Shear slope to stabilise and improve the ground conditions while activities are being conducted for the CSP. The ground support used were 3m friction bolts, drape mesh, 9.3m triple strand cable bolts, and 12m-deep drain holes. Shotcrete spraying of the slope was also completed;
- Rockfall Barrier/Fence - A rockfall fence has been constructed above the lower underground portal in the pit. It is engineered to protect and provide safety to all personnel from rockfall events while using the portal, whilst at the same time protecting the Capital Pump Station three infrastructure that is located nearby; and
- Rock Buttressing of Saprolite Areas – Weak, silty clays (saprolite) are prevalent along the north, southeast and south margins of the pit. This slope stabilisation technique provides long-term stability for these areas and minimises erosion of loose and non-cohesive soils. Installation of several prisms on the rock buttresses, and installation of inclinometer holes in strategic locations were completed to monitor ground movement and effectiveness of the design.

16.4.4 Dewatering

During the LoM the pit bottom requires dewatering to allow safe underground mining to proceed. Following the completion of CSP open pit mining, two 400kW centrifugal pontoon pumps with 150 L/s pumping capacity will be installed at the pit bottom as shown in Figure 16-4. At 2560mRL, a booster pump is installed to assist the pontoon pumps in pumping water from pit bottom to surface ponds. The pumps were configured as duty and standby with a dedicated pipeline for each pontoon pump. During the CSP mining a diesel pump is on duty/standby to maintain the water level for safe hauling and blasting activities. The pontoon pumps will remain in place for the duration of the LoM.

Figure 16-5: Pit LoM Dewatering Infrastructure

16.5 Underground Mining

Current underground designs extend approximately 340m below the base of the open pit to the 2100mRL with the main decline face at 2180mRL. Section view of the underground mine layout and major infrastructure can be seen in Figure 16-6.

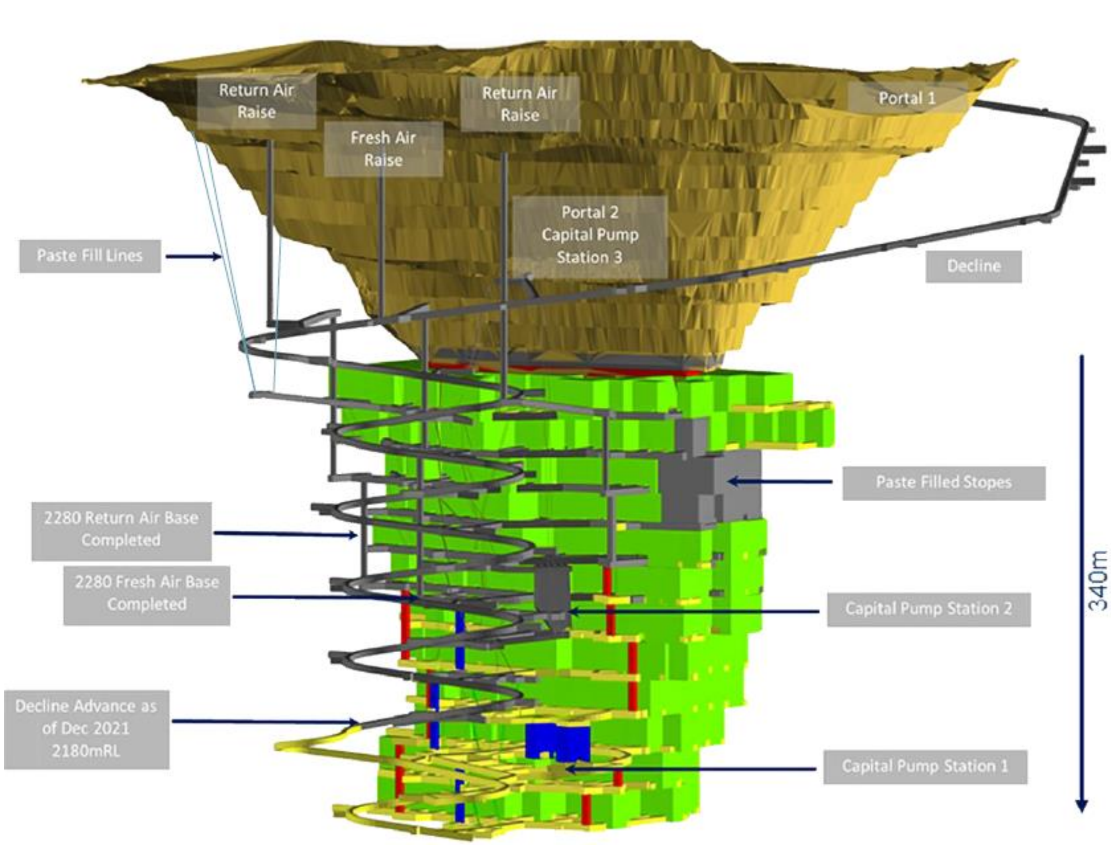


Figure 16-6: Didipio Underground and Major Infrastructure

A fleet of 17 tonne Load Haul Dump loaders ("LHD") and 60 tonne trucks are used for material loading and transport from the underground working areas through an internal ramp system that connects all production levels to the main decline. Loading occurs in close proximity to the stoping areas and ore is hauled directly to the existing coarse ore stockpile (ROM) adjacent to the processing plant.

Since portal establishment in 2015, 20km of lateral development has been completed. Based on current Mineral Reserves, an additional 28km of lateral development is required for capital infrastructure and to access all stoping blocks, with a peak advance rate of 400m per month of jumbo advance. Vertical waste development related to ventilation infrastructure and emergency egress is mined via a combination of longhole drill and blast, and raisebore. Waste generated through lateral and vertical development is hauled directly to the bottom of the pit to be used for CRF, or to the surface waste dump later in the mine life. With paste fill utilised for backfill, no internal haulage and stockpiling of waste underground is required. Approximately 1.02Mt of waste will be generated over the remainder of the LoM.

Key mine infrastructure includes two 5.5m diameter exhaust ventilation raises with accompanying primary fans, a 5.5m diameter intake fresh air raise, and an underground ladderway system located within fresh air which provides a second means of egress to the surface via an additional portal located at 2540mRL in the southern wall of the pit. The paste backfill plant and associated infrastructure is located on the surface with underground reticulation to transfer paste to underground stopes. An underground dewatering system is currently in place, with the main pump station and water storage stope located at the 2250mRL Level. An additional pump station, wastewater storage stopes, and associated infrastructure is planned for the 2160mRL Level to provide additional dewatering capacity for the lower levels of the mine.

16.5.1 Cut-Off Grade

A cut-off grade of 1.16g/t AuEq has been used based upon a gold price assumption of US$1,500/oz, copper price of US$3.00/lb, and parameters listed in Table 16-3. Although silver grades are reported, silver does not contribute to the gold equivalence calculation and is considered as an incidental by-product.

Table 16-3: Cut-off Grade Parameters

Parameter	Operating CoG	Incremental CoG
Mining Costs	$33.50	$22.52
Process Costs	$7.46	$7.46
G&A	$8.74	-
Total Cost	**$49.70**	**$29.98**
Gold Price	$1,500	$1,500
Average Recovery	93%	86%
Gold Payability	98.20%	98.20%
Gold Royalty	2.40%	2.40%
Refining Charge	$3.61	$3.61
CoG (g/t AuEq)	**1.16**	**0.76**

Each design item was interrogated against the resource block model with material broken down by resource category. Dilution and recovery factors were applied and the average grade of each design item reassessed only allowing contribution of metal from Measured and Indicated Mineral Resource categories. As such, any Inferred Resource material within a mining block is effectively included as diluting material at zero grade. Any design item above 1.16g/t AuEq has been retained for inclusion in the Mineral Reserve schedule. In addition, an incremental cut-off grade of 0.76g/t AuEq has been calculated and is applicable for lower grade stopes, generally on the southern edge of the orebody near the footwall drive. All development costs for incremental stopes are sunk, as ore drive development is required regardless to access higher grade stopes to the north. Incremental material can be mined and processed providing it doesn’t offset higher grade mill feed. Approximately 6% of metal included in the Mineral Reserve estimate detailed in Table 15-4 is sourced from material with an average grade of less than 1.16g/t AuEq but more than 0.76g/t AuEq, i.e., above marginal cut-off.

Unit costs in Table 16-3 for the operating cut-off grade are slightly higher than unit operating costs calculated in this report from first principles. Theoretically, a slightly lower operating cut-off grade could be used. Analysis has shown that lowering the cut-off grade will result in additional low-grade stopes on the northern part of the orebody being introduced to the mining schedule. Due to the location of these stopes on the northern edge of the orebody, higher grade stopes to the south are delayed in the mining schedule, resulting in a reduction in NPV due to the deferment of higher-grade ounces. Therefore, the operating cut-off grade of 1.16g/t is used to maximise value from the underground schedule.

16.6 Underground Production

16.6.1 Mining Method

The LHOS mining method, is a commonly employed, high-production, low-cost mining method that is suited to steeply dipping tabular-like orebodies. The method allows a high degree of mechanisation and offers good mining selectivity, good recovery and is relatively flexible to suit variable geometries and ground conditions.

The LHOS mining method can provide a high production rate once sufficient stopes are accessed. The method is considered low risk because mining crews do not have to enter the stope void. Remote loading of blasted ore is required once the stope brow is open to the extent where the operator may be exposed to uncontrolled sloughing from the stope cavity. Line of sight loading is not utilised at Didipio - all remote loading is conducted either from tele-huts located underground or from the surface (generally utilised over shift change).

Production can commence from a stope once the top and/or bottom development ore drives (in ore) are established, and the expansion slot raise is mined between the two levels. Didipio have recently employed a Rhino raisebore rig to improve slot raise productivity and accuracy. The Rhino rig drills an initial 750mm diameter uphole before infill stripping holes around the raisebored hole are drilled with a production rig to create sufficient initial void. These infill stripping holes and all other production holes are drilled with a top hammer drill rig. Drilling is a combination of upholes and downholes. Once loading and hauling of blasted ore is complete, backfilling commences with the placement of paste backfill that will be re-exposed during the extraction of the next stope in sequence. Once sufficient curing time has been allowed, the slot drive is developed in the immediately adjacent stope and the extraction sequence can commence. A primary/secondary stoping sequence is utilised at Didipio, where primary stopes are separated by a secondary stope. Extraction of the secondary stope can only occur after the two immediately adjacent primary stopes have been mined, backfilled and have had time to cure.

The production front at Didipio is divided into two panels – Panels One and Two as shown on Figure 16-7. Panel One comprises levels 2280mRL up to and including the crown pillar levels 2400mRL and 2430mRL. Panel Two comprises of levels 2100mRL up to 2250mRL. Previous iterations of the Didipio production sequence contained a sill pillar at the 2250mRL level and a predominantly bottom-up mining sequence. Subsequent studies have shown that a predominantly top-down mining sequence delivers numerous benefits:

- Increased scheduling flexibility;
- Higher mining recoveries;
- Earlier access to higher grade ore;
- A more optimal production profile; and
- Minimises rehabilitation requirements in ore drives that often can occur in a bottom-up mining sequence.

The majority of stopes at Didipio are therefore mined in a top-down sequence beneath paste backfill. The exception to this is some of the stopes beneath and surrounding the CRF crown pillar on the 2400mRL and 2430mRL Levels. Several stopes in this area will be mined working on top of previously mined backfilled stopes. The mining sequence is shown on Figure 16-8. Panels One and Two were previously designated as separate production fronts on either side of the sill pillar at 2250mRL. With a top-down mining sequence and removal of the sill pillar at 2250mRL, the designation between Panel One and Panel Two is now made in relation to the drainage catchment zones for the capital pump stations, as opposed to the mining zones separated by a sill pillar in previous mining plan iterations.

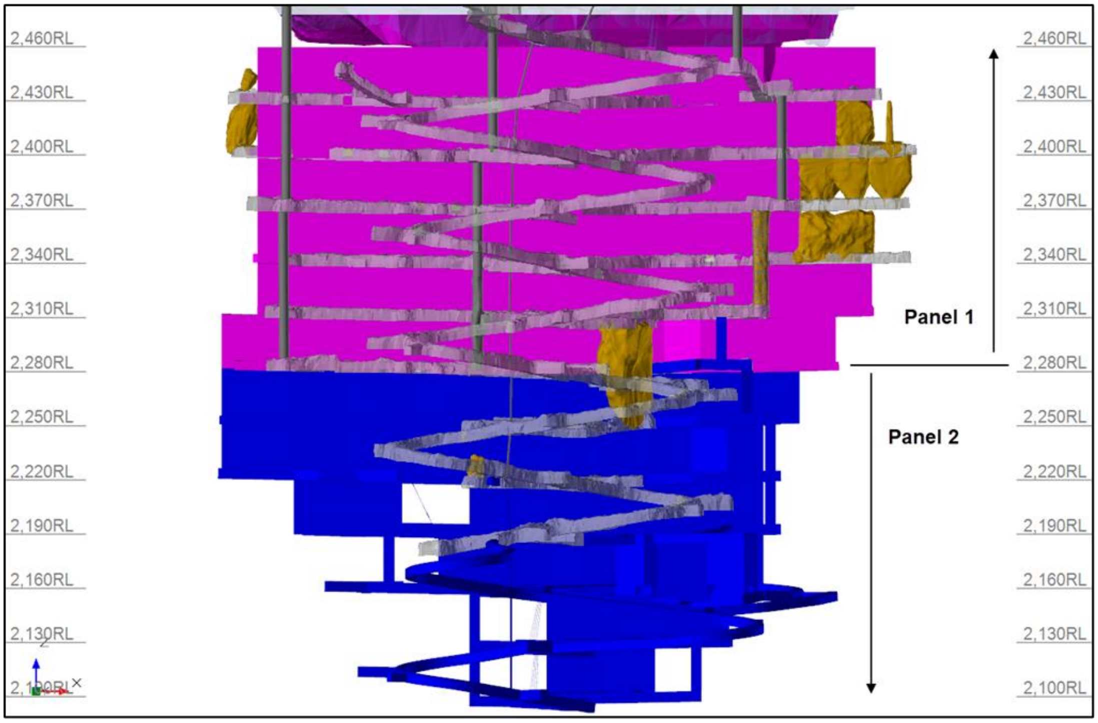


Figure 16-7: Section View Showing Split Between Panels 1 and 2

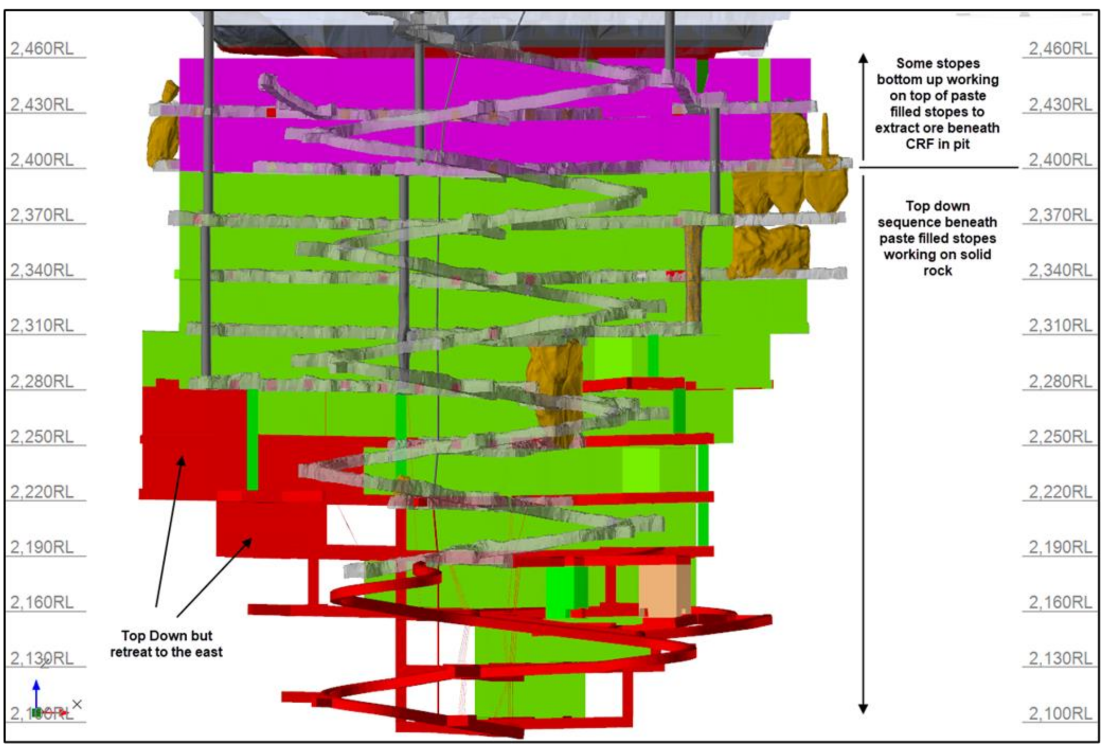


Figure 16-8: Section View Showing Split Between Top-Down Versus Bottom-Up Stopes

16.6.2 Underground Mine Design

Access and Mine Infrastructure

The main access decline was driven at a one in seven gradient for 4.0km from the surface portal and provides access for personnel and equipment. Figure 16-9 to Figure 16-11 illustrate the current underground layout in plan and section views. The decline has been sized at 5.8mW x 6.0mH to provide adequate clearance for mobile equipment operation, and to enable a low resistance intake air way. The main access decline face has advanced to the 2180mRL, leaving approximately 780m of lateral decline advance remaining to access the bottom three levels of the mine (2160mRL, 2130mRL and 2100mRL). The decline advance rates have been prioritised to ensure active dewatering and adequate pumping infrastructure is installed ahead of the advancing production front in the lower levels of the mine. An additional portal is also located lower down the pit wall which provides a second means of egress and additional fresh air supply.

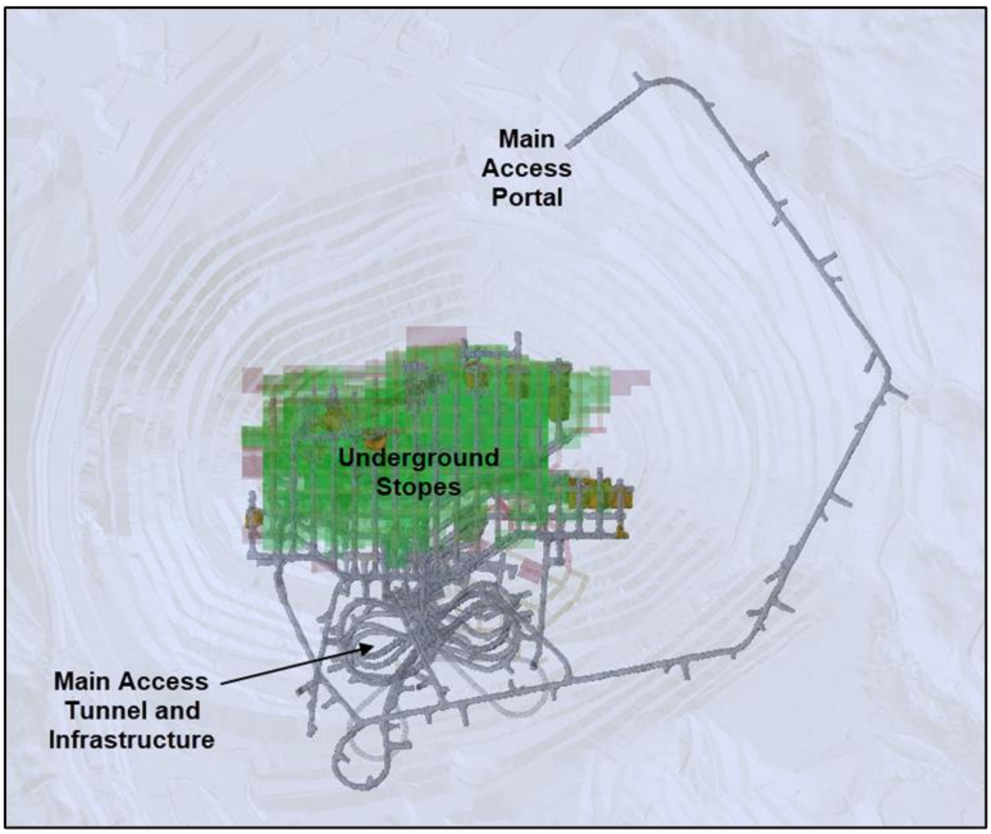


Figure 16-9: Underground Access and Designs with Final Pit - Plan View

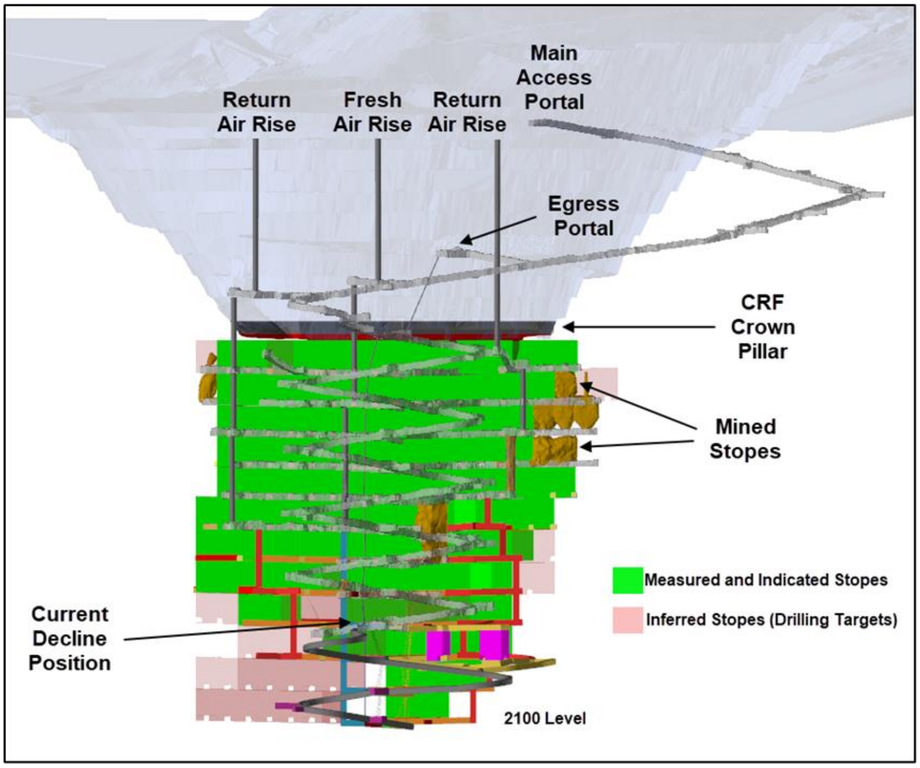


Figure 16-10: Underground Mine Design, Long-Section View Looking North-East

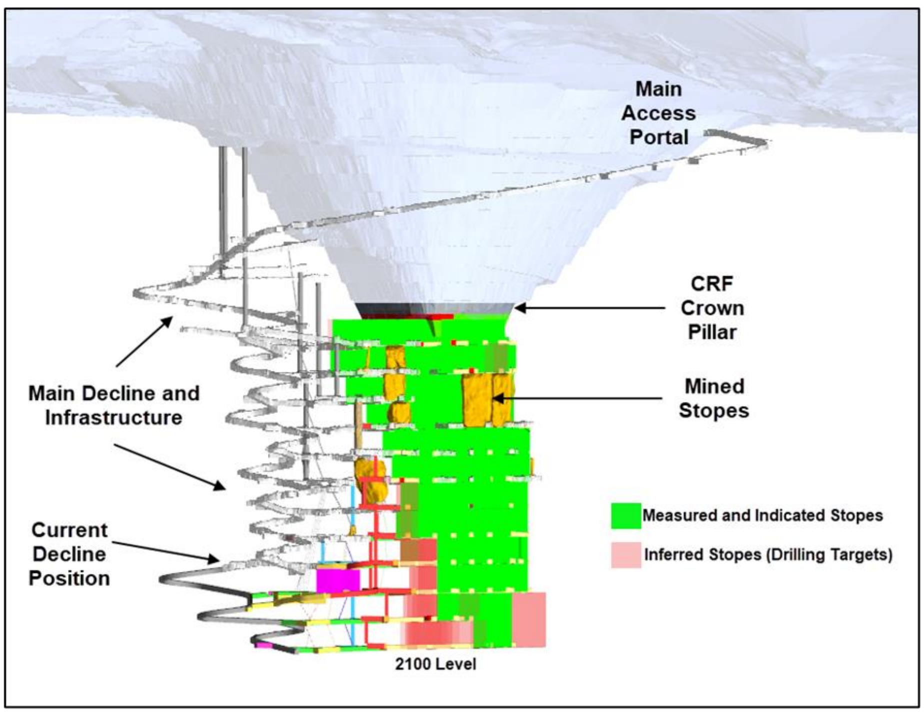


Figure 16-11: Underground Mine Design, Cross-Section View Looking North-West

The three initial ventilation shafts collared on the surface were raise bored at 5.5m diameter however as the mining levels are developed from the access decline and the primary ventilation network is extended incrementally, shafts in between levels are mined utilising longhole blasting (6m x 4m profile). A total of nine return air shafts and three fresh air shafts remain to be completed in the current LoM to deliver primary ventilation to the lower production levels. A ladderway escapeway system that extends to the surface via the secondary egress portal also extends incrementally between levels via 1.1m diameter raise bored holes. A combination of fully caged steel ladders, and fully enclosed plastic laddertube have been utilised within the escapeway network.

Other mine infrastructure includes:

- A surface workshop for the maintenance and repair of underground equipment;
- A surface explosives magazine and a detonator magazine;
- Permanent refuge chambers;
- An underground lunchroom;
- Substations installed as the decline advances;
- Dewatering stations and a suite of local settling sumps;
- Dedicated service holes for rising mains;
- Drain holes connecting sumps between levels;
- Service holes for reticulation of paste backfill and electrical cables;
- Primary ventilation fans located at the top of the return air shafts; and
- Secondary ventilation fans delivering fresh air to working faces.

Level Development

Vertical sublevel spacing (floor to floor) is 30m which is defined by planned stoping heights. Decline stand-off from the footwall drive varies based on infrastructure requirements. Generally, stand-off distance is between 80-100m to accommodate capital infrastructure including fresh air raise, return air raise, emergency egress, sumps/dewatering and electrical infrastructure. An example of the lateral development lay out is shown in Figure 16-12. This shows the 2160mRL Level which has a larger standoff of 150m to accommodate additional infrastructure associated with the planned pump station installation on this level.

Dedicated truck loading stockpiles are not included in capital development designs. Instead, backs are stripped at intervals along the footwall drive and ore drive development is mined strategically to provide stockpile capacity. Generally, all ore drives are stubbed in as the footwall drive advances however some ore drives will be extended earlier than required to provide additional stockpile capacity to accommodate remote bogging over shift change.

The minimum stand-off distance between the footwall drive and the orebody is 20m. Where possible the footwall drive has been located in waste to allow for additional footwall stopes should lower grade material become economic based on lower future cut-off grades resulting from more favourable conditions such as an increase in commodity prices. In some levels, previously uneconomic stopes that are now above cut-off are in reasonably close proximity to the footwall drive (less than 20m standoff). In these instances, these stopes are included in the LoM but are mined towards the end of the schedule to ensure access and infrastructure in footwall drives is not compromised.

Ore drives are spaced at 20m centres throughout the orebody. Slot drives are developed to the planned width of the stope and are not scheduled to be developed until the adjacent stope has been backfilled with paste which has sufficiently cured.

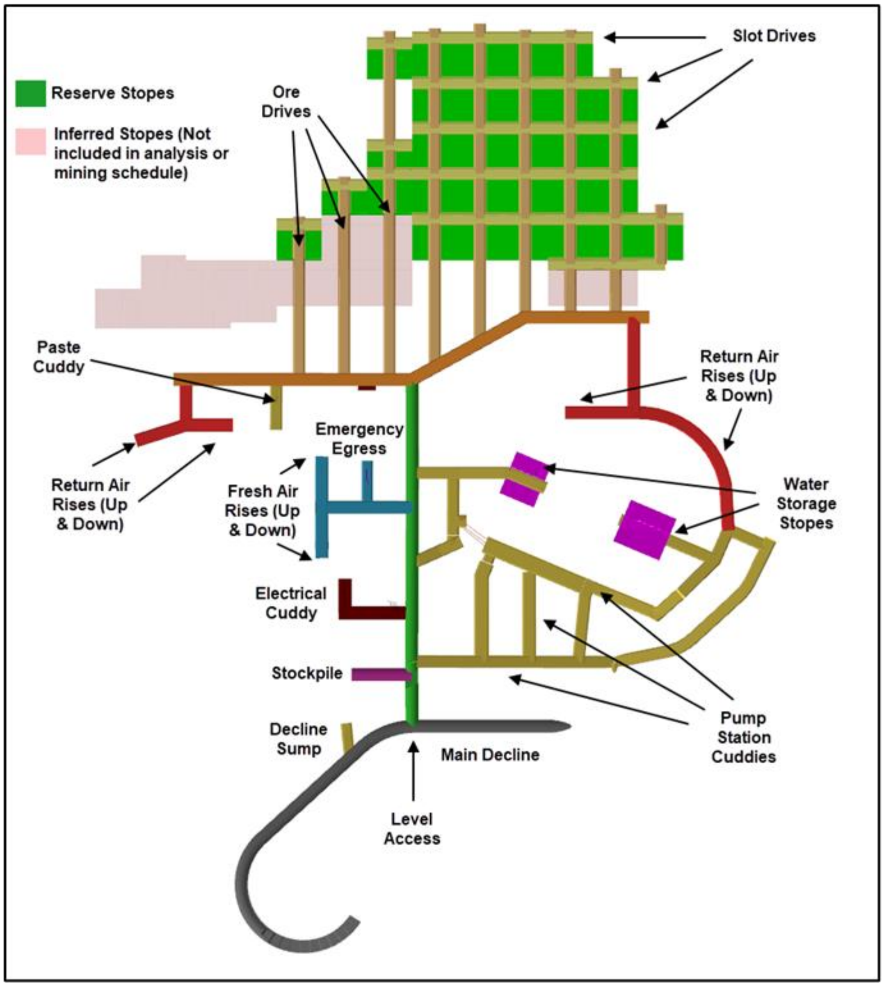


Figure 16-12: Didipio Underground Mine Design - Plan View of 2160 level (not yet mined)

Development design standards considers likely ground conditions, equipment size, services, and required activity. The widest mobile equipment currently in use at Didipio underground, the Sandvik TH663 60-tonne truck, is 3.5m in width. Therefore, haulage-ways (designed at 5.8m width) have ample clearance for truck and pedestrian traffic – refer to Figure 16-12, which also shows indicative placement of flexible ventilation ducting and services within the haulage way.

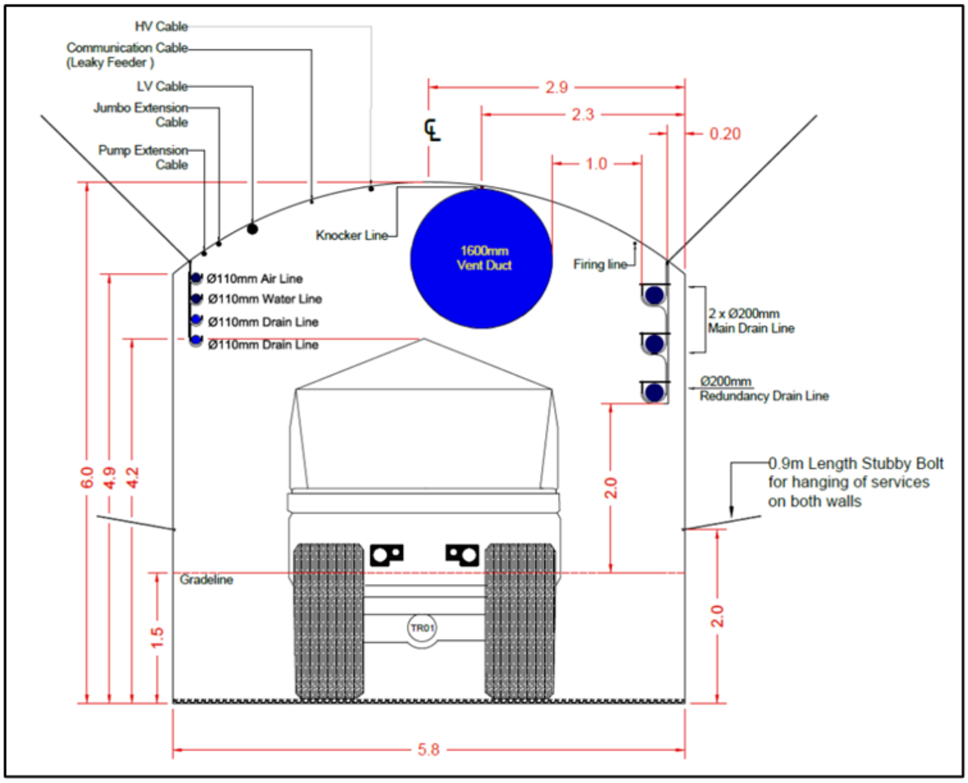


Figure 16-13: Decline Profile for TH663 truck

Level access and footwall drives are also designed at 5.8mW x 6.0mH to accommodate truck loading from temporary stockpiles located in ore drive stubs. Ore drives and slot drives are designed at 5.5mW x 5.0mH to provide adequate overhead clearance between mine equipment and services such as ventilation ducting as shown on Figure 16-13. The height and width also provide sufficient operating clearance for the production drill rigs and the rhino raisebore rig. Development design parameters are summarised in Table 16-4 and Table 16-5.

Table 16-4: Lateral Development Profiles

Lateral Development Profiles	Profile	Width(m)	Height(m)
Decline	Lateral - A	5.8	6
Decline Stockpile	Lateral - A	5.8	6
Level Access	Lateral - A	5.8	6
Fresh Air/Return Air Drives	Lateral - B	5.8	6
Footwall Drives	Lateral - B	5.8	6
Escapeway Access	Lateral - D	5	5
Pastefill/Pump Station Cuddies	Lateral - K	5.5	5.5
Ore Drives/Slot Drives	Lateral - O	5.5	5
Substation Cuddies	Lateral - P	6	5

Table 16-5: Vertical Development Profiles

Vertical Development Profiles	Profile(mm)	Width(m)	Height(m)
Vent Raise (Longhole blasted)	N/A	6.0	4.0
Escapeway	1,100	N/A	N/A
Service Hole	150	N/A	N/A
Drain Hole	200	N/A	N/A
Rising Main	300	N/A	N/A
Pastefill Hole	300	N/A	N/A

Ground support requirements for lateral development are governed by anticipated ground conditions, excavation size, and the type of development. Ground conditions at Didipio are classified into three types as outlined in Table 16-6 below.

Table 16-6: Rock Mass Quality Classifications

Rock Type	Rock Mass Quality		
	Q-Rating	Description	Typical Cut Length
1	Q ≥ 1	Fair to Good	4.3 m
2	1 > Q > 0.1	Poor	4.3 m
3	Q ≤ 0.1	Very Poor Ground	2.5 m

Type one Ground (fair to good ground conditions) is a moderately strong rock mass with two to three well developed joint/structure sets. Joints/structures are usually tight and the ground generally remains intact.

Type two Ground (poor ground conditions) is a weak rock mass which typically has more than three well developed joint/structure sets and distinct weak foliation, faults and/or shears. Deterioration of ground can occur quickly after excavation, and/or with time due to stress changes.

Type three Ground (very poor ground conditions) typically occur in the weak Breccia rock mass and can easily disintegrate and soften when disturbed and mixed with water and at its weakest (500kPa) can behave more like a soil than soft rock. Ground support standards are defined in Table 16-7 below.

Table 16-7: Ground Support Standards

Ground Support Standard	Development Type
GSS – A	Decline, Level Access, Vent Access
GSS – B	Footwall Drive
GSS – C	Stockpiles
GSS – D	Escapeway Access, Cuddy, Sump
GSS – E	Ore Drive
GSS – F	Drift and Fill
GSS – G	Paste Development

An example of an approved ground support standard can be seen in Figure 16-14.

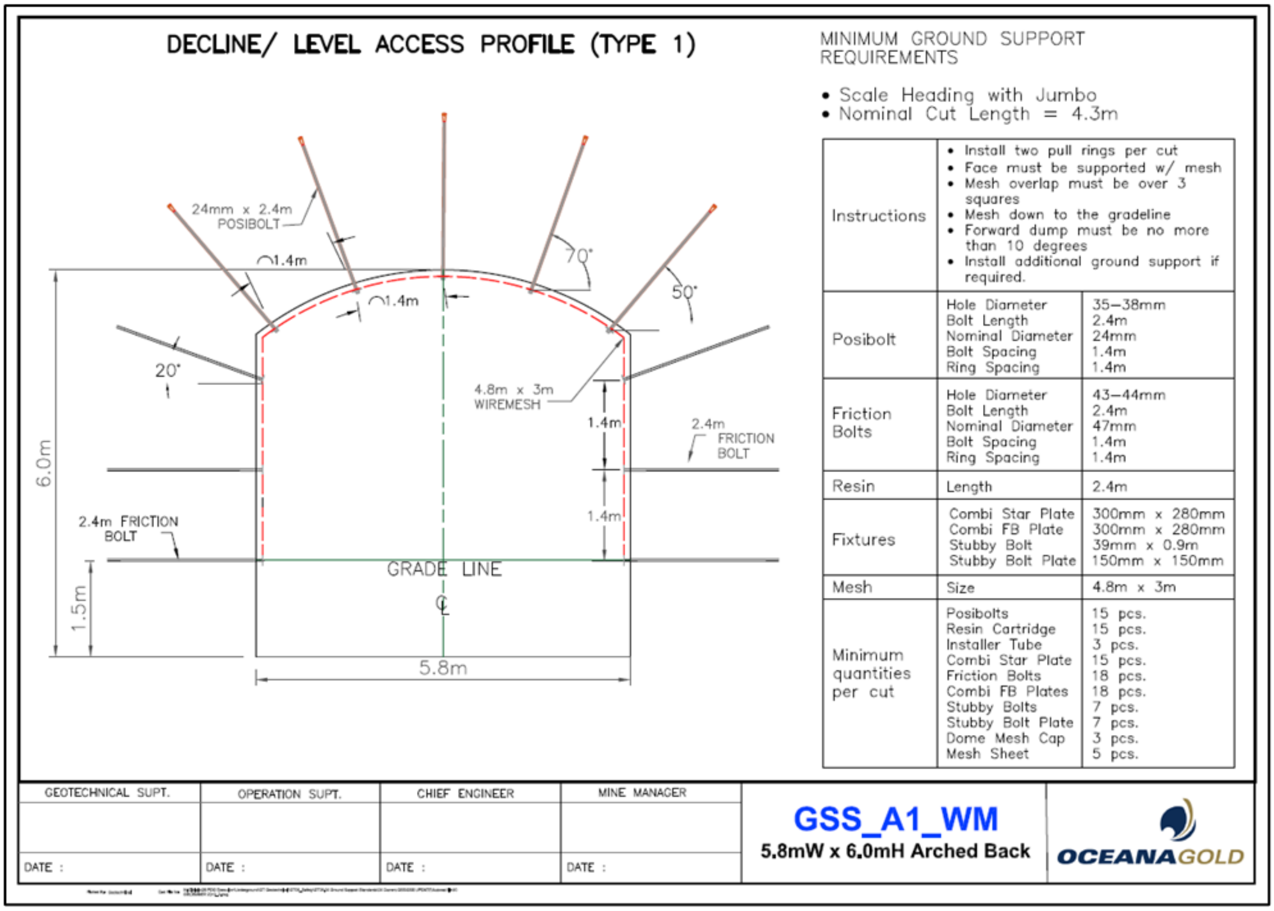


Figure 16-14: Decline (A1) Approved Ground Support Standard

16.6.3 Stope Cycle and Sequence

A transverse primary/secondary stoping sequence is used at Didipio. The sequence progresses from the top down, with personnel and equipment working on top of insitu rock. The exception to this is some stopes on the two upper levels (2400mRL and 2430mRL) that recover ore beneath the CRF crown pillar in the base of the pit. The mining sequence at Didipio involves extraction of primary stopes followed by mining the secondary stopes. Previous iterations of the production schedule at Didipio allowed for unconsolidated rockfill to be placed in secondary stopes. However, given the change to a top-down mining sequence, all stopes will require paste fill. The primary/secondary sequence allows for stoping to be undertaken concurrently in multiple working areas, allowing for increased production rates compared to other methods such as longitudinal retreat or a continuous front approach.

Figure 16-15 below illustrates a primary-secondary stoping sequence on the 2400mRL Level in yearly increments. This form of retreat is indicative of all levels at Didipio. The stoping sequence begins on the northern side of the orebody and retreats south towards the footwall drive and decline infrastructure. Primary stopes are mined first and will generally have side walls formed in rock, as no adjacent stopes have yet been mined. The crown or the floor of a primary stope may also be in insitu rock, depending on if the stope is mined top down or bottom up. Dilution incurred from primary stopes is nominally ore from the sidewalls (that would otherwise have been mined by the adjacent secondary stope), with some paste fill dilution in the crown for top-down stopes. Secondary stopes are mined in between previously extracted and paste filled stopes, and generally have stope walls and the crown formed in paste backfill. Dilution from paste backfill is therefore expected to be higher in secondary stopes, particularly if overbreak occurs within the primary stopes, and the backfill is undercut by mining of the secondary stope.

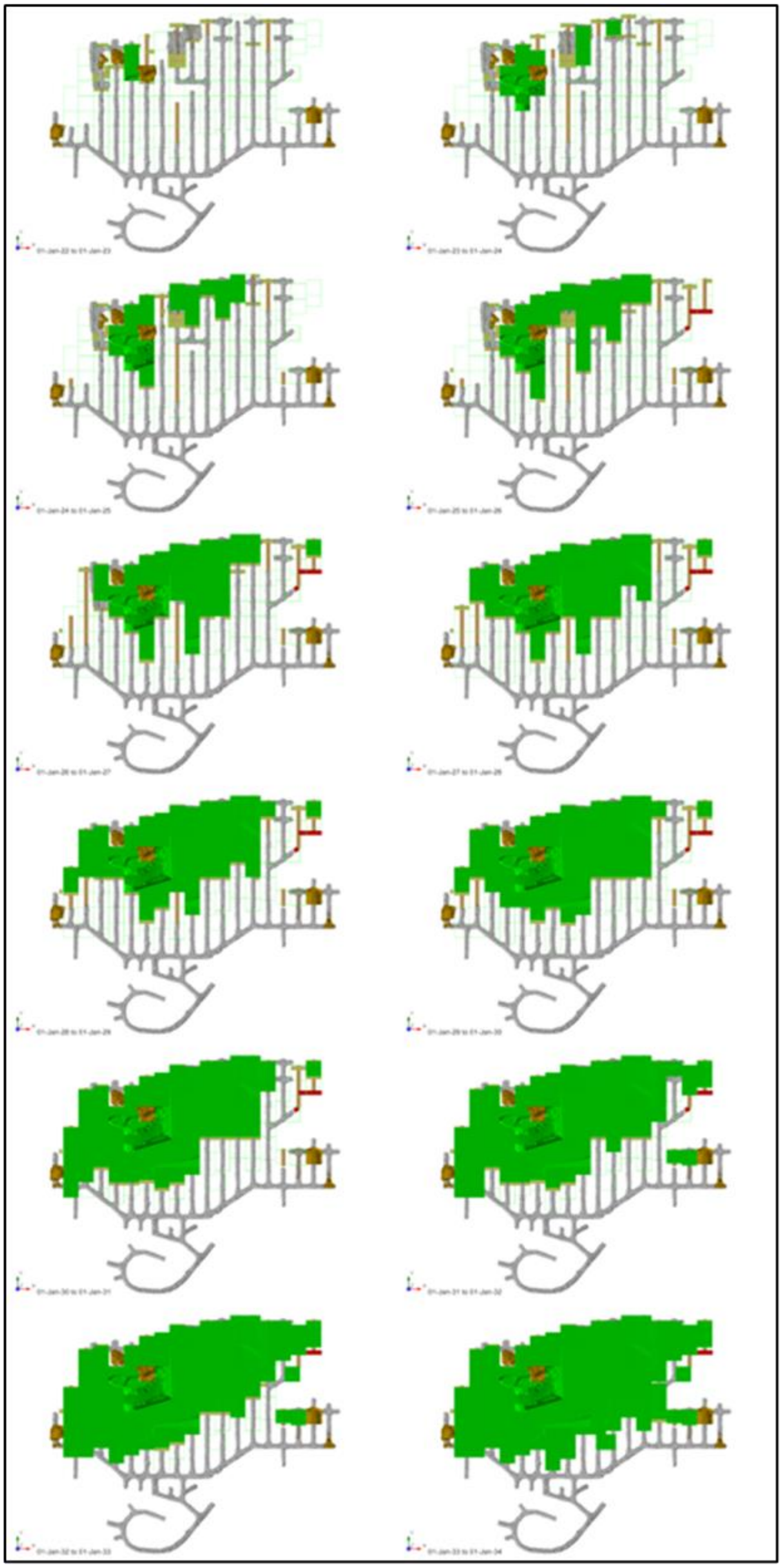


Figure 16-15: 2400 Level Yearly Stoping Front Advance

16.6.4 Stope Design

Several different stope designs are utilised at Didipio as shown in Figure 16-16 and Figure 16-17. All methods rely on the development of a slot drive to provide initial void for subsequent stope firings. The standard stope design is based on a 30m high level interval and is nominally 20mW x 20mL x 30mH. This stope design is utilised mainly in the Breccia Zone for stopes beneath paste (top-down sequence) and minimises overbreak associated with the weaker host rock. Some variations on the standard LHOS designs are employed in the crown pillar area, where the stope height is increased to ensure maximum recovery of ore beneath the previously placed CRF. In the Monzonite zone on the eastern side of the orebody, more competent ground conditions are encountered. Double lift stopes in the Monzonite Zone up to 60m are designed, as shown in Figure 16-18, increasing stope productivity and reducing ore drive development requirements.

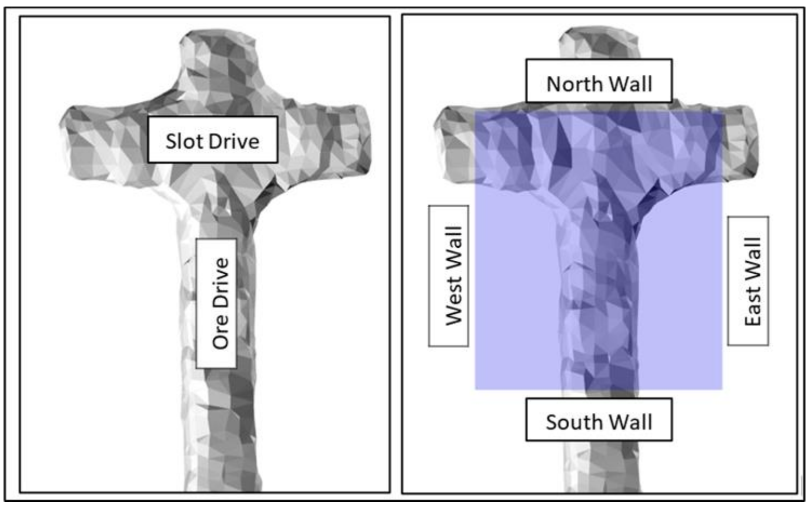


Figure 16-16: Commonly Used Development and Stope Geometry Terms

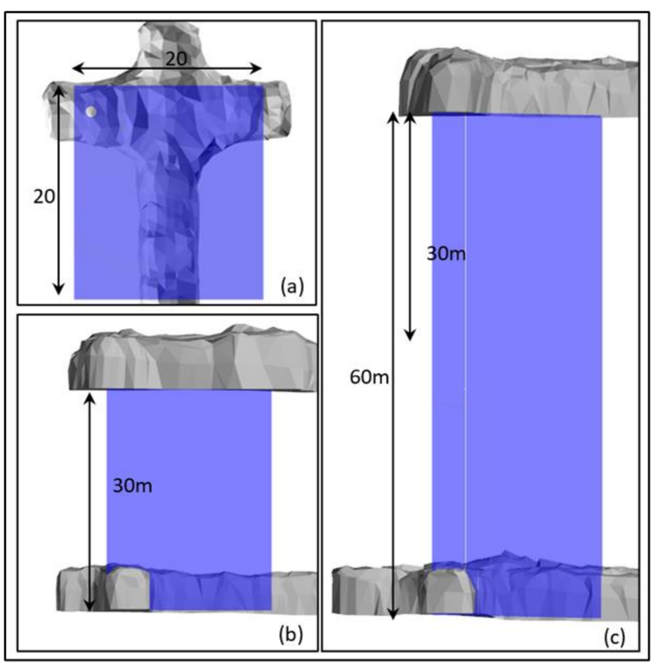


Figure 16-17: Didipio Typical Stope Dimensions (Single Lift and Dual Lift)

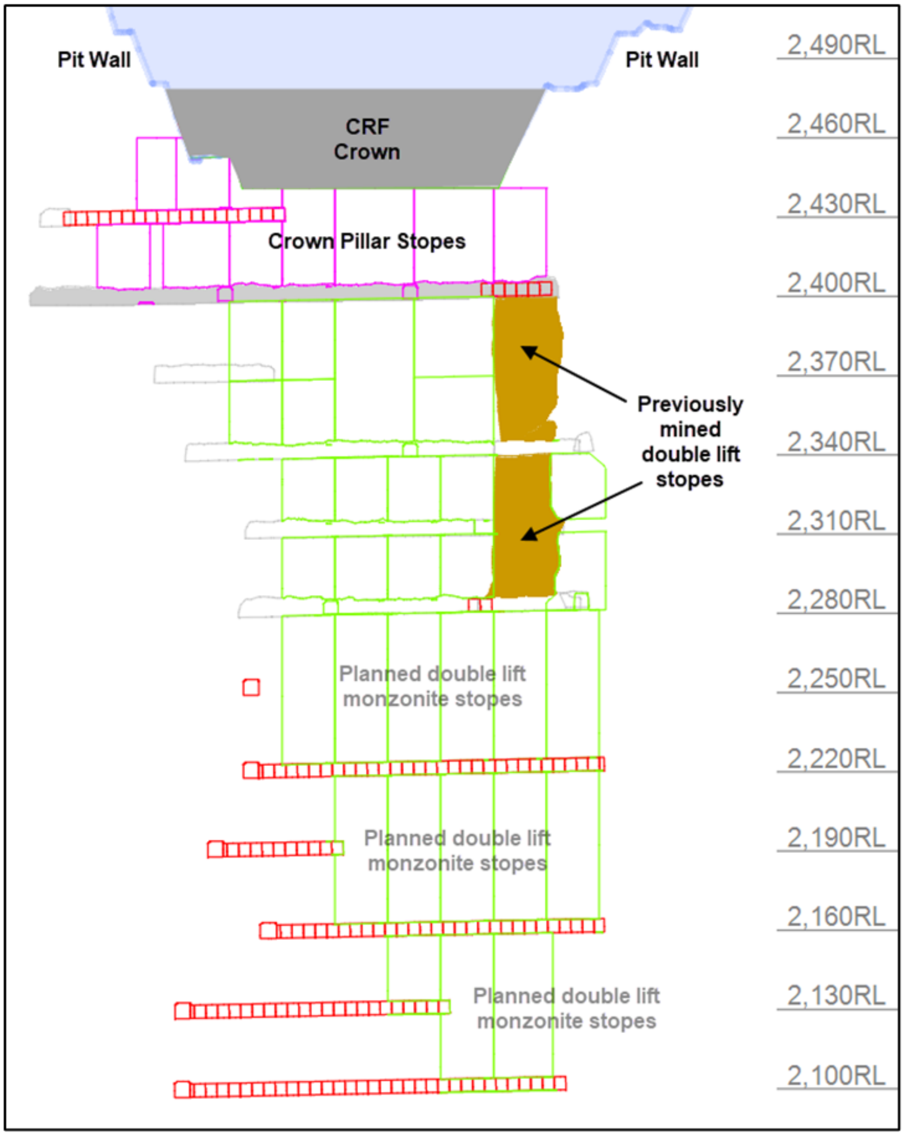


Figure 16-18: Section View of Mine and Planned Double Lift Monzonite Stopes

Initial stoping in the Breccia Zone on the upper levels of the mine encountered significant crown overbreak and alternative methods have since been developed. The drift and fill method has since been successfully utilised to ensure the integrity of the stope where exposure of a 20m x 20m unsupported crown could result in the collapse or unravelling of the stope crown. The drift and fill method involves placement of engineered paste fill in the crown of the stope prior to the commencement of production firings. The process involves stripping out the crown of the stope using jumbos and progressively tight filling each pass with paste fill. Once curing of the last pass is complete, production drillings and firing can commence as per a standard up hole LHOS. The drift and fill method is slower and more expensive due to the jumbo intensive nature of preparing the crown of the stope, and therefore incurs slower production rates compared to a standard LHOS. These factors have been incorporated in the schedule and cost model, although the proportion of ounces mined via drift and fill in the overall schedule is low. Approximately 2% of production ounces at Didipio are mined via this method. Figure 16-19 and Figure 16-20 shows the steps involved in the drift and fill process.

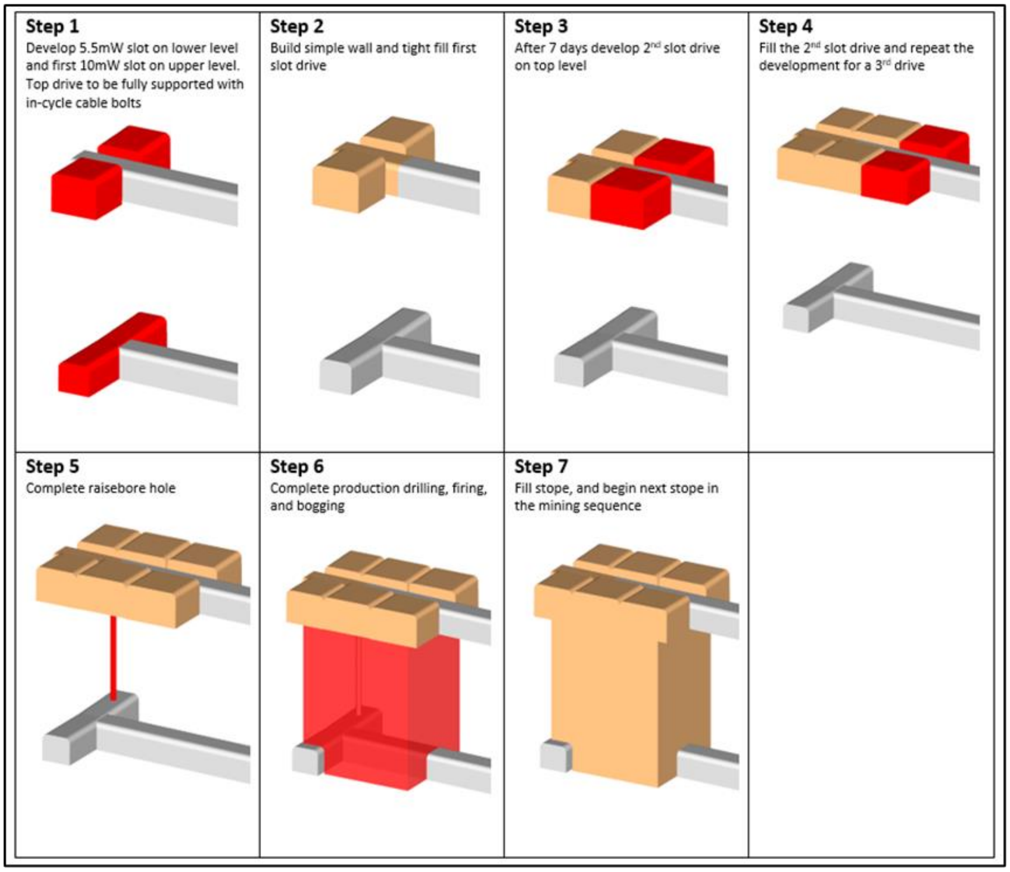


Figure 16-19: Drift and Fill Mining Sequence

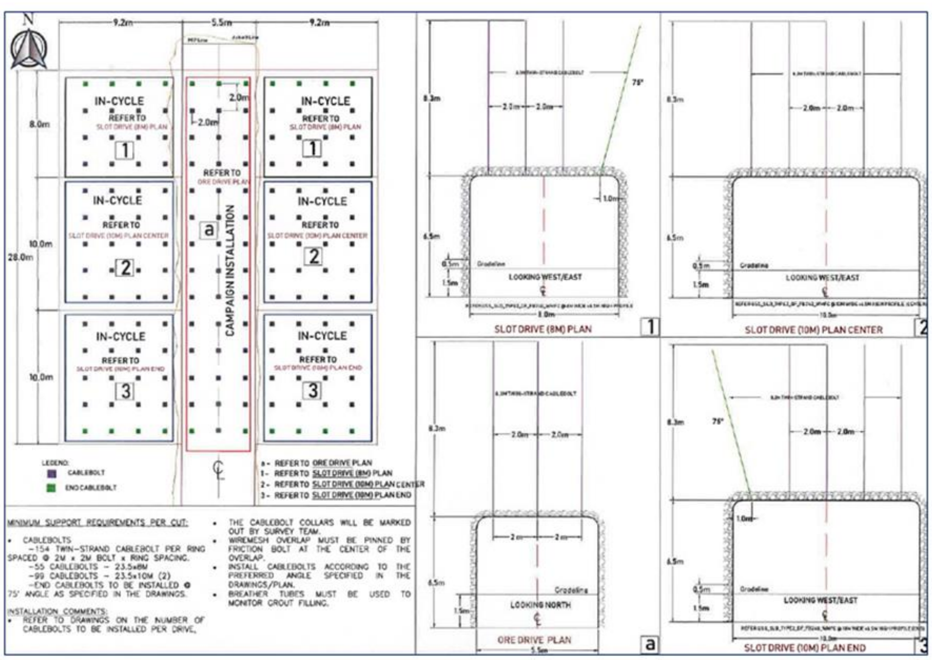


Figure 16-20: Drift and Fill Crown Development & Support Requirements

Once the slot drive has been developed, drilling in the slot drive and main production rings can commence. The recently purchased Rhino Raisebore Rig is utilised to ream out a 750mm diameter hole to assist with establishing the void for the initial slot firing. 89mm infill blast holes are drilled around the Rhino hole to create a 3.5m x 3.5m excavation as shown on Figure 16-21

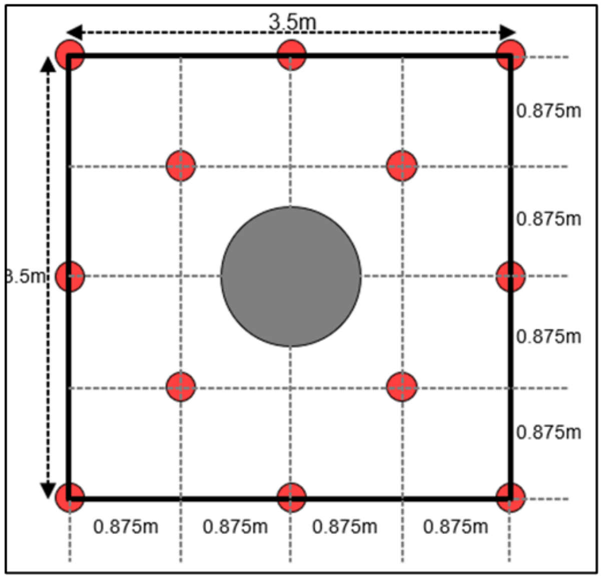


Figure 16-21: Standard Slot Drill Pattern at Didipio

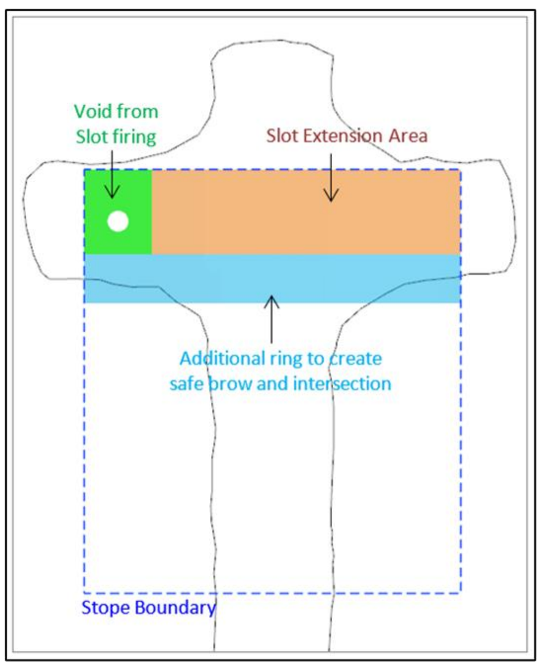


Figure 16-22: Plan View of Slot Drive Extraction

Following the initial 3.5m x 3.5m slot firing, slot extensions rings are fired with an additional ring to create a safe brow for future firings as shown in Figure 16-22. Following creation of the slot void, firing of the main production rings can take place which is where the bulk of the ore tonnes for each stope are located. The firing process for single lift and dual lift stopes is very similar and is shown in Figure 16-23.

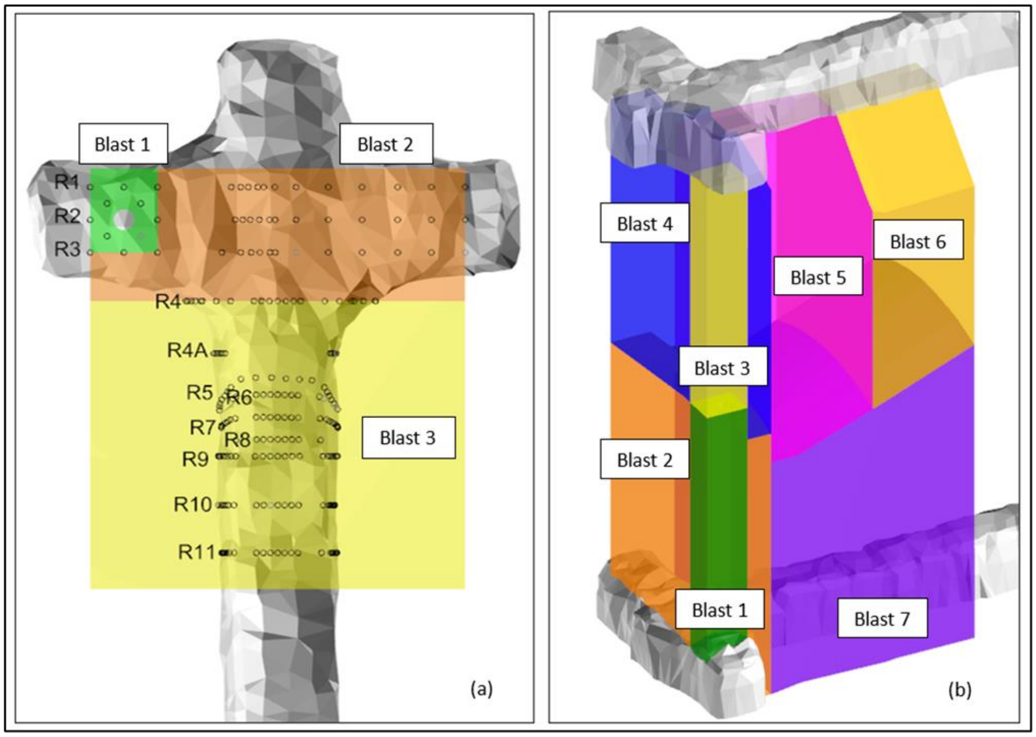


Figure 16-23: Typical Blasting Sequence for (a) Single Lift Stope and (b) Double Lift Stopes

16.6.5 Crown Pillar

Previous iterations of the Didipio mine design involved bottom-up mining methods which resulted in a 30m high crown pillar below the base of the final pit between the 2430mRL and 2460mRL that was scheduled to be extracted at the end of the mine life. The extraction sequence was planned to be similar to that of a sub-level cave ("SLC") operation, whereby a slot drive is mined to provide initial void before production firings can commence. This sequence has several issues, including:

- Low mining recovery;
- Geotechnical concerns with ground conditions anticipated to deteriorate as extraction advances; and
- Production firings "daylighting" into the pit above, introducing a conduit for water inflows to the underground

Subsequent, optimisation studies have been completed on the crown pillar area to manage geotechnical risks and maximise ore recovery. In 2017, risks around stope chimney failure in the Breccia Zone on the western side of the crown pillar region were identified. Uncontrolled, vertical unravelling of weak rock presented potential inundation and inrush risks to the underground and an alternate mining method was developed.

In 2018 the Breccia Pit project was successfully completed. The low-strength crown pillar within the Breccia Zone was removed via open pit methods, and was replaced with approximately 69,000m^3 of engineered CRF comprising waste rock, tailings, cement and water. The process is shown in Figure 16-24 and Figure 16-25. CRF was utilised for backfilling for several reasons including its ability to be completed independently of underground paste requirements, and an overall stronger final product. Stripping of the pit floor and backfilling with CRF eliminates the need for lateral development to access the top of crown pillars stopes at the topmost level, allowing for extraction from the lower level in a geotechnically sound environment. Studies showed that this method resulted in no large-scale impacts on pit wall stability whilst delivering favourable economic returns due to early access to high grade ore and increased underground stope recoveries. Stoping has commenced in the upper levels adjacent to the CRF material in the Breccia Pit with excellent results (little to no overbreak).

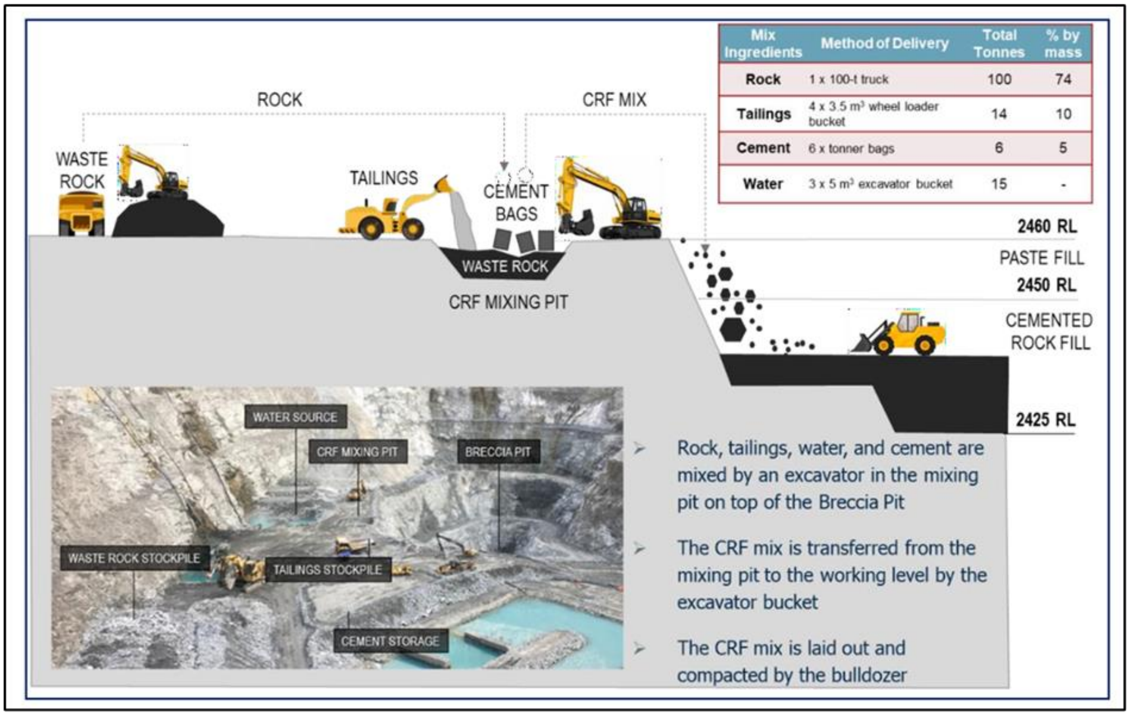


Figure 16-24: Breccia Pit CRF Placement

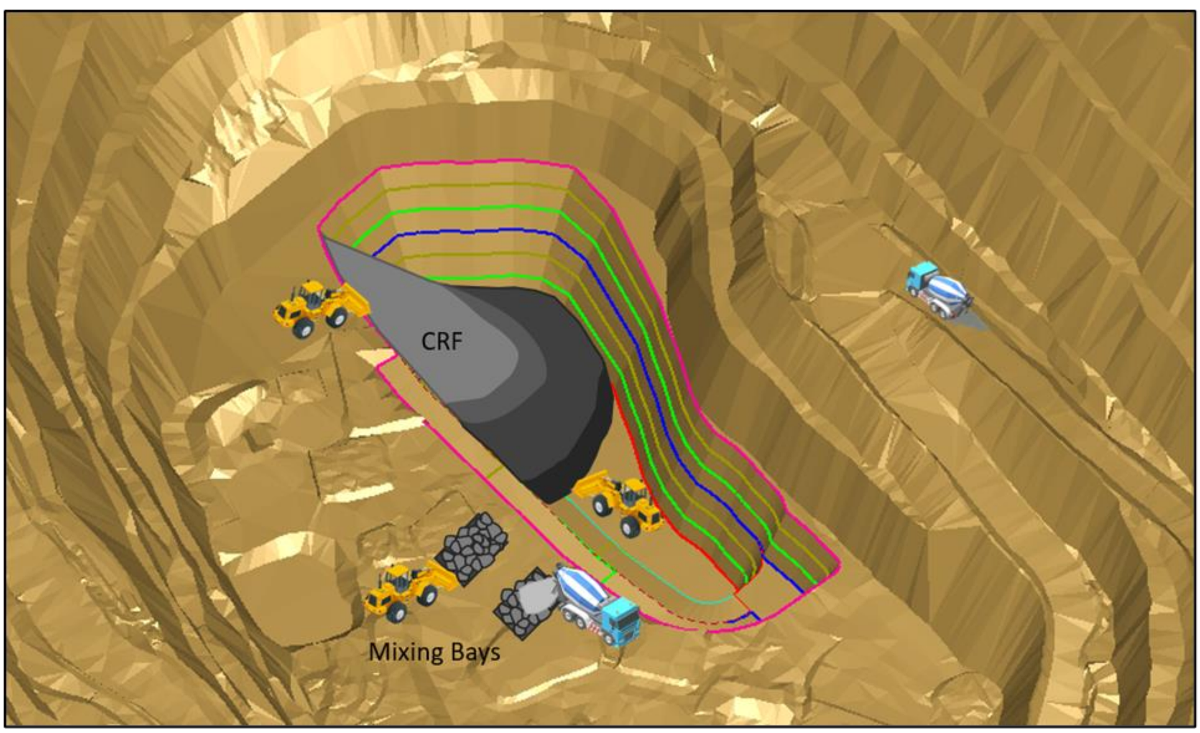


Figure 16-25: Surface CRF Schematic

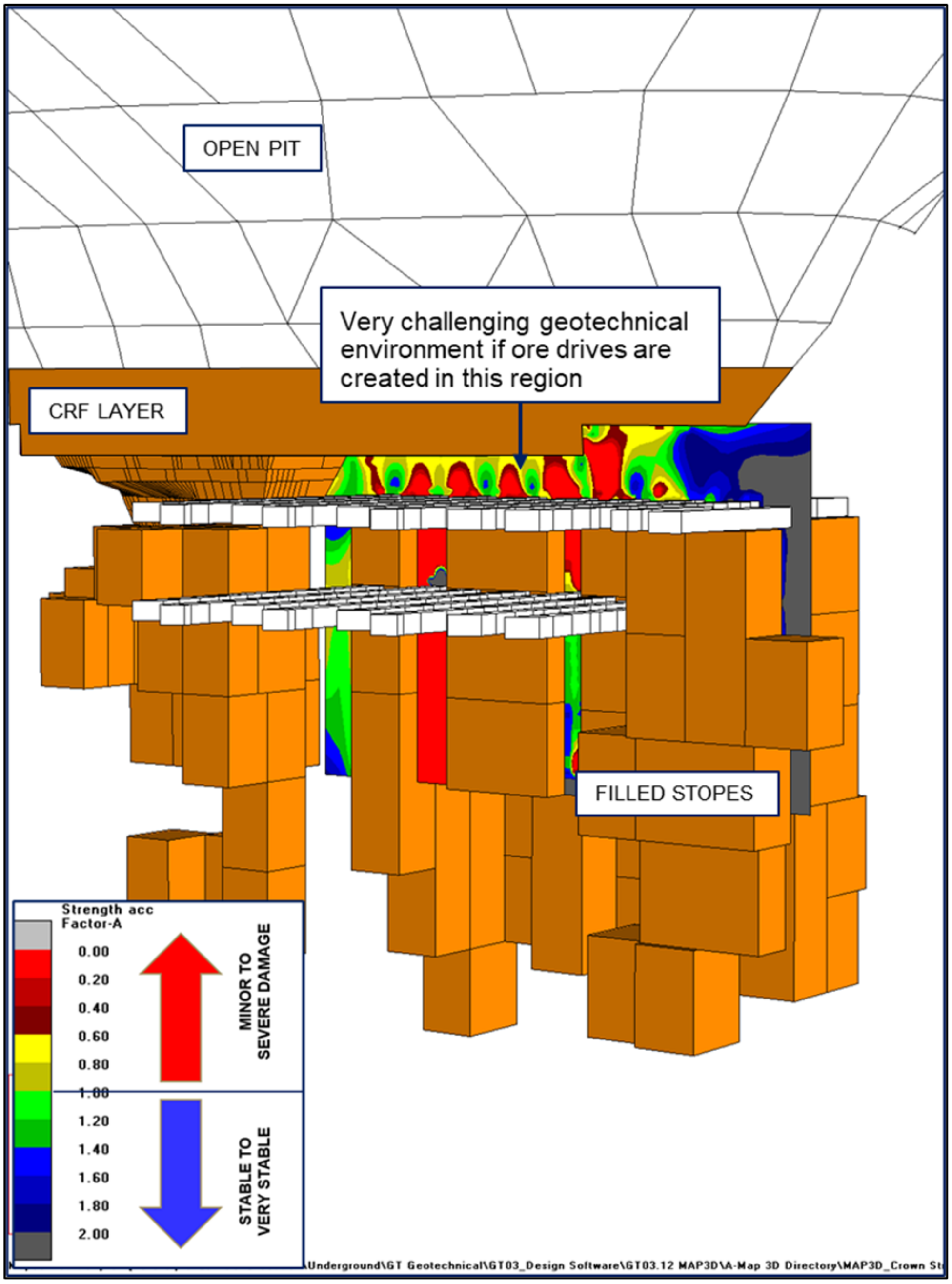


Figure 16-26: Severe Stress Damage Likely in Upper Level in Monzonite Zone Without CSP

Following successful completion of the Breccia pit, a project was initiated in early 2019 called the Crown Strengthening Project ("CSP") where similar principles from the Breccia Pit were to be applied to the more competent Monzonite rock mass on the eastern side of the crown pillar as without strengthening would also be subject to high stresses as shown on Figure 16-26. The CSP mining via open pit methods is due to be completed in early 2022, with CRF backfilling is to be undertaken through to 2024. Crown pillar stopes in the monzonite zone are up to 40m high to maximise ore recovery. This is higher than the Breccia Zone and possible due to more favourable stoping conditions.

16.7 Underground Modifying Factors

16.7.1 Dilution

There are four major sources of stope dilution in LHOS operations:

- Hangingwall dilution;
- Footwall dilution;
- Floor dilution; and
- Backfill dilution.

Of the four sources of dilution, the main sources for the Didipio orebody (at zero grade) are dilution associated with paste backfill, either from the walls of backfilled adjacent stopes or from the crown below a previously backfilled stope.

The Didipio orebody is a gradational orebody so both the hangingwall and footwall dilution will generally carry some grade, and with the exception of the perimeter stopes, the dilution will be from an adjacent (yet to be mined) stope. With a predominantly top-down stoping sequence, dilution from the floor is negligible, as the majority of stopes are working on top of in situ ore. A backfill dilution skin of 0.5m is typical for long hole stoping operations which use paste backfill as their main source of backfill, and where a full height of paste backfill wall is exposed. Average tonnage factors for stopes at Didipio are 105%. Whilst this figure will vary for primary and secondary stopes, for planning purposes an average factor of 105% is applied to all stopes during the LoM sequencing and scheduling phase. Waste development is assigned a tonnage factor of 110%, whilst ore development is assigned a tonnage factor of 100%, as any overbreak tonnes here are accounted for in the stope tonnes. This removes the risk of either double counting or under calling ore tonnes. Vertical waste development is assigned a tonnage factor of 100%.

16.7.2 Mining Recovery

Metal recovery factors consider the difficulties associated with recovering all the ore from a stope, particularly under remote-control operations. Additionally, it allows for the potential loss of metal due to excess dilution burying ore (i.e., a paste backfill wall failure), and not recovering all the ore and metal. Average ounce recovery factors for stopes at Didipio is 95%. The current top-down sequence allows for similar recoveries used in previous bottom-up sequences, with some notable differences:

- Optimisation of the crown pillar extraction sequence has allowed for an increase in recovery through this area (previously 80%);
- Top-down sequence is not reliant on a sill pillar at the 2250 level. Previous iterations of the schedule assumed 80% recovery on this level, due to the fact that paste fill could not be successfully placed in stopes due to no access at the top level for filling; and
- Top-down sequence allows for higher extraction of ore in the upper corners of the stope. Previous bottom-up sequence had to ensure that access at the top level of the stope was not compromised.

Mining modifying factors are summarised in Table 16-8.

Table 16-8: Ore Recovery and Dilution Parameters

	Dilution %	Tonnage	Metal
Lateral Development - Waste	10%	110%	-
Lateral Development - Ore	0%	100%	100%
Vertical Development - Waste	0%	100%	-
Stope – Primary	105%	105%	95%
Stope – Secondary	105%	105%	95%

16.7.3 Stope Performance

After each firing and following the completion of a stope, a cavity monitoring scan ("CMS") is undertaken to obtain an accurate image of the as mined shape. An example from a dual lift monzonite stope is seen in Figure 16-27. A stope reconciliation report is then completed which compares the design shape to the as mined shape and calculates actual overbreak and mining recovery. An example from a previously mined stope on the 2280mRL Level is seen in Figure 16-28.

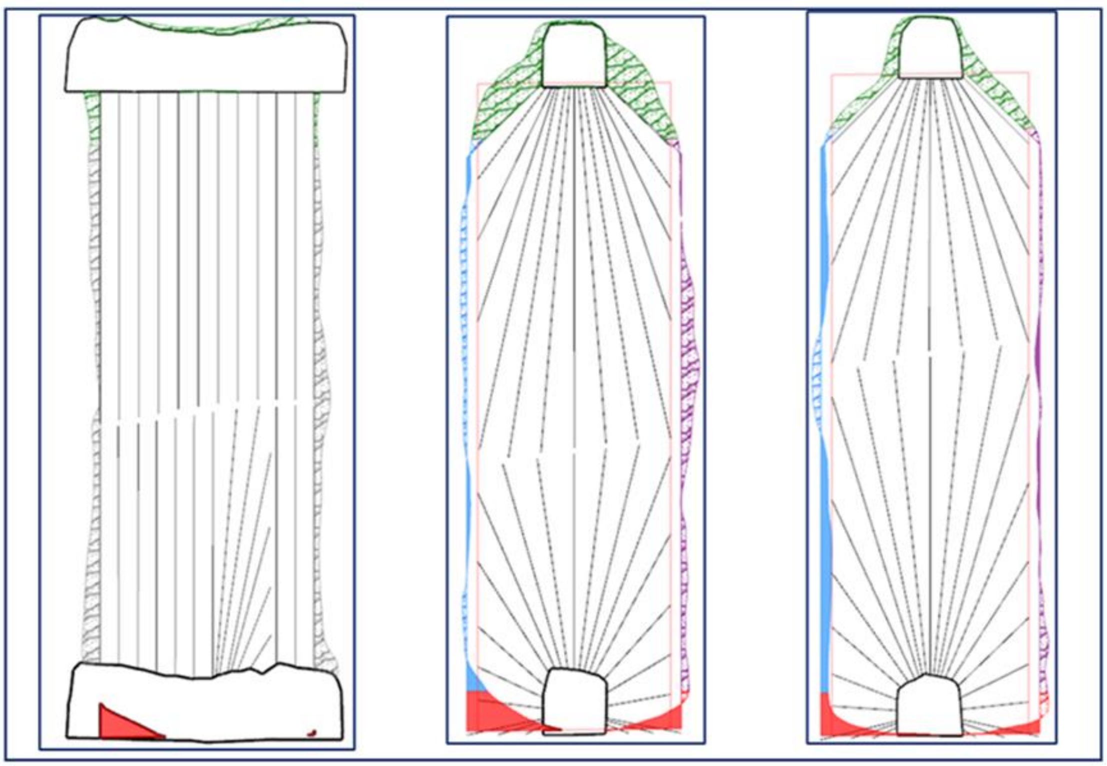
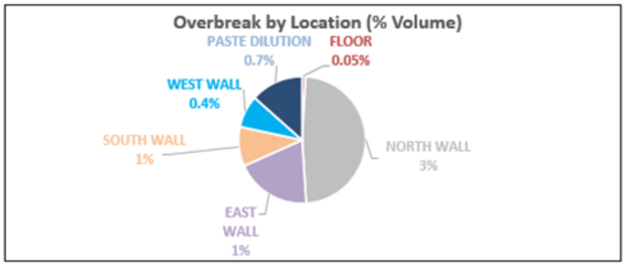


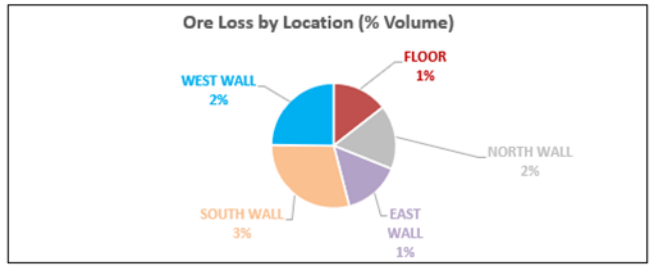
Figure 16-27: Cavity Monitoring Scan (CMS) Example

Stope Reconciliation Analysis Data:

			OVERBREAK BY LOCATION								ORE LOSS BY LOCATION						
	DESIGN	TOTAL MINED	CROWN	FLOOR	NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	PASTE DILUTION	TOTAL OB	CROWN	FLOOR	NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	TOTAL UB
Volume(m^3)	23,545	22,501	N/A	12	606	244	127	104	169	1,110	N/A	311	359	321	630	534	2,155
Tonnes	58,863	56,252	N/A	29	1,516	626	318	285	304	2,774	N/A	778	897	802	1,574	1,336	5,386
Au_Eq (g/t)	1.9	1.9	N/A	2.0	1.5	2.1	2.0	2.2	0.0	1.8	N/A	2.0	1.7	1.1	2.0	2.3	2.1
%BV	100%	96%	N/A	0.05%	3%	1%	1%	0.4%	0.7%	5%	N/A	1%	2%	1%	3%	2%	9%

Performance Summary:





Average Depths of Overbreak	Geotech ELOS(m)	Actual Achieved(m)
Crown	N/A	N/A
North Wall	0.5	0.6
East Wall	2	0.2
South Wall	1	0.1
West Wall	2.0	0.1

Average Depths of Underbreak	Target Max (m)	Actual Achieved(m)
Crown	N/A	N/A
North Wall	0.2	0.3
East Wall	0.2	0.3
South Wall	0.2	0.6
West Wall	0.2	0.5

Mined Overbreak =	5%	Metal Recovery =	95%	Mining Recovery =	91%

Figure 16-28: Stope Reconciliation Example 2280 Level

Stoping performance to date at Didipio (planned vs actual) has reconciled well against survey scans and the geological block models, validating the current dilution and recovery factors. Drill and blast improvements, such as decoupled charging along weak rock mass and paste walls to minimise dilution, have proved successful. However, as more stopes are mined and more data is gathered around stoping performance (particularly secondary stopes), amendments may be made to current dilution and recovery factors based on ongoing and likely future stope performance.

16.7.4 Paste Backfill

Paste fill is utilised for backfill at Didipio and is an integral part of the stoping cycle, providing support and regional stability whilst allowing for high recovery of ore from the orebody. Paste fill consists of high-density thickened tailings, water, and binder. Binders are used in paste to gain required structural strengths and mitigate liquefaction risk. The strength of paste, once cured, enables a top-down mining sequence at Didipio. Paste is produced on-site at the surface paste plant as shown on Figure 16-29 and is delivered from the surface to the underground workings via a series of boreholes as shown on Figure 16-30. The processing plant supplies the tailings required, with substantial mine tailings reused and diverted back underground as paste instead of being deposited in the TSF which reduces the overall footprint of the TSF.

Figure 16-29: Didipio Paste Plant

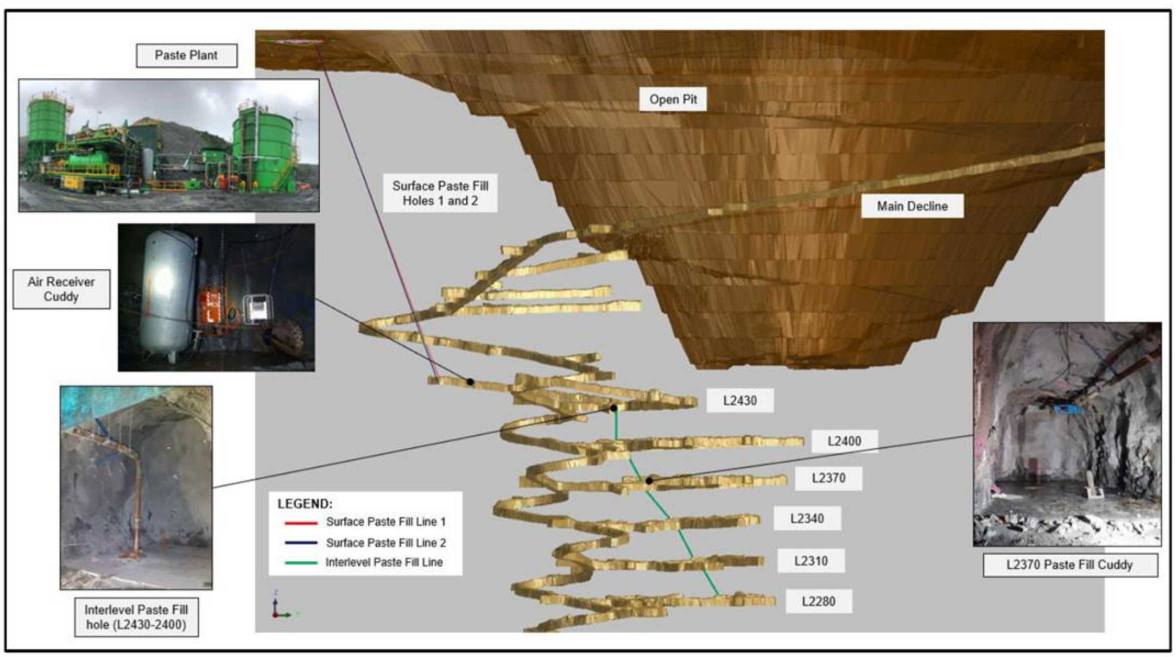


Figure 16-30: Didipio UG Paste Reticulation Schematic

Backfilling provides ground support and regional stability, thus, increasing mining productivity by allowing ore removal from nearby regions (ie. no pillars of ore are left in situ). The high rock stresses which result from deep mining operations can also be relieved by backfilling. Stoping is carried out in an underhand transverse retreat mining method on a 30-meter sublevel interval. A typical stope (single-lift) will require around 12,000 m^3 of paste fill. The mining process is not complete until the void has been filled within design limits with paste fill.

Paste filling enables secondary stope extraction where paste fill can stand safely during the extraction of the adjacent rockmass.

Paste strength requirements are governed by the stoping sequence. High strength paste fill (approximately 1,000 kPa) is required when mining underneath paste. Medium strength paste fill (approximately 300-400 kPa) is required for vertical wall exposure (mining adjacent to backfilled stopes). Low strength (<300 kPa) paste is used where no future exposures by adjacent mining are required (where paste fill is used as a working platform). Table 16 10 summarises paste fill type, 28-day strengths, and required binder.

Table 16-9: Paste Fill Strength Zones per Application Type

Fill type	Usage	Average (28-day) Design Strength (kPa)	Normal Binder Dosing (%)
Low strength	Backfilled block without future fill	250 to 300	3%
Normal strength	Backfilled block with sequential exposure (vertical exposure). The lower stope on a double-lift requires 400 kPa. A single lift stope only requires 300 kPa.	300 to 400	4% to 6%
High strength	Mining underneath backfilled block (horizontal exposure) or development through paste that must withstand caving and flexural failures. Where the horizontal exposure will only occur after 56 days then a 10% cement dosage will be adequate.	750 to 1,000	10% to 12%

Prior to the commencement of stope filling, a Stope Backfill Note is issued and consists of:

- Paste bulkhead design specifications and drainage requirements;
- Volume of paste required based on survey CMS of stope void;
- Paste pour instructions/sequence, including % binder and solids; and
- Reticulation length and estimated pipeline pressure at critical points.

Figure 16-31 below shows binder requirements by level for a 60m dual lift stope.

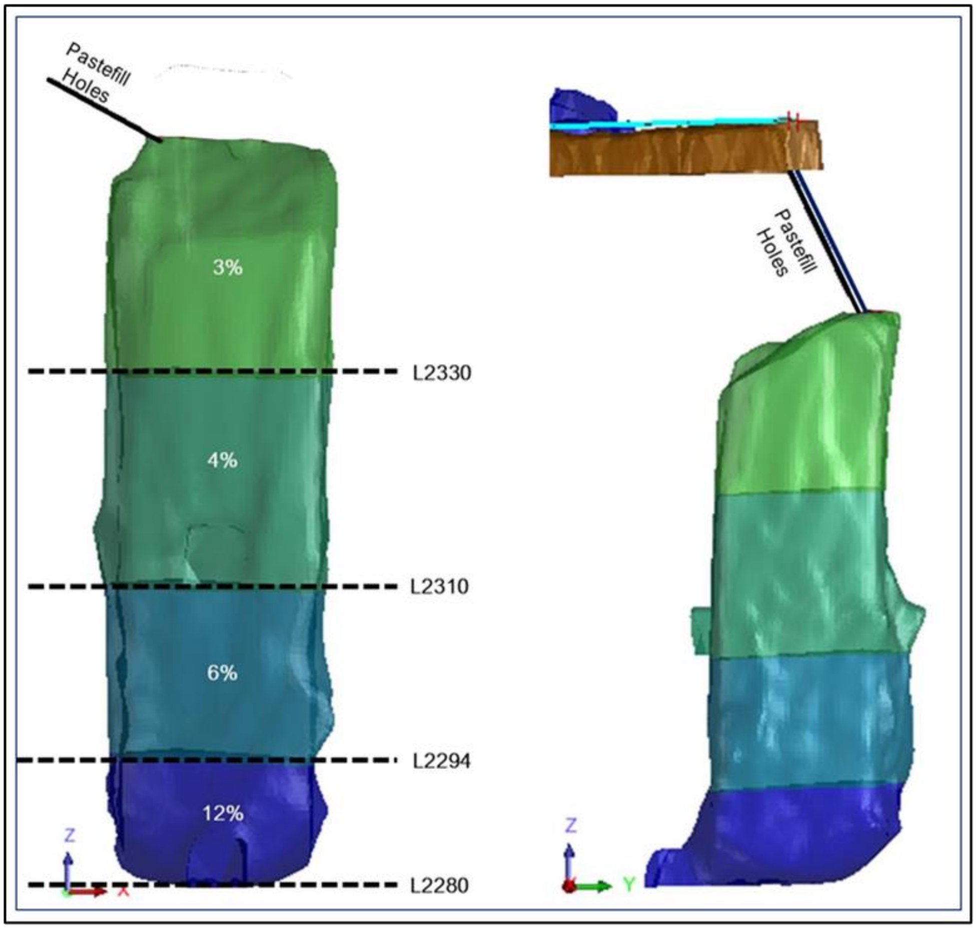


Figure 16-31: Paste fill Design Binder % in a 60mH Stope

The paste fill requirements for the LoM have been scheduled and are shown in Figure 16-32 in annual increments.

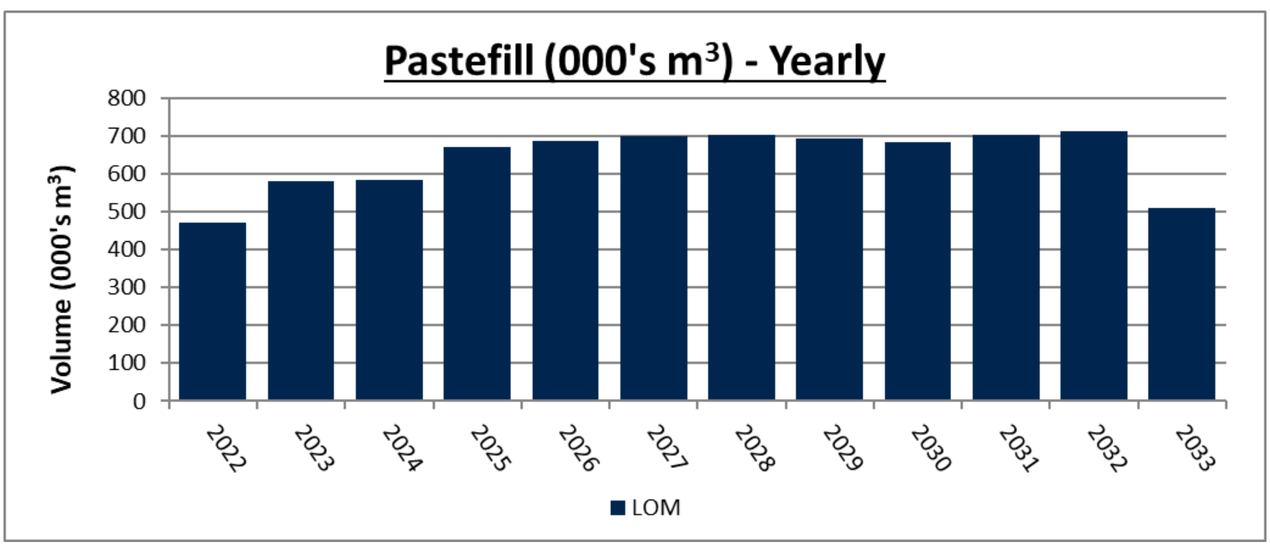


Figure 16-32: Annual Paste fill Requirements

16.8 Underground Mining Schedule

16.8.1 LoM Production Schedule

Following renewal of the FTAA in July 2021, underground development recommenced in September 2021 followed by production in November 2021. 2022 to 2024 will see production ramp up from 1.4Mtpa to 1.7Mtpa and maintains this rate until 2032. The Didipio underground schedule is based on productivity assumptions using a combination of historic rates achieved at Didipio and first principles. The schedule was completed using Deswik mine planning software and is based on operations occurring 365 days/year, seven days/week, with two 12-hr shifts each day. Productivity rates used for mine scheduling are shown in Table 16-10 below.

Table 16-10: Productivity Rates

Activity Type	Rate
Production:	
Stope Slot Raise boring (Boxhole)	10m/day
Stope Long hole Drilling	250pdm/day
Stope Bogging (Single Lift)	1300t/day
Stope Bogging (Dual Lift)	1600t/day
Pastefill	2000m^3/day
Development:	
Decline	60m/month
Pump Station	60m/month
Level Access	120m/month
Ore Drive	120m/month
Footwall Drive	100m/month
Slot Drive	100m/month
Escapeway	10m/day
Rising Main	7m/day
Drain Hole	100pdm/day
Service Hole	100pdm/day
Pastefill Hole	50m/day

Resource levelling is used on a monthly basis for ore production and lateral development. Allowances have been included in the mining schedule to account for paste fill curing to ensure no interaction issues in the stoping cycle. Lags, or delays, vary depending on the task and stope location in regard to recently filled stopes, such as adjacent stopes on the same level, or stopes on levels above or below. These include:

- 28 day delay between paste filling completion and production drilling of stope directly beneath;
- Three day delay between paste filling completion and development of adjacent slot drive; and
- Seven day delay between paste filling completion and commencement of slot raising in an adjacent stope.

Figure 16-33 and Figure 16-36 show annual physicals for ore tonnes, metal, longhole drilling, and boxhole (rhino) drilling.

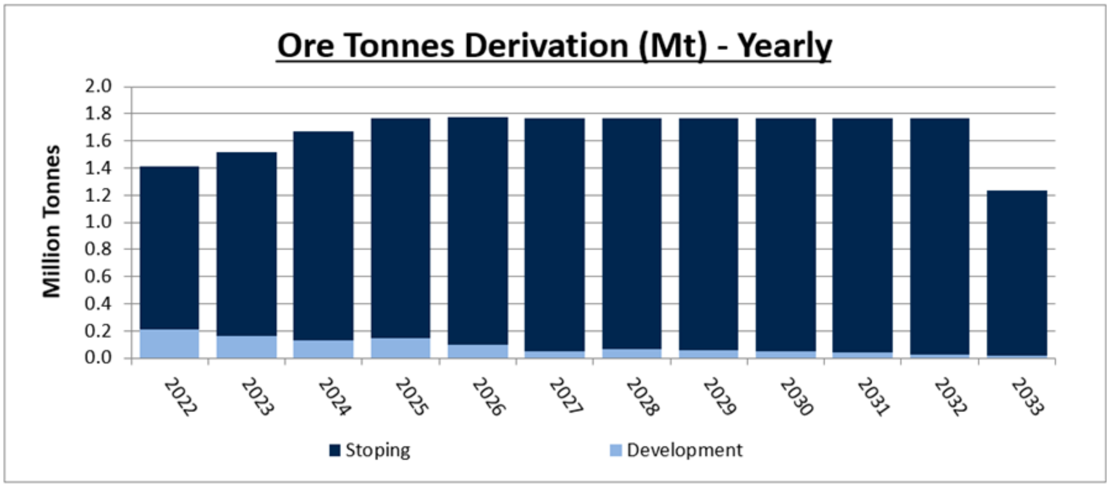


Figure 16-33: Annual Underground Ore Production

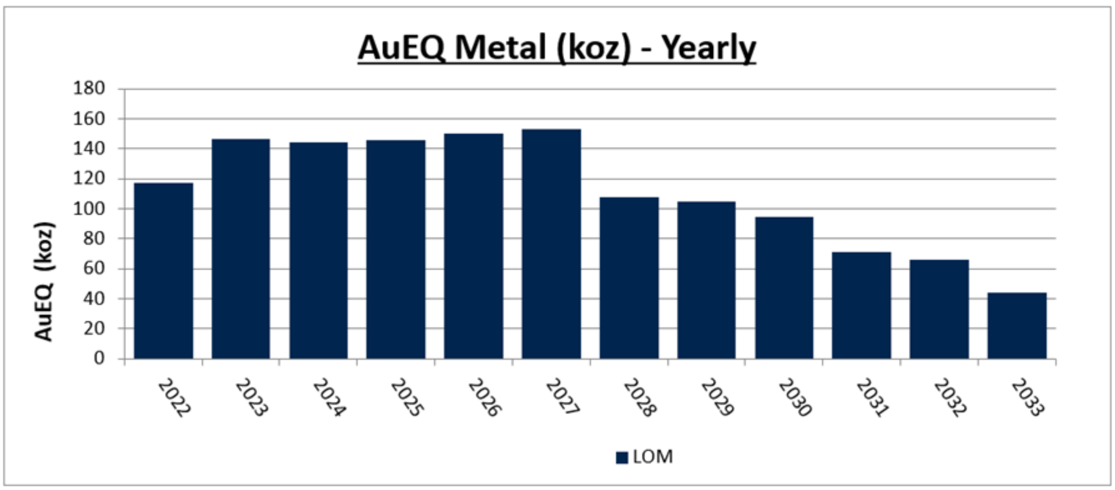


Figure 16-34: Annual Underground Metal Production (Gold Equivalent)

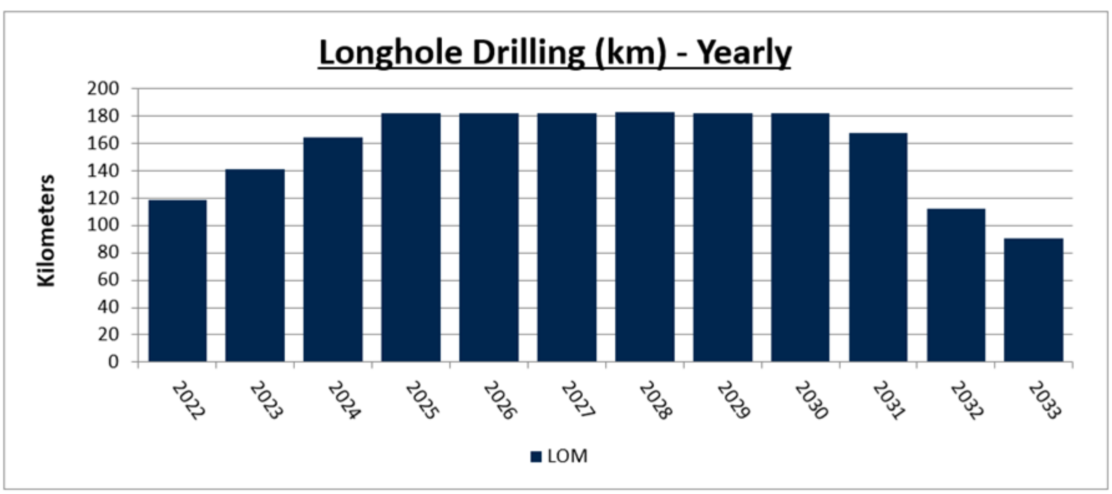


Figure 16-35: Annual Longhole Drilling

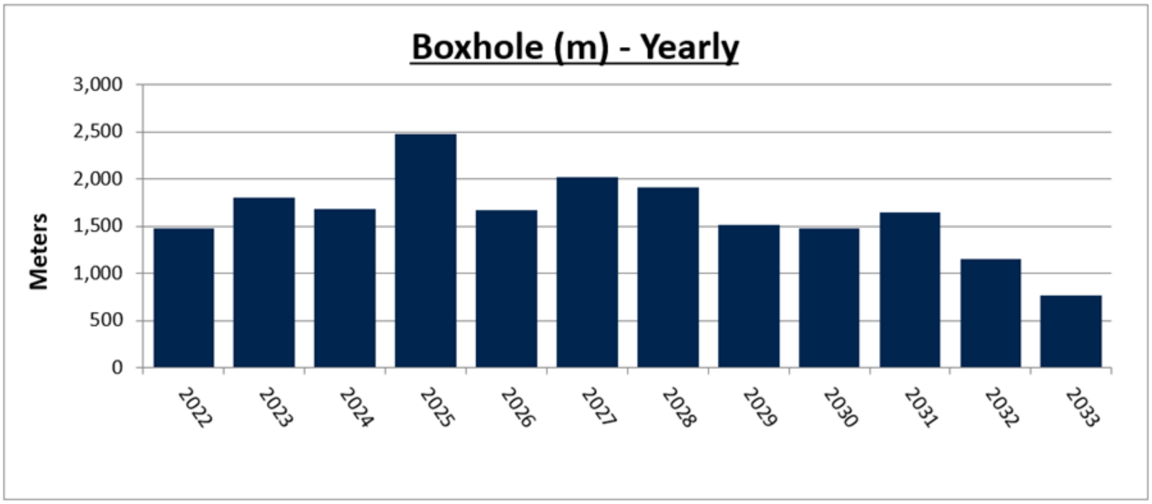


Figure 16-36: Boxhole (Rhino) Annual Schedule

16.8.2 Lateral Development

The current decline face at Didipio has advanced to the 2180mRL. Annual lateral development rates are shown on Figure 16-37. Annual rates from 2022 – 2024 are upwards of 4,900m but begin to tail off in 2025 with the completion of major capital infrastructure. Development requirements from 2026 onwards are mainly focused on operating development (ore drives and slot drives) in line with the stoping schedule.

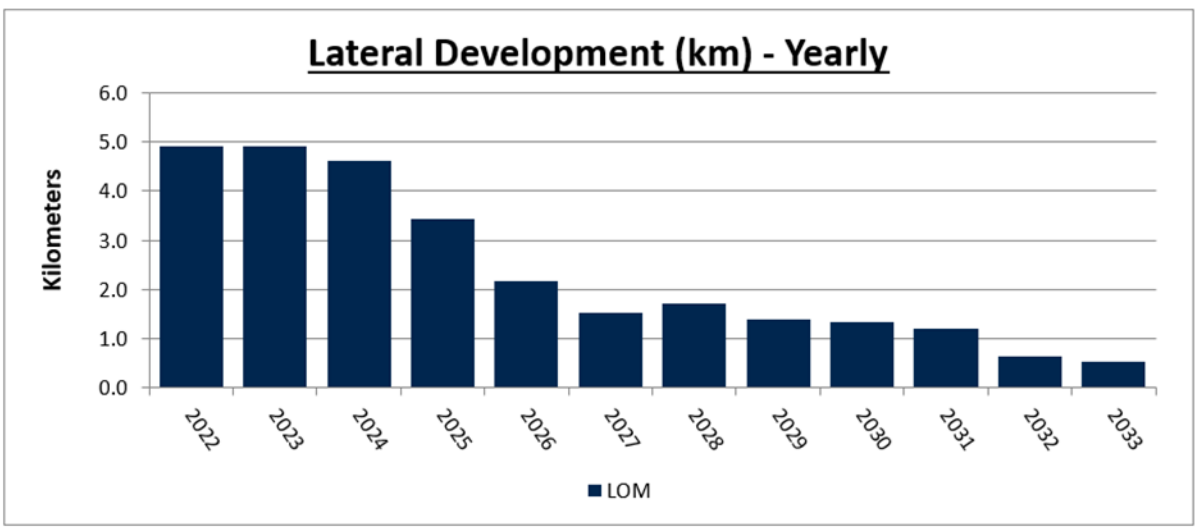


Figure 16-37: Annual Lateral Development Schedule

16.8.3 Detailed Mine Schedules

Production metrics including ore tonnes, grade, metal, production drilling, raisebore drilling, paste fill and haulage are detailed in Table 16-11. Development metrics including lateral and vertical development breakdown are detailed in Table 16-12.

Table 16-11: Detailed Underground Mine Production Schedule

	Unit	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mined Tonnes														
Total Material Moved	kt	21,061	1,669	1,812	1,881	1,852	1,816	1,808	1,807	1,790	1,800	1,798	1,779	1,250
Total Ore Production	kt	20,044	1,498	1,518	1,671	1,764	1,772	1,764	1,764	1,764	1,764	1,764	1,764	1,237
Total Waste	kt	1,017	172	294	210	88	44	44	43	26	36	34	15	13
Stoping Ore	kt	18,983	1,284	1,354	1,538	1,616	1,676	1,714	1,700	1,702	1,717	1,723	1,741	1,218
Development Ore	kt	1,061	214	164	134	148	97	50	64	62	47	41	23	19
Production Metal & Grade														
Production Au Grade	g/t	1.54	2.06	2.42	2.08	2.02	1.95	2.08	1.34	1.33	1.25	0.80	0.69	0.63
Production Cu Grade	%	0.42	0.53	0.49	0.46	0.46	0.52	0.45	0.41	0.38	0.31	0.33	0.35	0.35
Production AuEq Grade	g/t	2.11	2.79	3.09	2.71	2.64	2.67	2.70	1.91	1.85	1.67	1.26	1.17	1.10
Production Au Metal	koz	940	85	106	103	105	105	115	73	73	69	45	39	25
Production Cu Metal	kt	79	7	7	7	7	9	8	7	7	5	6	6	4
Production AuEq Metal	koz	1,289	115	135	134	137	144	149	104	101	92	70	65	43
Development Metal & Grade														
Development Au Grade	g/t	1.50	1.81	1.65	1.85	1.22	1.57	2.06	1.37	1.15	0.81	0.87	0.56	0.52
Development Cu Grade	%	0.40	0.43	0.41	0.42	0.38	0.38	0.42	0.39	0.40	0.29	0.36	0.29	0.41
Development AuEq Grade	g/t	2.05	2.40	2.21	2.43	1.74	2.09	2.63	1.90	1.69	1.21	1.36	0.95	1.08
Development Au Metal	koz	51	12	9	8	6	5	3	3	2	1	1	0	0
Development Cu Metal	kt	4	1	1	1	1	0	0	0	0	0	0	0	0
Development AuEq Metal	koz	70	16	12	10	8	6	4	4	3	2	2	1	1
Longhole Drilling														
Production Drilling	km	1,877	117	132	163	182	182	182	183	182	183	166	112	91
Misc. Drilling	km	13	2	9	1	0	0	0	0	0	0	2	0	0
Raisebore Boxhole	km	20	1	2	2	2	2	2	2	2	1	2	1	1
Pastefill	m^3 (000's)	7,698	471	582	583	671	686	700	702	694	685	703	712	510
Haulage	tkm (000's)	64,016	4,580	5,221	5,654	5,619	5,633	5,467	5,474	5,578	5,720	5,499	5,546	4,024

Table 16-12: Detailed Underground Development Schedule

	Unit	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Lateral Development														
Total Lateral Development	m	28,332	4,902	4,903	4,605	3,433	2,181	1,530	1,706	1,396	1,327	1,191	631	526
Lateral Development Capital	m	4,798	1,448	1,816	1,206	300	0	0	0	0	0	20	9	0
Lateral Development Operating	m	23,533	3,454	3,087	3,399	3,134	2,181	1,530	1,706	1,396	1,327	1,171	622	526
Lateral Development Waste	m	12,953	1,878	2,569	2,651	1,286	755	803	763	492	636	582	295	244
Lateral Development Ore	m	15,379	3,025	2,334	1,955	2,148	1,426	727	942	905	691	609	336	281
Vertical Development														
Boxhole	m	19,609	1,477	1,805	1,690	2,477	1,677	2,016	1,913	1,514	1,476	1,649	1,150	765
6m x 4m Rise	m	355	111	193	51	0	0	0	0	0	0	0	0	0
Drain Hole	m	233	51	54	129	0	0	0	0	0	0	0	0	0
Pastefill Hole	m	106	24	27	55	0	0	0	0	0	0	0	0	0
Service Hole	m	432	0	145	286	0	0	0	0	0	0	0	0	0
Rising Main Hole	m	360	79	121	78	82	0	0	0	0	0	0	0	0

16.9 Underground Geotechnical

The previous technical report for Didipio incorporated underground mine designs utilising LHOS with paste backfill. A high-level geotechnical assessment of stable stope spans for input into the LHOS design was undertaken by AMC and has been reviewed and updated by OceanaGold in 2016 and 2019. The following geotechnical designs have been adopted:

- The minimum vertical crown pillar thickness is 25m in areas with engineered backfill (cemented rockfill, and/or paste fill);

- The planned 30m sill pillar at 2250 Level is no longer required;
- A primary/secondary stoping sequence has been applied to the initial stoping sequence in the Eastern mining zone where fair to poor ground (Type one) conditions exist;
- Continuous retreat stoping sequence still applies to areas with very poor (Type two) to extremely poor (Type three) ground conditions;
- A top-down mining sequence can be applied to both the Eastern and Western mining zones in any type of ground conditions;
- A bottom-up mining sequence can only be applied in Type one ground conditions;
- 20mL x 20mW stope footprint dimensions apply to stope backs with fair to poor ground conditions with cable bolts, paste fill, and/or CRF backs with uniaxial compressive strength ("UCS") greater than 1000kPa;
- 20mL x 10mW stope footprint dimensions apply to stope backs with very poor to extremely poor ground conditions; with full cable bolt crown support or a paste fill cap installed via the drift and fill method;
- All level spacings were retained at 30m from floor-to-floor, and
- All ore drive spacings were retained at a 20m spacing.

16.9.1 Geotechnical Data Collection

Geotechnical data has been used to characterise rock mass properties and support the development of geotechnical analyses of the underground development and mine design. A significant amount of data has been collected over time, as listed in Table 16-13 and consolidated into a geotechnical database. Multi-disciplinary drilling programs for the Didipio underground were undertaken from the open pit in 2015 and incorporated geotechnical logging, geological logging, packer testing and acoustic televiewer downhole surveys. The core was also sampled for geomechanical testing and for metal grade assays. Additional sources of data gathered over time include:

- Historical performance based on observations of the existing open pit wall conditions;
- Scanline mapping of open pit walls and underground development drives;
- Sirovision mapping of open pit walls and underground excavations; and
- Geotechnical face mapping on exposed open pit walls.

Table 16-13: Didipio Geotechnical Data Collection

Drilling Campaign	Type Of Data	Total meters (m)	Interval Rock mass logging (m)	Structural logging (m)	ATV (m)	Remarks
Multi-disciplinary Drilling (BHUG)	Core logging	9,697.40	9,697.40	6,867.60	1,939.50	A combined drilling program for Geotechnical, Geology, and Hydrogeology
Underground Resource Definition Drilling	Core logging	42,418.20	42,418.20	10,344.70	-	All core samples from the RDUG are geotechnically logged
Old and New Exploration Drill Holes	Core logging	9,574.70	9,574.70	6,977.00	2,482.80	Includes old exploration drillholes with intact core samples
Other Geotechnical and Hydrogeological holes in surface and underground	Core logging	8,392.20	8,392.20	2,880.20	3,455.00	Core samples from these monitoring bores were logged
Scanline Mapping	Mapping	20,439.20	4,751.80	20,439.20	-	Only UG Scanline has Interval Q Mapping
Geotechnical Inspections	Mapping	1,981.70	1,981.70	-	-	Structural not yet incorporated in database

16.9.2 Laboratory Testing

Geomechanical testing has been conducted on core samples collected from diamond drilling to help determine the strength characteristics of the in-situ materials. Since 2015, a total of 605 samples have been tested at two separate laboratories. A summary of laboratory testing programs is summarised in Table 16-14.

Table 16-14: Laboratory Testing Summary

Test Type	Total Samples	Testing Laboratory
Direct Shear	33	E-Precision Laboratory
Triaxial Compressive Strength	74	E-Precision Laboratory
Unconfined Compressive Strength	180	E-Precision Laboratory and Geotecnica
Uniaxial Tensile Strength (Brazilian)	312	E-Precision Laboratory and Geotecnica
Cerchar Abrasivity Index	3	E-Precision Laboratory
Hardness	3	E-Precision Laboratory

16.9.3 Underground Geotechnical Structures

Didipio's structural setting was established in October 2014 and has been updated periodically using various data highlighted in the table above. Structural readings from photogrammetry mapping and core logging are incorporated with open pit and underground scanline mapping. Interpreted fault planes have been extrapolated beyond the limits of the final Stage six pit shell and downdip to the underground workings. The current structural geology model is shown on Figure 16-38 and is continually enhanced and updated as new data becomes available.

Interpreted as one of the younger structures is the Biak shear which is a right-lateral strike-slip fault displacing the copper-gold mineralization and other faults. It is a 60m-thick damage zone composed of highly fractured and weak rock mass. Current underground mining development does not intersect the main zone of the Biak shear. Another notable structure is the Northwest (NW) fault which is a left-lateral strike-slip fault with slickensided and gouge-infilled core samples extending from 5 m to 10 m. Influence of this structure was observed in development headings where rock mass is weaker, joint walls are altered and slickensided, thereby requiring heavier ground support. The East-West (EW) fault is a structure bearing intermittent water flow along its exposure. The water storage stope commissioned at 2250mRL was designed to follow the azimuth of this fault.

New structures are encountered as underground mining further develops. The TJM Fault is a distinctive discontinuity defined as the contact between the Monzonite and Breccia bodies. This structure is currently known to persist from Levels 2400mRL down to 2280mRL along the western ore body and terminates upon its intersection with the Northwest Fault.

A series of faults and shear zones have also been observed to weaken the ground conditions at the 270 ore drive and adjacent drives of Levels 2370mRL and 2340mRL. The 270G shear zone is a localized fault characterized with slickensided and gouge zones. Geological structures are considered major, once they meet one or a combination of the following criteria:

- Causes major changes or damage to the ground conditions;
- Produces a significant amount of water inflow (> 5L/s); or
- When it is persistent and continuous in multiple levels.

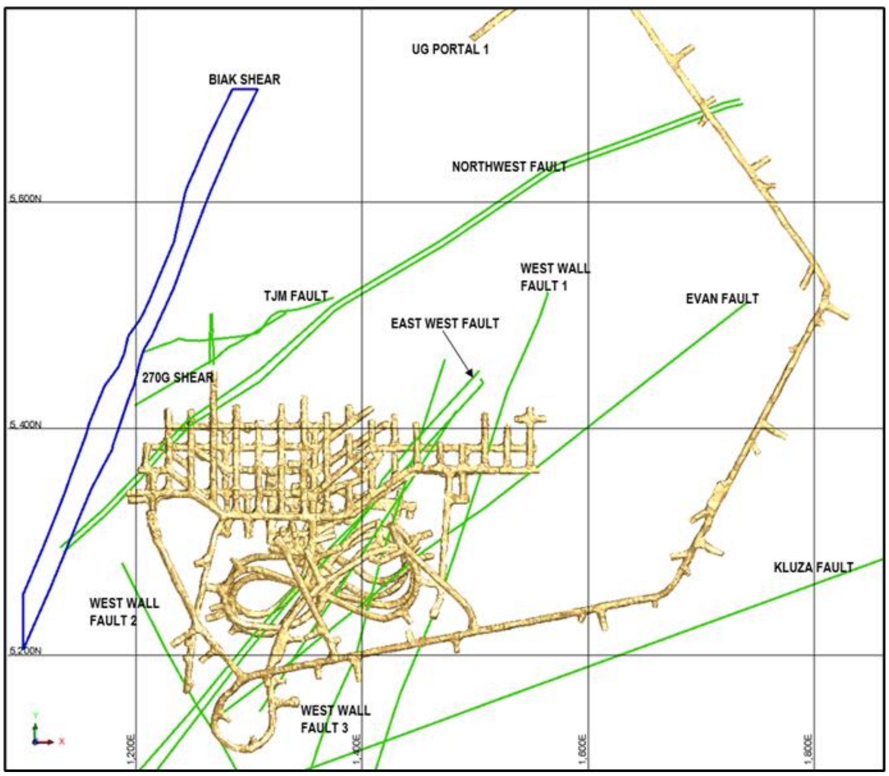


Figure 16-38: Didipio Faults - Plan View

16.9.4 Underground Geotechnical Domains

Geotechnical domains are areas where the aggregation of lithology, structural geology, geomechanical and defect properties combine to form rock mass conditions that are broadly similar and for Didipio are listed below in Table 16-15 and Figure 16-39.

Table 16-15: Geotechnical Domain Summary

Geotech Domains	Ore/Waste	Strength	Axial Stiffness	Q'_25th	Q'_50th	Q_50th
Dark Diorite (DKD)	Waste	Extremely strong	Extremely stiff	1.5	5	Poor
Balut (BAD)	Waste	Very strong	Very stiff	1.46	3.75	Poor
Faulted Breccia (FBX)	Waste	Medium Strong	Medium stiff	0.83	1.67	Very Poor
Tunja Monzonite (TJM)	Ore	Medium Strong	Medium stiff	2.08	2.81	Poor
Altered Porphyry (FP)	Ore	Strong	Stiff	1.25	3.33	Poor
Altered Porphyry (AP)	Ore	Strong	Stiff	1.25	3.33	Poor
Bufu Syenite (BUF)	Ore	Weak	Low stiff	1.67	2.22	Poor
Breccia (QBX/MBX)	Ore	Weak	Low stiff	1.25	0.94	Very Poor

Q' values for the geotechnical domains are calculated and classified using Barton's Q-system, which quantitatively characterises the rock mass around underground excavations. The Dark Diorite (DKD) domain is intruded by the monzonite and bounded by the Biak Shear to the west. This comprises mostly with Dark Diorite, with minor dykes of Monzodiorite and Monzonite porphyry. This domain is comprised of north and south DKD with extremely high rock strength but heavily jointed and fractured. The Monzonite (TJM) domain, which hosts the ore body, is bounded by the Biak Shear to the west and Dark Diorite domains along the north and south regions of the mine. There are relatively fewer joint sets in this domain due to its later intrusion into the dark diorite, thus post-dating some of the deformation events. The intact rock strength is far lower than the dark diorite but it is still classified as strong rock. The Altered Porphyry (AP & FP) are relatively similar to TJM in terms of rock mass rating, whereas the Faulted Breccia (FBX) is characterized by the rockmass within or adjacent to Biak Shear.

The Breccia domain is located on the western side of the ore body, bound within the Didipio intrusive complex. It is composed of multiple breccia groups: Cemented breccias (CBX), Igneous breccias (IBX), Fault breccias (FBX), Monomictic breccias (MBX), and Quartz-fragment rich breccias (QBX). Breccia is classified as very poor in terms of Q-system rock mass rating. The Balut (BAD) domain is a relatively strong rock mass, next to DKD. The Bufu Syenite (BUF) domain has been flagged for further geotechnical evaluation and interpretation.

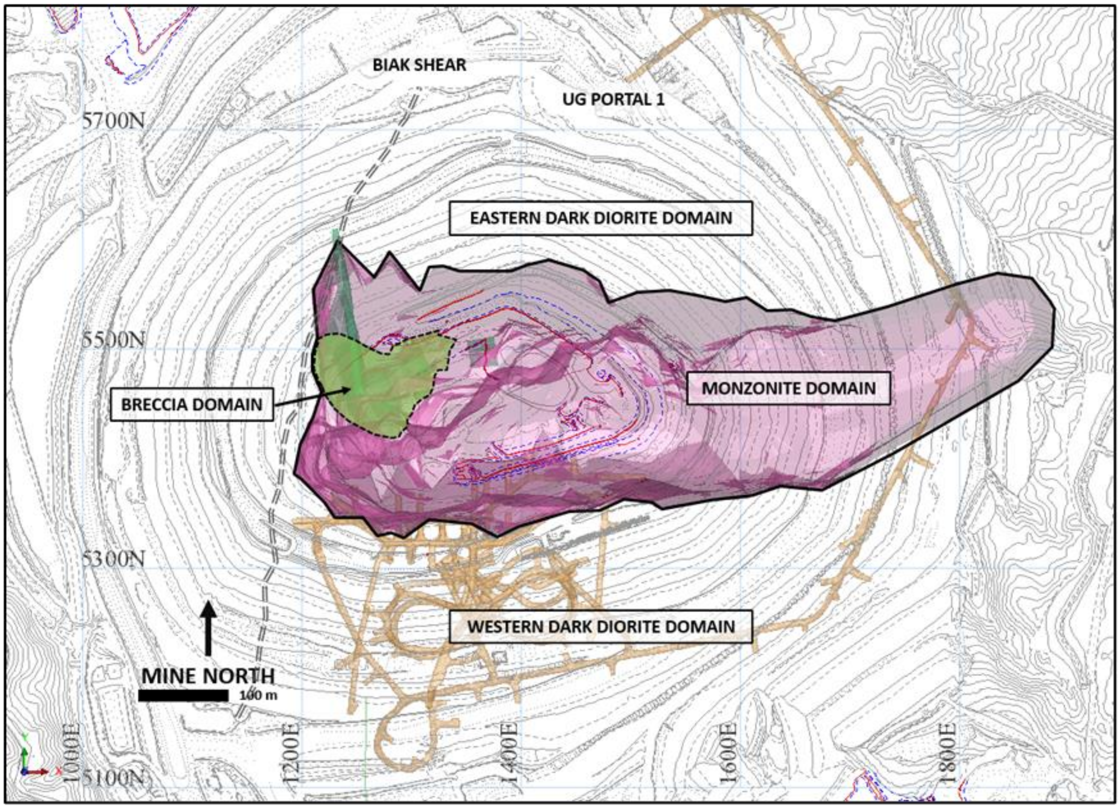


Figure 16-39: Geotechnical Domains

16.9.5 UG Geotechnical Block Model

A geotechnical block model of the Didipio Underground Mine has been developed to aid in stope stability analysis, forecast ground support requirements, and assist short to medium term mine planning. The model incorporates all available geotechnical data from core logging, field mapping, and inspections of active headings into a database.

A database of 30,542 Q-data rows was used to build the model with 96.37% (29,435 rows) obtained from core logs of 342 drillholes, 2.36% (721 rows) taken from geotechnical inspections of active headings from 2430mRL to 2250mRL, and 1.27% (386 rows) collected from field mapping of 36 ore drives. Mapping and inspection data are treated as channel data. This model is continually updated as the mine develops.

The main Monzonite ore body is split into western and eastern halves by the Northwest Fault. The Eastern half has generally fair to good RQD (yellow) whereas the Western half has poor to very poor RQD. This western ore body, along with the Breccias and TJM fault is included within the triangular poor to very poor domain (red). The domain also incorporates the 270G caving zone where the crown of a stope has historically failed and is bounded by the competent Diorite zone (blue) to the north and south, Biak hanging wall (green) to the west and the Northwest Fault to the southeast. As a result, four domains were established for the RQD model as listed in Table 16-16 and shown in Figure 16-40.

Table 16-16: RQD Summary

Domain	Area	RQD Values	Description
1	Biak Shear Zone	Poor RQD	Sparse Data
2	Orebody – West of NW Fault	0 – 50%	Poor to very poor RQD
3	Orebody – East of NW Fault	50 – 90%	Fair to good RQD
4	North and South Diorite Bodies	>90%	Excellent RQD

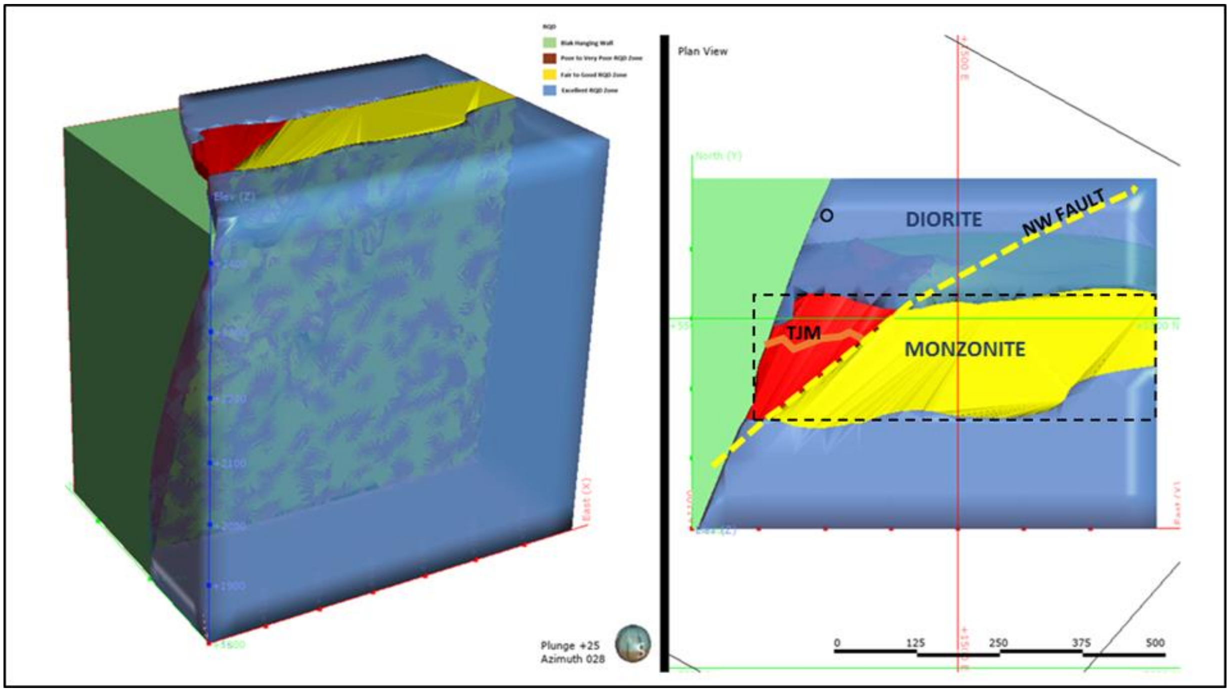


Figure 16-40: RQD Domains

16.9.6 Stable Stope Spans

Assessment of stable stoping spans has been undertaken using the Modified Stability Graph method, an empirical method by Mathew et al., (1981), as modified by Potvin et al. (2001), which is based on more than 480 case histories worldwide.

For non-breccia stopes, the results were generally consistent with those from AMC's previous study. The analyses indicated that stope walls were generally expected to be stable at the proposed stope dimensions of 20mW x 20mL x 30mH with cable bolts. A moderate degree of stope over-break could be expected in some stopes within poorer rock mass conditions, resulting in possible dilution and oversize reporting to the stope. However, most stopes were expected to be largely stable with only minor or localized stope over-break. The analysis indicated that in areas of good rock mass conditions, mining of double lift stopes (60m high) is plausible. These empirical analysis results coincide with actual geotechnical performance of stope walls in the monzonite domain, as several stopes in that domain were mined as double-lift stopes in 2019.

Within the breccia zone, the analysis indicated that smaller stope dimensions are required to maintain stability. The breccia zones represent a minor portion of the underground orebody, and the underground mine design incorporates smaller stopes in the breccia zone to protect against potential instability, designed at 30m sub-level intervals with stope footprint dimensions of 20mL x 20mW. In Type three ground conditions in the Breccia zone, the drift and fill mining method is required to manage risks of crown failure.

16.9.7 Life Of Mine Stability and Deformation Assessments

Beck Engineering Pty Ltd undertook LoM stability and deformation assessments in 2017. The scope of this work was to evaluate mine-scale deformation and stability for the LoM plan which was based on the previous NI43-101 Technical Report for Didipio. This plan involved bottom-up stoping with a primary/secondary sequence throughout the orebody, with a 30m thick crown pillar that is recovered near the end of the mine. The results of the initial numerical modelling works noted geotechnical and operational challenges for a bottom-up primary-secondary stoping sequence, and thus resulted in the evaluation of top-down primary/secondary stoping sequence.

OceanaGold engaged Beck Engineering to undertake another round of numerical modelling works incorporating the following options:

- Option One: Top-down in the breccia and bottom-up in the monzonite with a temporary pillar separating the two blocks;
- Option Two: Top-down in the breccia and top-down in the monzonite with a temporary pillar separating the two blocks; and
- Option Three: Top-down in the breccia and bottom-up in the monzonite, without a pillar.

Based on the numerical modelling results and associated operational advantages, Option Two was chosen as the preferred method for stope extraction at Didipio. A top-down mining sequence results in the following benefits:

- Higher grade ounces are available earlier in the mine plan;
- Multiple mining fronts allows for more sequencing flexibility;
- The previously planned sill pillar between Panels One and Two, required for bottom-up mining, can be eliminated;
- Reduced likelihood of crown pillar failure due to top-down stoping throughout. This poses a lower risk to crown pillar integrity; and
- Commencing the stope extraction on the upper levels in the monzonite zone reduces early groundwater inflows.

16.9.8 Development Geotechnical Considerations

The following general recommendations are made for development designs:

- Avoid designing development intersections in fault zones;
- Development should cross faults at a high angle, preferably perpendicular, to minimize potential impact on development stability;
- Avoid designing development parallel along strike of well-defined geological contacts;
- Avoid designing development within approximately 20m of the footwall of the Biak Shear; and
- Avoid designing development within the Biak Shear, or on the hangingwall of the Biak Shear.

16.9.9 Shafts

Prior to the development of raisebore rises, geotechnical advice is provided to assess potential instability of the rise and/or influence of known voids surrounding the rise. Mining operations is provided with a geotechnical drawing of the shaft cross-section that shows the expected locations of significant structures and the likely anticipated ground conditions. Both raisebored rises and blasted long hole rises do not generally require internal ground support.

16.9.10 Ground Support

A Ground Control Management Plan ("GCMP") is in place at Didipio which aims to establish minimum ground control standards for new underground development and rehabilitation areas, and develop standards for use of ground control systems, including quality assurance programs. Ground support standards are designed based on heading profile/size, purpose of excavation, service life, ground condition type, and stress changes expected during the service life.

Didipio uses several different rock bolts (installed with a suitable washer and plate or combination plate). These include:

- Resin bolts, which range from 2.4 -3.0m in length with a 24mm diameter;
- Galvanised friction bolts, which are either 0.9m long (used for pinning mesh sheets) or 2.4m long (sued for temporary support, or for lower sidewall areas); and
- Cable bolts are required in all new development intersections and stope brows. Existing intersections are continuously re-assessed, and designs issues as required. Lengths vary, however the standard length used for support of intersections is 6.3m (6m hole length and 0.3m for tensioning).

Surface ground support at Didipio consists of mesh and fibrecrete. The mesh used for standard surface support of headings is galvanised, 100mm aperture, 5.6mm welded mesh. Installed mesh sheets have a minimum overlap of three squares, with rock bolts used to pin the sheets. Face meshing is mandatory for all development headings. Fibrecrete is used as the primary surface support and is manufactured on site at a batch plant, with sprayed thickness as per the ground support design plans or as specified by geotechnical engineers.

Pull testing of rock bolts is undertaken by geotechnical engineers. Pull tests are carried out on approximately 1% of all bolts installed. Test locations include the walls, shoulders and the backs. Fibrecrete testing is undertaken to demonstrate that it routinely meets the minimum mix design requirements. These tests are slump and UCS tests and are conducted at the batch plant. The minimum UCS requirements for fibrecrete at Didipio are as follows:

- Early strength: 1Mpa must be achieved within two hours after spraying;
- The minimum 28-day strength must not be less than 30MPa; and
- The slump prior to spraying should be approximately 220mm.

Ongoing monitoring of the performance and condition of excavations is conducted by geotechnical engineers as part of routine inspections. The frequency of the routine inspections varies according to the type of excavation. The following inspections frequencies are used as a guideline:

- Current active faces – once every 72 hours;
- Level development – every three months;

- Decline development and adjacent development – every six months; and
- Ventilation rises – every four months.

Additional monitoring systems utilised at Didipio include:

- Tape and vibrating wireline extensometers to monitor squeezing ground in ore drives;
- Prism monitoring on the portals; and
- Borehole camera surveys to monitor paste fill crack development and stability in paste sills above top-down stopes.

16.9.11 Seismicity

The seismic design data for Didipio is taken from the study of historical seismic events around the region, which states that the mine sits within a low to moderate earthquake zone in Luzon Island. The strongest recorded earthquake in Luzon produced peak ground acceleration values between 0.12 to 0.18g in Didipio, which was caused by the MM7.8 event near Cabanatuan City (75 km to the south of Didipio) and its aftershocks that resulted in a MM4.5 event (2 km to the west of Didipio) (USGS, 2017). The historical earthquake data corresponds with Knight Piesold's (1994) prefeasibility estimate of 0.145g to 0.171g for peak ground acceleration and it is a suitable range for consideration in designs for instability analysis.

A small seismic monitoring system was installed and commissioned at Didipio in November 2018 to build up a base line of actual seismic activity. This system is used to quantify rock noise and rock deformation in terms of "micro-seismic" events (time, magnitude, and location) as the mine progresses, whilst also being used to monitor crown pillar stability, and the performance of underground stopes and development headings. The seismic network consists of three substations – open pit pontoon sump, 2430 Substation and 2310 Substation with a total of seven geophones. Each substation consists of one triaxial and two uniaxial geophones. The triaxial geophone in the pit was recently removed due to the works involved with the CSP, with the seismic monitoring system temporarily decommissioned. When the CSP project is completed, the geophone will be reinstalled. To date, no large events (m >= 0.5) associated with the mine have been recorded. Small, minor seismic events clustered in the decline area have been recorded, which is hosted mainly by Dark Diorite rock mass.

16.10 Underground Hydrogeology

Groundwater modelling for mine dewatering management is an important tool to ensure that dewatering strategies are appropriately sized, funded and implemented. High groundwater inflows at Didipio have been successfully predicted in advance of mining fronts allowing for adequate dewatering planning and resourcing.

16.10.1 Groundwater Modelling

Optimisation of the groundwater model commenced in 2015 and was updated in 2017 with an increased dataset of hydraulic conductivity interpretations within the orebody and surrounding country rock. The most recent groundwater model in 2019 focused on assessing impact to groundwater levels and utilised data from deep and shallow bores drilled in the Didipio Village area. The current groundwater model has resulted in increased confidence in predictions with only minor differences between observed and modelled inflows.

Water Inflow Risk Zones ("WIRZ") have been developed using data collected from diamond drilling programs and groundwater seep mapping. WIRZ models are used as a tool to plan for adequate dewatering systems prior to development entering high water inflow zones. WIRZ zones are divided into four groups:

- Group one: > 10 L/s (Extreme);
- Group two: 5 – 10 L/s (High);
- Group three: 2 – 5 L/s (Medium); and
- Group four: 0.1 – 2 L/s (Low).

An example WIRZ cross section from the 2400mRL Level is shown in Figure 16-41 below. Green zones are classified low risk for water inflow, blue is medium, yellow is high, and red is extreme.

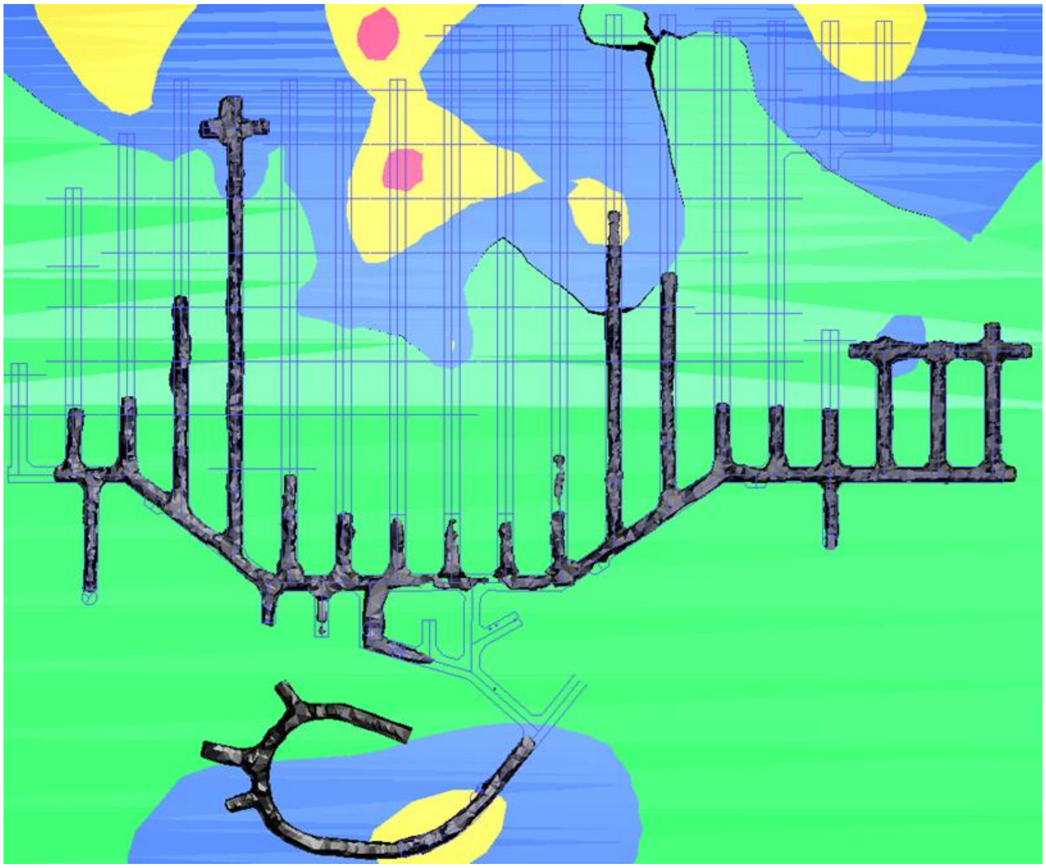


Figure 16-41: 2400 Level WIRZ Cross Section

16.10.2 Model Results

Peak modelled groundwater inflows are approximately 380 L/s (~31,000 m^3/day) whilst inflows during closure approach 70 L/s (~6,000m^3/day) as show in Figure 16-42. Underdrainage associated with the influence of mining has resulted in an impact to shallow groundwater in the Didipio village area (Figure 16-43). Closure scenario modelling predicts the duration of this impact as five to ten years beyond the mine life. Deep and shallow bores will be maintained and monitored in the Didipio village area well into the future post mining.

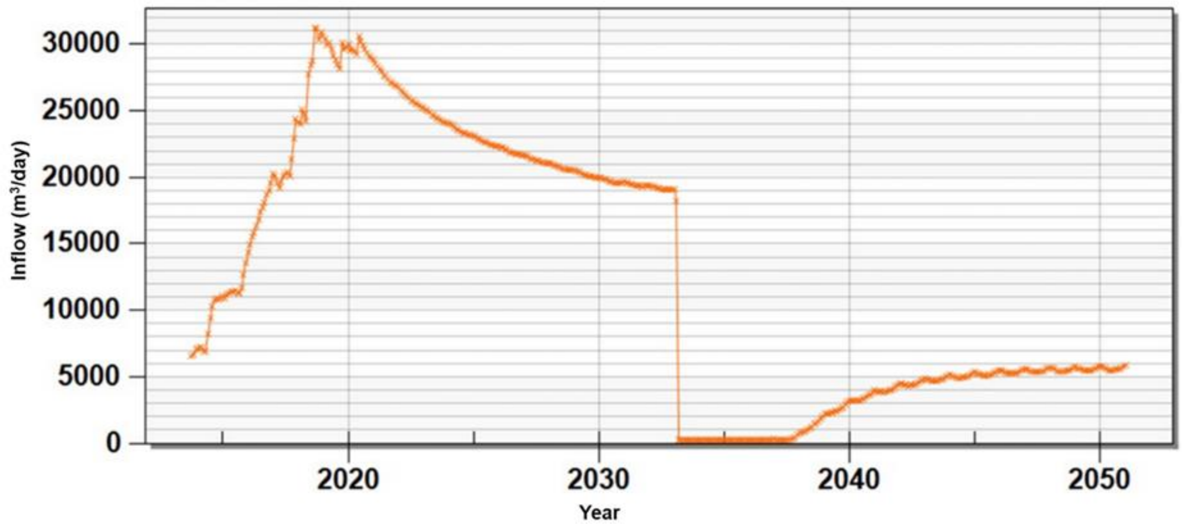


Figure 16-42: Predicted Groundwater Inflows

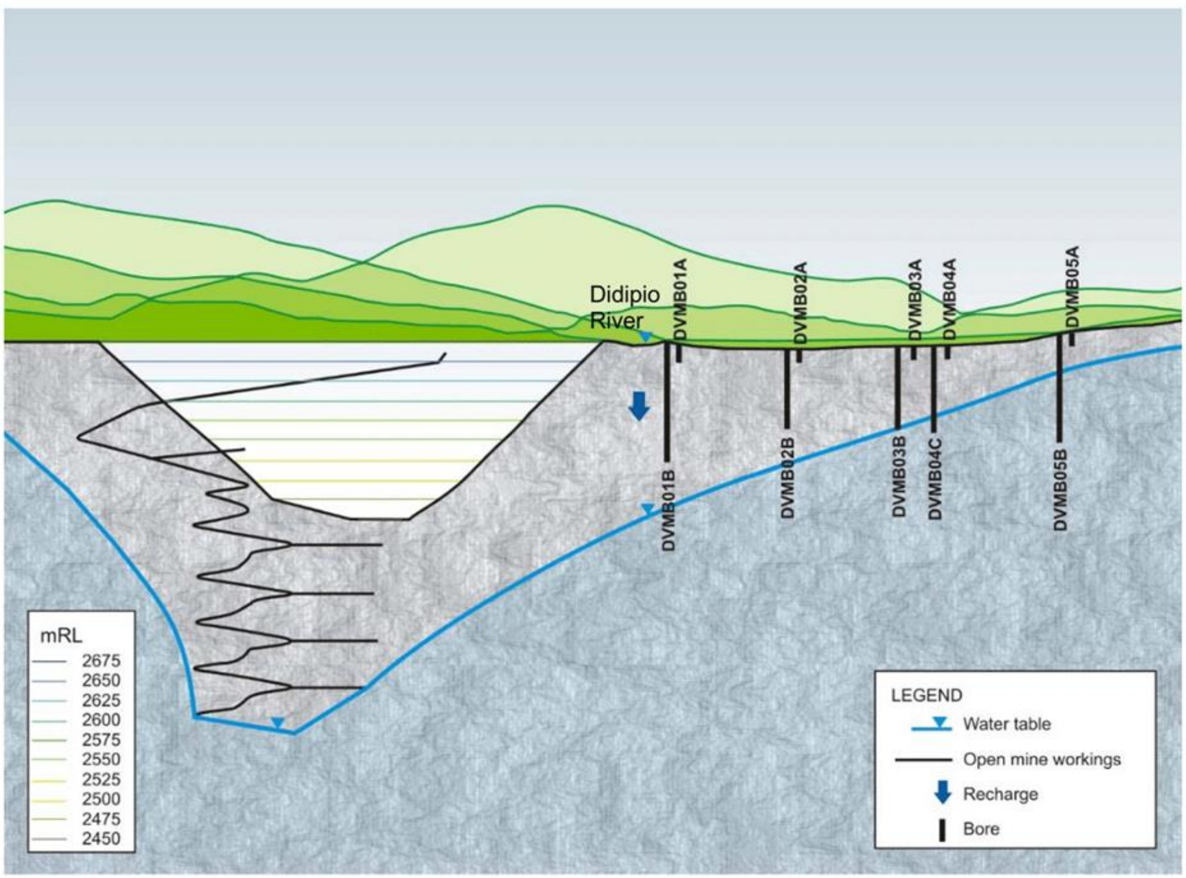


Figure 16-43: Recent Modelled Water Table (2019) Section Looking North

16.11 Mobile Equipment Requirements

Table 16-17 and Table 16-18 summarise the estimated mobile fleet requirements for the Didipio underground operation. The fleet numbers have been built up from first principles, based on equipment specifications, manufacturer supplied data, benchmark data and estimates based on experience.

The cost estimate assumes that all mobile fleet items are purchased as capital items. No lease fee or write-down has been included in the estimate. Additionally, no salvage value has been included in the estimate.

Table 16-17: Proposed Mobile Fleet Requirements (Annualised)

Mobile Mining Fleet	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Twin Boom Jumbo	3	3	3	2	2	1	1	1	1	1	1	1
Production Drill/Cabolter	3	3	3	3	3	3	3	3	3	3	3	3
Raise bore (Rhino)	1	1	1	1	1	1	1	1	1	1	1	1
Loaders	4	4	4	4	4	3	3	3	3	3	3	2
Trucks	6	6	6	6	6	6	6	6	6	6	6	5
Ancillary	8	8	8	7	7	7	7	7	7	7	7	6
Total	**25**	**25**	**25**	**23**	**23**	**21**	**21**	**21**	**21**	**21**	**21**	**18**

Table 16-18: Indicative Maximum Mobile Fleet Requirements

Description	Number
Twin boom development jumbo	3
Long hole drill rig	2
Cable bolter	1
Haulage Articulated 60 tonne truck	6
Articulated loader	4
Shotcrete sprayer	1
Shotcrete carrier	2
Production/Development charger	2
Road grader	1
Underground Integrated Tool carrier	2
Scissor Lift	1

16.12 Ventilation

The ventilation system at Didipio is based on the original ventilation study for the mine undertaken in 2014 with minor modifications as the mine has progressed at depth. The vertical nature of the deposit allows for a relatively simple ventilation system, with multiple intakes (2 x portal, 1 x shaft) and returns (2 x shaft) providing adequate ventilation to the underground mine.

16.12.1 Design Criteria

The ventilation system operates using a “pull” or exhausting type ventilation system. Primary ventilation fans are located at the top of exhaust shafts and create sufficient pressure to provide ventilation to all workings from the intakes through to the exhaust system and to the surface.

The following general criteria is also followed:

- Air residence time is kept as short as possible to minimise personnel exposure to dust, heat, diesel particulates and other contaminants;
- Each level is developed such that an exhaust route is established prior to commencement of production on that level;
- Recirculation is entirely prohibited;
- Series ventilation will be kept to an absolute minimum and only if a suitable quantity of fresh air is introduced at the start of the series;
- The use of ventilation doors and in particular airlock doors in ramps are avoided where possible; and
- Regulators are used to control and redistribute the quantity of flow in each split of air.

Many jurisdictions in the world designate airflow requirements to mitigate the impact of diesel exhaust fumes in terms of a defined airflow per kW rated diesel engine power. However, Philippine legislation (DAO 2000-98 Mine Safety and Health Standards) does not designate such a requirement. It is considered reasonable, based on international standards, for mine airflow estimation purposes to consider a ratio of 0.05 m^3/s per kW diesel engine power to be a reasonable application.

The velocity of air is a primary factor of a safe working environment in terms of contaminant dilution/removal, and workplace thermal regulation. Additionally, excessive velocities may cause discomfort to personnel, dust problems, and unacceptable ventilation operating costs. Velocity criteria are based on standards employed at other mine sites.

16.12.2 Ventilation Approach

Each underground level at Didipio has its own ventilation circuit and is ventilated as part of the overall mine “pull” or exhausting type ventilation system. Fresh air enters each level via both the decline portals and the internal fresh air raise system and exhausts to the surface via two dedicated return airways: one at either extremity of each level.

A series of fresh air rises (“FARs”) and return air rises (“RARs”) are developed as the mine deepens, connecting at each level. Contaminated air from each active level enters the RAR system via a drop board regulator installed in the access to the RAR on each level. The RAR system consists of two 5.5m diameter raise bored shafts to the surface. Internal rises between levels are mined utilising longhole blasting at an excavation size of 6m x 4m. Similarly, the FAR system consists of two portal intakes and one 5.5m diameter raise bored surface shaft that connects to the underground levels via internal longhole blasted rises at 6m x 4m. The escapeway network is also located within the FAR system which is separated from the return air system via bulkheads and walls.

16.12.3 Development

The ventilation strategies for development uses a forced air fan (push) and duct system. To define the required ventilation flow for an excavation heading, a minimum flow of 0.05m^3/sec per diesel kW has been used as described in section 16.12.1.

16.12.4 Production

Each production level has at least one fresh air source and at least one exhaust route. Secondary fans are built into walls at the intake raise accesses. This allows for adequate distribution of air on each level even during the times of highest activity whilst keeping velocities within design criteria limits.

Referring to Figure 16-44 for a typical production level, the general approach is to ensure unrestricted flow along the footwall drives between fresh air intakes and exhausts. Each production heading will receive the freshest air possible and the use of series ventilation is avoided wherever possible. Regulation of airflows is attained through application of drop board regulators at each raise access.

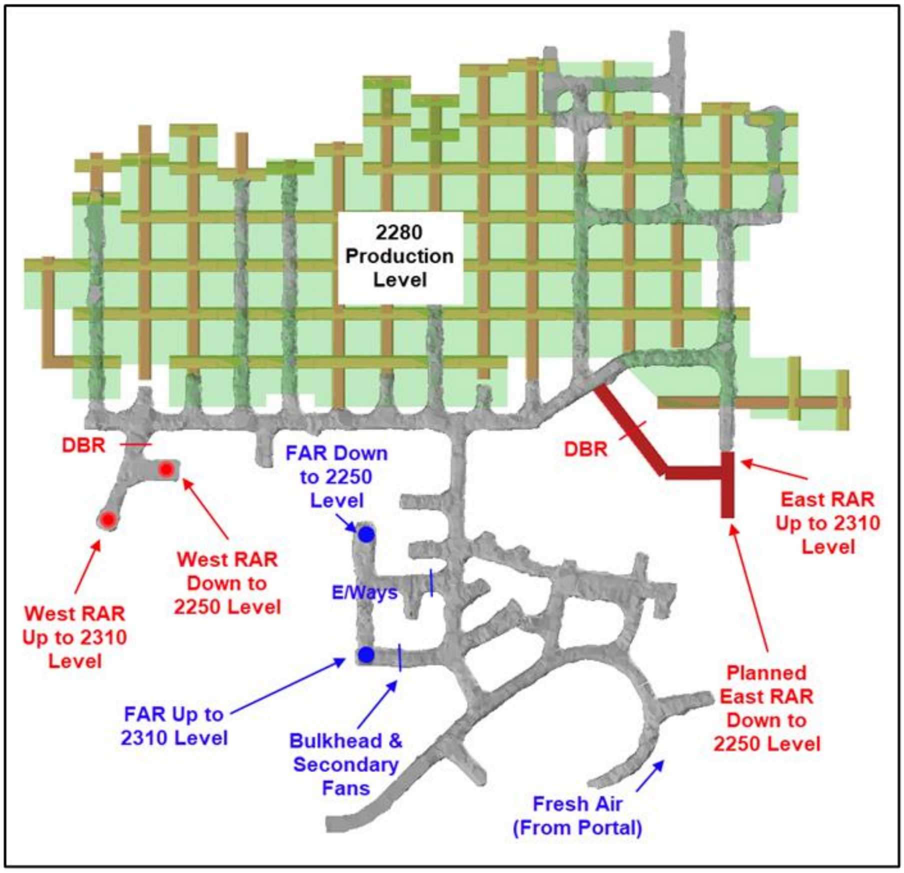


Figure 16-44: 2280 Level – Typical Ventilation Setup

16.12.5 Ventilation Modelling

The ventilation system is modelled using Ventsim Visual™ Advanced software. This software provides for three-dimensional visualisation of a network and uses a form of the Hardy-Cross method for the ventilation network calculations. Based on operational diesel engine capacity and fleet size required to sustain production at the scheduled rates, total mine airflow required for the Didipio underground is approximately 550m^3/s.

The ventilation network is analysed by importing the mine design from the Deswik mine design programme and then applying attributes for each of the airways relative to their dimensions, frictional resistance, length, etc.

Figure 16-45 below shows a graphical output from Ventsim showing the primary ventilation routes.

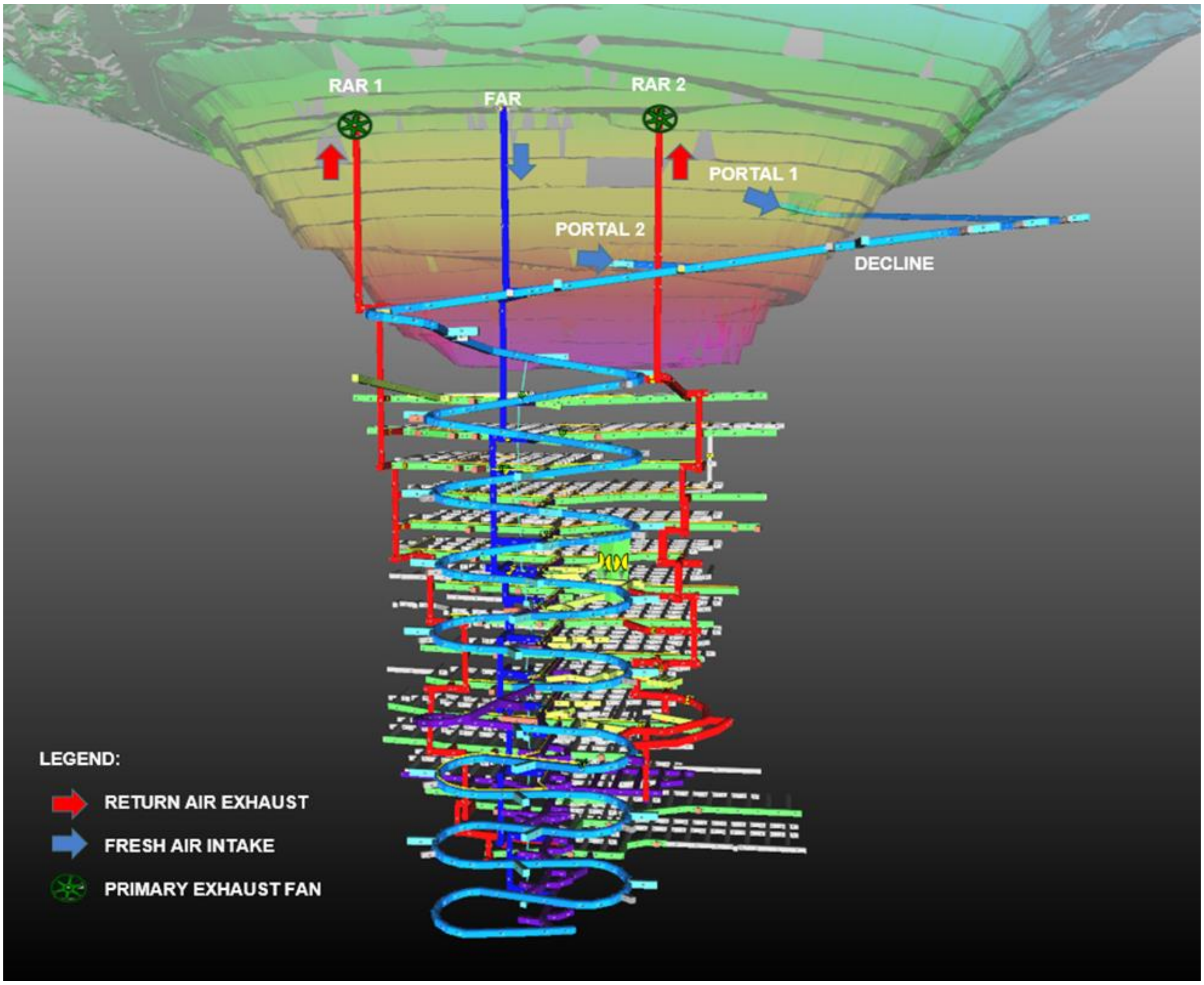


Figure 16-45: Didipio Ventsim Schematic

16.12.6 Ventilation Infrastructure

Primary ventilation is provided by two 3.6m diameter vertically mounted Zitron fans located on the surface at the collar of the return air rises. Each fan has a peak design airflow duty of 320m^3/s at a fan static pressure of a (measured at the shaft collar). Each primary fan is fitted with sensors to monitor temperature, vibration, current, flow rate and pressure. Secondary ventilation fans for development consist of 150kW fans, whilst 55kW secondary fans are utilised for production. 37kW auxiliary fans are utilised for infrastructure such as substations. Fresh air is delivered to working faces via 1600mm vent duct (declines) and 1400mm vent duct (footwall/ore drives).

16.12.7 Ventilation Monitoring

Primary ventilation surveys are conducted on a quarterly basis or after significant changes to the ventilation circuit. Primary ventilation surveys audit primary flows and identify any issues with the system such as leakage or fan performance. Primary flow, or total air exhausted from the mine, from the latest survey at Didipio was measured at 540m^3/s. Secondary ventilation surveys are carried out on a weekly basis to monitor flows at working faces, temperature/thermal work limit ("TWL"), and gas levels.

16.13 Emergency Preparedness

In development of the ventilation strategy for Didipio underground, and with due regard to other operational issues, consideration is given to the potential for mine emergencies. As such, the following criteria have been established:

- Decline and level accesses are in fresh air once developed;
- On all levels, escape can be either to a ramp or to the escape ladderway in the internal fresh air raise system;
- In the decline, escape may either be up the ramp or down the ramp to a safe area;
- Six permanent, twenty-person refuge stations are currently established adjacent to the main decline, which will be sufficient for the current mine plan;
- Five other portable refuge chambers are currently utilised at appropriate locations in the mine; and
- Whilst the primary means of communication is by radio, a stench gas system is in place for introduction of ethyl mercaptan into both portals and primary fresh air raise concurrently in the event of fire.

There are a variety of incidents that will trigger the emergency response plan and/or evacuation plan. Such events may be fire, rock fall, injured personnel or major ventilation equipment breakdown.

In the event that the primary egress (main access decline and portal) is unavailable, a secondary means of egress from the mine must be available to allow evacuation of all underground personal when it is safe to do so. Figure 16-46 below is a schematic showing the existing and planned escapeway system and locations of the permanent refuge chambers. Figure 16-47 shows a typical Level layout showing services, airflows, and location of refuge chamber.

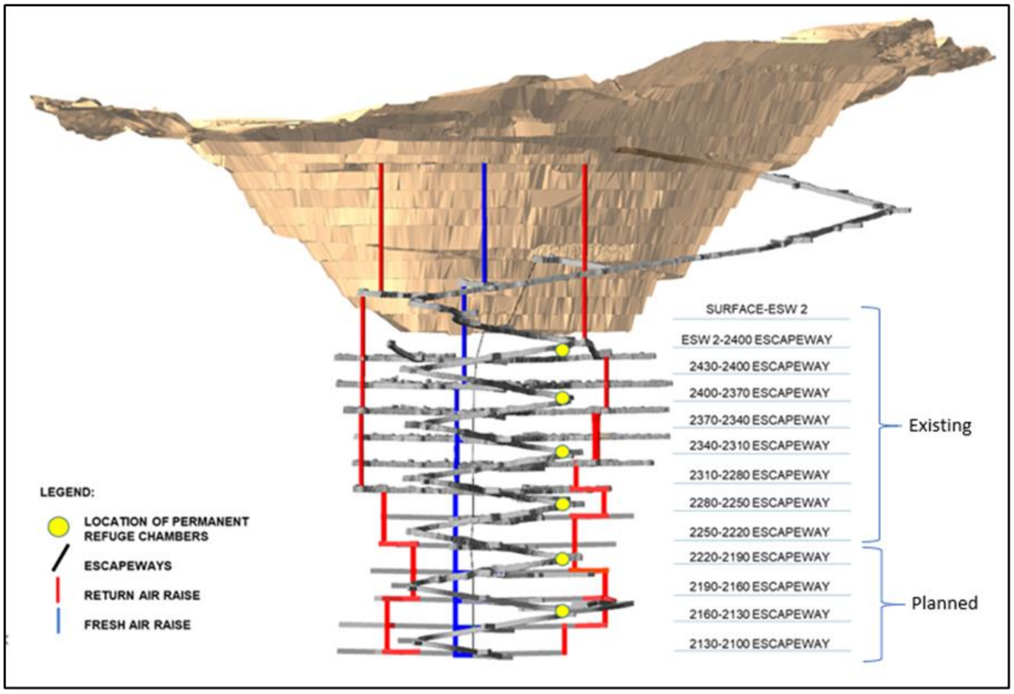


Figure 16-46: Didipio Existing and Planned Escapeway System and Refuge Chamber Locations

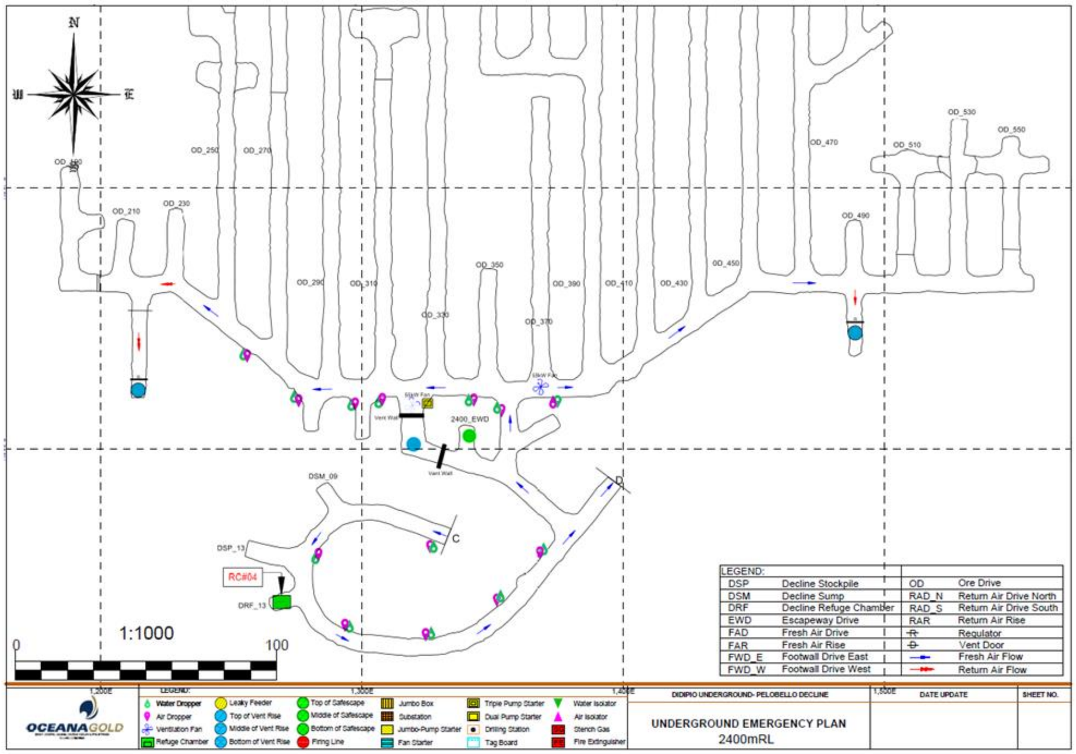


Figure 16-47: 2400 Level - Example of Location of Level Services & Refuge Chamber

Emergency egress from the mine is via a series of escapeway rises in the fresh air ventilation system. Ladders are installed at between 80° and vertical, fully enclosed with rest landing spaced at required intervals. This provides vertical egress from the base of the mine to the secondary portal mined into the pit at an elevation of approximately 2520mRL.

16.14 Underground Infrastructure

16.14.1 Refuge Stations

The positioning of refuge chambers assumes every worker is equipped with a self-contained self-rescuer (“SCSR”) with a nominal duration of 30 minutes. Six permanent 20-man refuge chambers are located off the decline at strategic locations (approximately every 60m vertically), at the 2430mRL, 2370mRL, 2310mRL, 2250mRL, 2190mRL and 2130mRL as shown on Figure 16-46. Smaller, portable refuge chambers (suitable for eight people) are used in areas where a second means of egress cannot be provided, such as the advancing decline face where the escapeway system to the lowest level has not yet been constructed. Five portable refuge chambers are currently in use at Didipio.

16.14.2 Mine Dewatering

The Didipio mine site is in an area with high seasonal rainfall, with high connectivity between regional structures and the underground operation. An engineered CRF pillar, up to 40m high, has been designed at the base of the open pit floor. This is designed to limit, as much as is possible, inflow of surficial water from the open pit into the mine workings. It should be noted however, that the crown pillar will not be impermeable. To mitigate this, water retained within the base of the pit will be kept to a minimum by in pit pumping capacity, as described in Section 16.4.4 to deal with any surface accumulations of water.

Modelled underground mine inflows rise with vertical descent of the decline, peaking at 380 L/s before approaching a steady state flow of approximately 250 L/s at the bottom of the mine. Three capital pump stations ("CPS") are required to provide adequate dewatering capacity based on the current LoM designs. CPS3 is located within the pit and is currently operational. CPS2 is located at the 2270mRL level and is currently operational. CPS1 is planned to be located at the 2160mRL level with three x 630kW keto pumps installed at an individual design capacity of 225 L/s and operating in a duty/assist/standby configuration. 132kW centrifugal pumps will be located at the 2100mRL level, the currently planned decline bottom, to manage water from the remaining two lower levels. Figure 16-48 shows the various elements of the Didipio underground pumping/de-watering system.

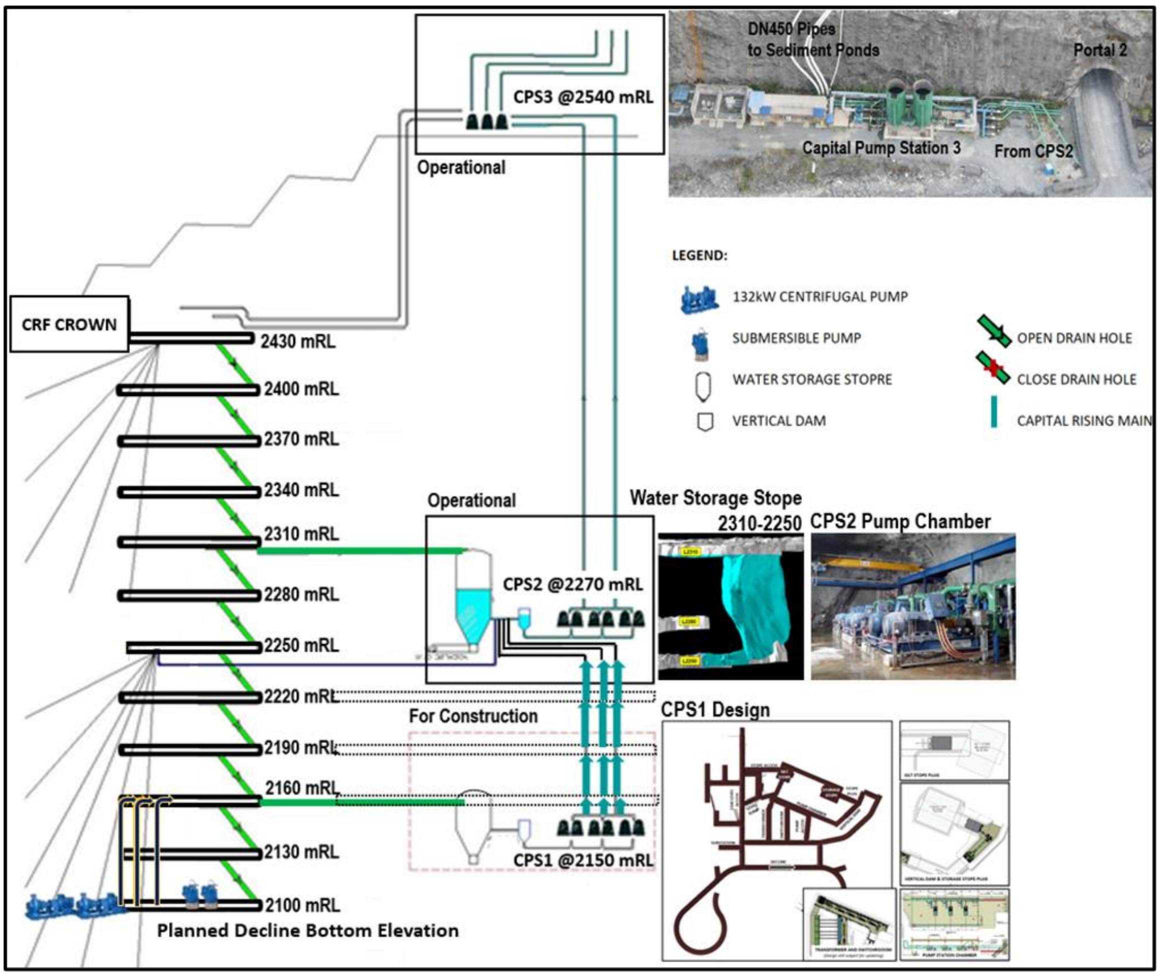


Figure 16-48: Didipio Pump System Schematic

CPS2, which was commissioned in February 2018, is the primary dewatering system for Panel One in the upper part of the mine and pumps directly to CPS3 on the surface via two 270m long rising mains. A water storage stope is also located between the 2310mRL and 2250mRL with a capacity of nearly 28,000m^3. The water storage stope is dual purpose – for sediment control but also allows for surge capacity in the event of significant increases in inflow (ie. power outages). Figure 16-49 shows the layout of CPS2 and associated infrastructure.

As the mine develops at depth, an interim pumping system comprising sumps, interim pump stations, rising mains and drain holes will be utilised prior to the establishment of CPS1. The CPS1 pump chamber will transfer water through two DN300 rising mains up to the 2310mRL water storage stope. An additional two water storage stopes are designed as part of the CPS1 setup, with a combined total capacity of 15ML. Figure 16-50 shows the planned layout of CPS1.

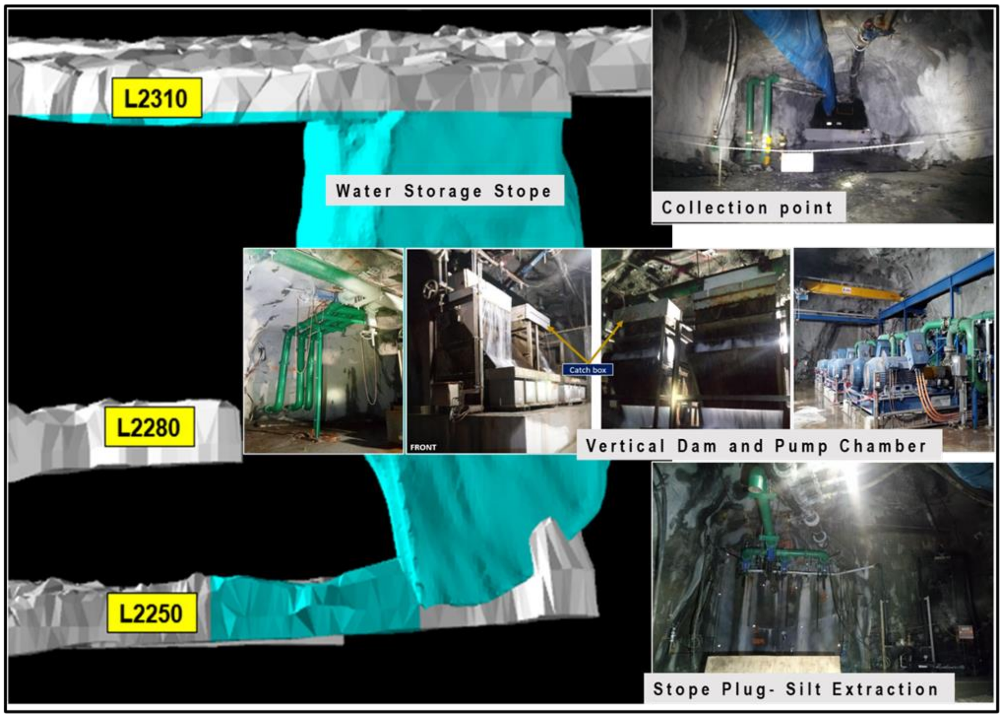


Figure 16-49: CPS 2 Layout

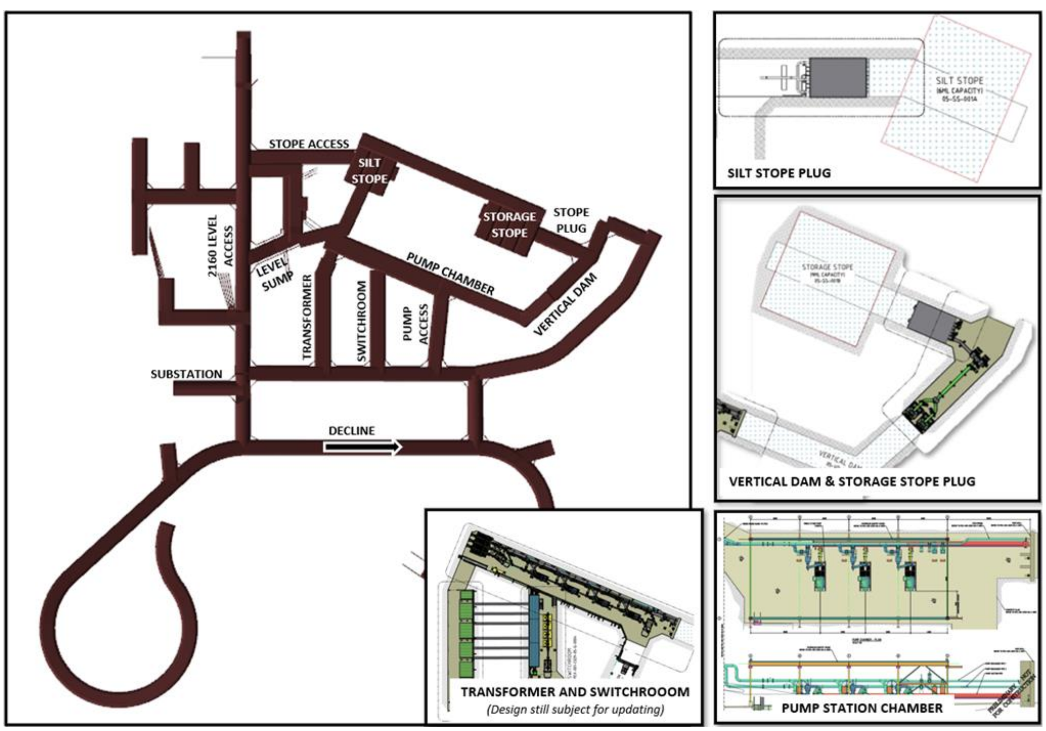


Figure 16-50: Planned Location Level 2160 - Capital Pump Station 1

Active dewatering is employed at Didipio and is an important part of the mining process to facilitate draw down of the water levels in the orebody to facilitate more efficient mining and water management. The current system consist of a series of converted diamond drill holes in addition to a series of shorter holes drilled with production drills, approximately 50m in length and drilled from strategic positions along footwall drives and ore drives. Additional diamond drill holes (HQ size) are proposed in the western and lower sections of the mine to facilitate dryer mining in these areas.

16.14.3 Compressed Air

Compressed air is reticulated throughout the mine. The paste reticulation system has air operated valves at various levels and refuge chambers have permanent air supply, all of which run off the main air supply. The compressors are situated on the surface and the installation consists of three Atlas Copco GA160+ compressors each with on board air dryers. Additional air supplies within the mining environment include:

- An Atlas Copco GA15+10 at each primary pumping station for backup valve operation; and
- Small compressors installed on mobile fleet, such as the production and development drills and the charge up machine.

16.14.4 Mine Water Supply

A clean mine water supply is required for effective underground mining particularly equipment operation. Three circular tanks are installed above Portal 1, as shown in Figure 16-51, with a total capacity of 63m^3 supply the underground operation. A 110mm HDPE pipe is connected to the stage six weir that feeds the tanks via gravity flow. Due to increased demand, a second water supply is setup on the 2430mRL and sources water from the active underground dewatering system.

Figure 16-51: Underground Mine Water Supply

16.14.5 Service Bay and Wash Bay

An underground service bay is located at the 2370mRL for basic servicing of drill rigs. Major repairs are still carried out in the surface workshop. An underground wash bay is planned and will be located in close proximity to the service bay. The service bay and wash bay will be linked to the return air circuit and includes:

- Service bay with jib crane;
- Oil sump and separator; and
- Fire suppression system.

16.14.6 Explosives Magazine

There are currently no plans for an underground explosive's magazine. However, if the mine deepens beyond the current design, one may be included in future plans.

16.14.7 Communications and Automation

A digital VHF leaky feeder system is installed for two-way communications. All mobile equipment is equipped with radio sets. Key labour and supervision staff are provided with handheld radio sets to provide communication on dedicated chat channels. Radios are also installed in offices (such as the technical, emergency response, and first aid offices). Emergency response has its own dedicated channel.

There is a data network installed throughout the mine, reticulated by fibre optic media to switches at various mine levels. The data network carries remote controlled signals and video for operating equipment as well as data from PLCs for SCADA representation and historic logging. Access points are located throughout the mine to provide Wi-Fi coverage and perform tracking of personnel and equipment in the underground environment. The data network and leaky feeder coverage will continue to expand as the mine is developed further.

16.14.8 Electrical Distribution

Power at the mine site was initially provided by diesel generators. A connection to grid power now exists and has significantly reduced the reliance on diesel power and reduced power costs. The original diesel generator fleet will continue to be maintained to provide backup power for continued operations in the event of power failures.

The underground electrical power supply is reticulated via a 13kV high-voltage feeder line, through service holes from an overhead power line to the first ring main unit ("RMU"). A ring feed has been established and reticulated through to the furthest RMU. Any further extensions to the high-voltage reticulation feeder will continue via service holes between the levels with the ring feed providing redundancy.

From the underground transformers on each level, the reticulation is distributed at 400 Volts and 60 Hertz to starters for drilling equipment, secondary fans and pumping systems. The primary pump stations have 690V transformers and motors. The estimated peak demand for the underground will be 10MW, with the peak expected in 2024, primarily associated with the currently modelled peak dewatering requirement.

16.15 Underground Manpower Requirements

All underground mining is carried out by OceanaGold or nominated sub-contractors. Labour numbers detailed here include all personnel.

Labour estimates assume either:

- A 14 day on, seven day off, three panel roster working 2 x 12 hour shifts per day on a continuous roster; or
- A dayshift only roster.

Sources of labour have been split into three categories, being:

- Expatriate labour;
- National labour; and
- Local labour.

Where applicable, labour estimates have been based on mobile fleet requirements which are in turn are driven by mine production. For other areas such as supervision and technical services, labour estimates have been based on OceanaGold's operational experience. All labour costs have been based on current experience with the operating underground mine.

Table 16-19 and Table 16-20 show the estimated underground labour requirements by work area and category respectively.

Table 16-19: Underground Labour Requirements by Area

Labour By Area	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Maximum
Supervision	13	13	13	13	13	13	11	11	11	11	11	11	13
Tech Services	104	104	104	107	106	104	96	92	92	85	73	71	107
Maintenance	95	95	95	95	95	78	81	81	81	81	81	81	95
Lateral Dev.	42	42	42	42	42	36	36	24	21	21	21	21	42
Vertical Dev.	3	3	3	3	3	3	3	3	3	3	3	3	3
Production	17	17	17	15	15	15	15	15	15	15	15	15	17
Material Handling	40	40	40	39	39	39	39	39	39	39	39	39	40
Backfill	6	6	6	6	6	6	6	6	6	6	6	6	6
Mine Services	30	30	30	30	30	30	30	30	30	30	30	30	30
Total	**350**	**350**	**350**	**350**	**349**	**324**	**317**	**301**	**298**	**291**	**279**	**277**	**350**

Table 16-20: Underground Labour Requirements By Category

Labour By Category	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Maximum
Expatriate	24	24	24	21	19	8	6	6	6	6	6	6	24
National	131	131	131	132	132	127	125	118	117	114	110	109	132
Local	195	195	195	197	198	189	186	177	175	171	163	162	198
Total	**350**	**350**	**350**	**350**	**349**	**324**	**317**	**301**	**298**	**291**	**279**	**277**	**350**

17 RECOVERY METHODS

17.1 Introduction

Recovery of copper and gold at Didipio is achieved from the use of a combination of flotation following a conventional SAG mill/ball mill grinding circuit and gravity gold recovery. The design criteria for the process plant, was established from test work outlined in Section 13 of this report. The plant has been successfully running and exceeding 3.5Mtpa nameplate since the 2014 processing plant upgrade, with a well-established workforce and management team in place until June 2019 when operations were suspended. Following renegotiation of the FTAA in July 2021 the plant was restarted in November 2021 with full production expected in Q2 2022.

17.2 Process Flowsheet

Ausenco produced a detailed design for the 2.5Mtpa processing plant in February 2011 and site construction of the plant commenced in November 2011. First ore was introduced to the plant on December 14, 2012, and the plant commenced commercial production on April 1, 2013.

Since commissioning, a ramp-up project to de-bottleneck the plant with the aim of achieving 40% above plant design to 3.5Mtpa, was achieved during Q4 2014. With further improvements and fine-tuning over 2015 & 2016 the plant is now capable of processing up to 4.0Mtpa and is potentially able to achieve 4.3Mtpa with further minor improvements with a minor capital outlay.

The process flowsheet is shown in Figure 17-1 where ore is processed using a conventional SAG/Ball mill/Pebble Crusher (SABC) grinding circuit with a secondary pebble crusher circuit followed by froth flotation for recovery of gold/copper concentrate. A gravity circuit is incorporated within the grinding and flotation circuits to produce gold bullion on site. Copper concentrate is transported by road to the San Fernando port facilities for export.

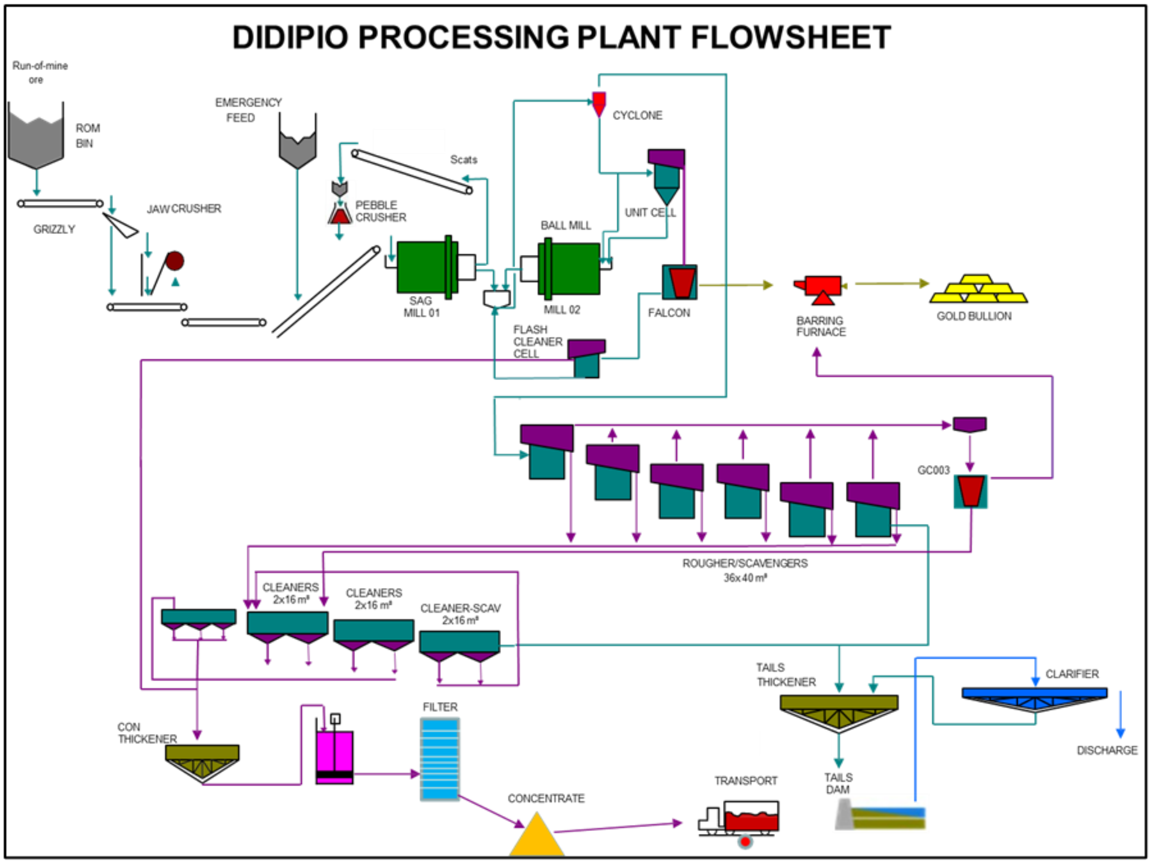


Figure 17-1: Process Plant Flowsheet 2021

17.3 Process Plant Facilities Description and Design Characteristics

17.3.1 Primary Crushing

The crushing circuit is situated next to the ROM pad. Mining trucks haul ore from the open pit stockpiles or from the underground portal to the ROM pad and dumped on separate finger stockpiles to allow blend control. ROM ore is fed by a front-end loader ("FEL") through an 800mm square aperture static grizzly into a 100-tonne live capacity ROM bin. The FEL is required to remove oversize material retained by the static grizzly.

The ROM ore is reclaimed from the ROM bin by an apron feeder and is discharged on to a static grizzly into a single toggle crusher. Fines will bypass the crusher. Static grizzly bars are set at nominally 100mm clearance.

The single toggle crusher, selected to handle 900mm maximum lump size, crushes the ROM ore to a typical P80 product size of 100mm. An overhead travelling crane is provided for changing out crusher jaw plates and for maintenance on other adjacent equipment. Dust suppression water sprays are provided at the ROM bin and at the head of the transfer bin feed conveyor, emergency stockpile feed conveyor and SAG mill feed conveyor. The sprays will be automatically turned on/off from the plant control system.

17.3.2 Crushed Rock Handling and Storage

The ore from the crusher is transported via conveyor CV-001 and CV-006 to a transfer bin. The transfer bin has a live capacity of approximately 15 minutes of mill feed. An apron feeder located beneath the bin transfers the crushed ore onto the mill feed conveyor CV-003, if CV-003 (or the SAG mill) is offline a diverter gate at the top of the bin directs the ore onto CV-002 the Extra Fine Ore ("EFO") conveyor, CV-002 discharges ore onto an emergency stockpile with 20,000t maximum operating capacity that can allow for crusher downtime of more than 24 hours.

If the crusher is offline, then the ore from this emergency stockpile is fed onto CV-003 via the emergency feeder which is a low-profile belt feeder. The ROM FEL is utilised to feed this emergency feeder as required. This allows crusher maintenance to be done outside of mill shutdowns and to reduce overall manning levels.

17.3.3 Primary and Secondary Grinding

The 7.3m diameter by 4.57m effective grinding length ("EGL") SAG mill is fitted with steel liners and vortex discharge grate and pulp discharges. The SAG mill is equipped with a 4,300kW wound rotor induction motor and Liquid Resistance Starter ("LRS") and has capability to provide speed variation through a Slip Energy Recovery ("SER") unit.

Media charging is from 900kg drums of 125mm grinding balls via a kibble to the mill feed chute. A target ball charge of 13% is maintained with a media addition rate of 0.20kg/tonne of feed. Mill load is determined from monitoring the hydrostatic pressure in the trunnion mill lube system. A rock sizing camera is installed on the SAG feed conveyor to monitor feed size distribution and a vibration meter is placed at the outside shell of the SAG mill. The vibration meter or scanner can measure intensity/vibration energy, toe of the charge, impact (number of events whereby the ball is directly hitting the steel liner). The scanner gives live and accurate reading of the condition inside the mill. The integration of feed size, inside mill parameters (intensity, toe, and impact), mill weight and SAG power is used to control the mill speed and feed rate.

Discharge from the SAG mill flows through a rubber-lined trommel and into a common mill discharge hopper. Oversize from the trommel screen (scats) is directed to a Sandvik CH-440 pebble crusher through the scats recycle conveyor to reduce the scats size to -12mm. A portion of the recirculating load (cyclone underflow) is fed back to the SAG mill to assist with the transfer of the scats out of the discharge end of the mill.

The 5.5m diameter by 8.38m rubber lined ball mill is fitted with a 4,300kW wound rotor induction motor, LRS, trommel screen and retractable feed spout/chute. Discharge from the ball mill flows through a rubber-lined trommel into the common mill discharge hopper. The combined SAG and ball mill discharge is pumped to a nest of nineteen Cavex 15" hydrocyclones. The hydrocyclone underflow is split, with approximately 30% reporting to ball mill feed and 10% reporting to the SAG mill. The other 60% reports to an Outotec SK-500 Flash Flotation Rougher cell for recovery of the coarse liberated gold and copper particles. The concentrate from the Flash Flotation Rougher reports to a gravity circuit and the hydrocyclone overflow gravitates on to the flotation rougher circuit.

The Flash Flotation Rougher utilises the twin outlet design with the low-density top valve tailings reporting to the common mill discharge hopper to maintain ball mill density.

17.3.4 Gravity Circuit

The purpose of the gravity circuit is to recover free gold from the Flash Flotation concentrate. The gravity circuit utilises a Falcon SB2500 batch concentrator. A bypass option allows the Flash Flotation Rougher concentrate to bypass the concentrator and report directly to the Flash Flotation Cleaner when the concentrator is in a rinse cycle or is offline. Other gravity circuit components consist of a surge bin for the concentrate, a Gemini and a

Deister table treating all the concentrate and a further Falcon model SB250 concentrator on the table tails, all of which are located in the secured area of the gold room.

The concentrate from the SB2500 concentrator unit gravitates to the gold room for further processing. The tailings from the concentrator reports to the Flash Flotation Cleaner TC-10 flotation cell where the coarse copper and gold particles are recovered with the concentrate, then report to the combined final concentrate hopper with the Re-cleaner concentrate and pumped to the concentrate thickener. The tailings from the Flash Flotation Cleaner report to a hopper and are then pumped back to the combined mills discharge hopper to be pumped back to the cyclones.

An additional Falcon SB750 batch concentrator was installed in November 2016 in fine flotation circuit and was fully operational in February 2017. This gravity concentrator treats the Rougher concentrate stream prior to entering the Cleaner circuit. The concentrate from SB750 reports directly to the surge bin in the gold room while the tailing goes to the Cleaner circuit. A bypass option allows the Rougher concentrate to bypass the concentrator and report directly to the Cleaner circuit when the concentrator is in a rinse cycle or is offline.

17.3.5 Flotation Circuit

Cyclone overflow reports by a gravity line to the first of six rougher flotation cells. Outotec TC-40 tank cells are used for the roughers with progressively increasing froth crowders installed down the train. Rougher concentrates are pumped to the Falcon SB750 fine gravity concentrator (GC003), while rougher tailings report to the flotation tailings hopper for pumping to the tailing's thickener. Tails of the GC003 feed the cleaner bank, and its concentrate is discharged to the gold room.

Concentrate from the cleaner cells feeds the bank of re-cleaner cells. Tailings from the re-cleaner cells mix with the GC003 tails as feed to the cleaner cells. Concentrate from the re-cleaner cells is directed to the final concentrate pump box and then transferred to the concentrate thickener. The tails from the cleaner cells feed into the cleaner-scavenger cells, while the tails from the last cleaner-scavenger cell report to the cleaner tails hopper, and then pumped back to the rougher feed bank.

The concentrate from the cleaner/cleaner-scavenger cleaner cells can be fed to either the feed of the re-cleaner cells or the cleaner cells dependent on concentrate grade. The concentrate from the cleaner-scavenger cells report back to the feed of the cleaner cells.

A control system called FrothSense was installed in 2016 to automatically control the operating parameters of the flotation cells.

17.3.6 Concentrate Handling

Final copper concentrate is thickened in a 12m diameter high-rate thickener fitted with a vane feed well and de-aeration tank. The underflow is pumped at about 60-70% solids to a pair of 450m^3 storage tanks. A Outotec PF-930 horizontal plate pressure filter press produces a concentrate filter cake at about 8% moisture, which will be suitable for transport and sea freight to smelter customers. As part of the efforts to increase the annual throughput to 3.5Mtpa, four additional plates were installed in the concentrate filter to increase its capacity by 20%.

The filter cake discharges to a concentrate stockpile of about 15 days capacity located within the concentrate storage shed. The concentrate is loaded into dump trucks using a FEL with a nominal payload of 20 wet tonnes per load. Composite samples are prepared from trucks as they are loaded, for moisture and metal content. A weighbridge weighs all trucks leaving site to account for movement, inventory control of material and tracking for permit requirements.

Concentrate is trucked by road to a storage shed located at Poro Point, La Union with the capacity to hold up to 15,000t of material. Ships are loaded periodically in 5,500t or 11,000t shipments. Turnaround time for the concentrate trucks averages 27-32 hours.

17.3.7 Tailings Handling

Flotation tailings from the hopper are pumped to a 20m diameter high-rate thickener with a vane feed well. Flocculant, MAN 4510 and MNI 4520 are dosed to the thickener feed box by variable speed helical rotor pumps to aid in the settling of tails and to provide necessary clarity in thickener overflow.

Three stage variable speed thickener underflow pumps pump thickened tails to the Tailing Storage Facility (TSF) through a 250mm steel/HDPE line approximately 2,000m to the dam crest. Tailings then moves through a spigot manifold along the length of the dam wall allowing formation and control of the tailings beach. Approximately 340m^3/h of decant water (a mixture of tailings transport water and rainfall in the catchment) is pumped back to the process plant for makeup water. Excess water in the catchment is pumped to the water treatment plant for release.

Approximately 40-50% of tailings from the process plant are fed to the paste back-fill plant.

17.3.8 Gravity Gold Concentrate Treatment

The concentrates from the Falcon SB2500 and Falcon SB750 concentrators are screened with a Amkco Vibra-screen. The screen oversize product reports to the Gemini shaking table while the undersize product is treated using the Deister shaking table. Concentrates from the tables are filtered and dried prior to smelting in a standard diesel-fired barring furnace. The tailings and middling’s product from both tables are retreated in a small Falcon concentrator, with the concentrate joining the Deister feed. The tailings from the Falcon concentrator are returned to the final concentrate pump box to minimise any gold losses from the gravity cleaning circuit.

The dried gravity concentrates are mixed in batches with fluxes designed to allow the best separation of the gold and silver into doré. These batches are smelted and poured into moulds to produce the gold/silver doré bars, which assay 85% gold and 15% silver. Iron and base metal levels in the bars are typically less than 3%.

17.3.9 Reagents

Flocculant is delivered in 25kg bags. This powder is mixed in a Ciba Jetwet mixing unit to 0.25% solution strength and then stored in a storage tank. Flocculant distribution is by a variable speed pump.

Coagulant is also contained in the 1000L Intermediate Bulk Containers (“IBC”). It is used to aid in the settling of solids in the water treatment plant and settling ponds.

Two collectors are currently used in the process plant. CMS2500 is delivered to site in 1,000L IBC containers and is dosed to the flash flotation feed as a primary copper collector to minimise issues with natural hydrophobicity.

Sodium Isobutyl Xanthate (“SIBX”) is delivered in pellet form in two 400kg bags sealed inside wooden crates and mixed on site to a 5% target strength. A header tank with a control valve and flow meter, controls dosing of SIBX to three points in the rougher circuit as a secondary copper collector.

IF6510B frother comes in 1000L IBC containers and is distributed to the selected flotation points with peristaltic dosing pumps.

17.3.10 Control Room and Maintenance Shop

A Yokogawa CentumVP Distributed Control System ("DCS") is utilised throughout the process plant and power station for process control. A permanently manned control room monitors and controls the process from the primary crusher to the TSF return water pumps. The PI Historian from OSISoft collects process and alarm data from the DCS for reporting and analysis.

A maintenance workshop facility is located adjacent to the process plant allowing for overhaul of equipment on site.

17.3.11 Metallurgical Laboratory

A metallurgical laboratory is located adjacent to the maintenance workshop and is provisioned with a laboratory rod mill, L40 Falcon Concentrator, flotation cells, pressure filters, ovens, rotary splitter laboratory Bond ball mill, laboratory crusher and cyclosizer. The laboratory undertakes routine diagnostic testing on the process plant, processes survey samples and future ore testing programmes on drill core samples.

17.3.12 Paste Plant

The Paste Plant was commissioned in 2018 and the process flow sheet is shown in Figure 17-2. The paste backfill plant treats the Didipio tailings from the flotation circuit to produce paste. Approximately 40%-50% of mill tailings are used for paste fill which reduces the TSF volume requirement. This is achieved by de-watering the tailings to produce a nominal 72% solids (by weight) paste containing binder. The paste is delivered to underground stopes by gravity via a distribution piping system. The paste plant has been designed to treat a feed rate of 205tph of dry tailings solids and produce nominally 150m^3/hr of paste fill at 60% utilisation. The paste is delivered by gravity to the underground workings through two paste fill boreholes. Flocculant is used to aid the filtration process on the horizontal belt filter. The cake produced is mixed in the paste mixer with binder at 3% - 7% ratio by weight. The paste then delivered by gravity to the reticulation line. Several readings such as borehole level, paste flow, reticulation line pressure is used to monitor the filling process.

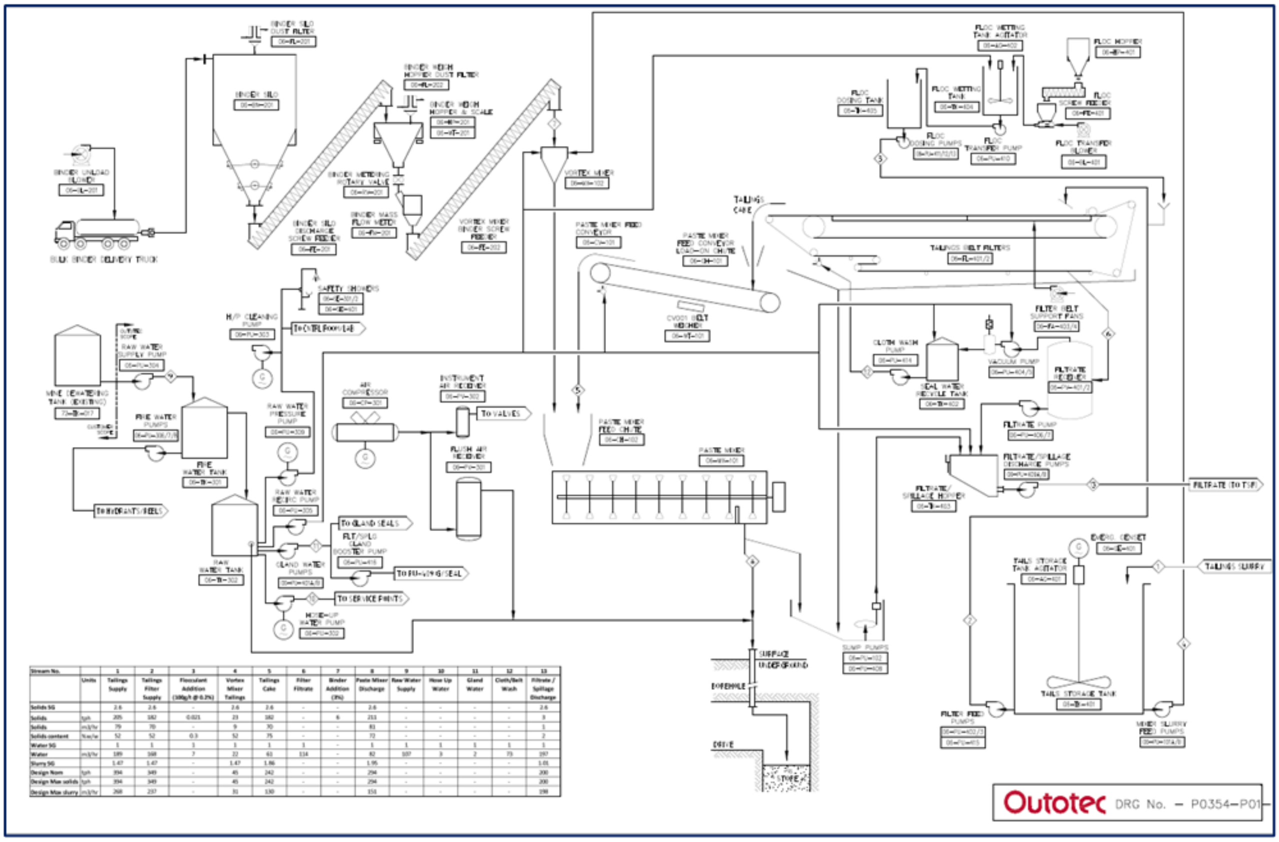


Figure 17-2: Didipio Paste Fill Plant (PFD) Schematic

17.4 Production Performance

Figure 17-3 shows the Didipio plant throughput and head grades from the start of operations through to the end of 2019, with mill feed tonnes apportioned to Open Pit and Underground beginning 2018. Due to plant improvements like the installation of the pebble crusher and modification of SAG mill discharge grates, the target annual throughput of 3.5Mtpa was achieved from 2015 through to 2018. Due to the suspension of operations in October 2019 only 2.7Mt of the scheduled 3.5Mt was processed.

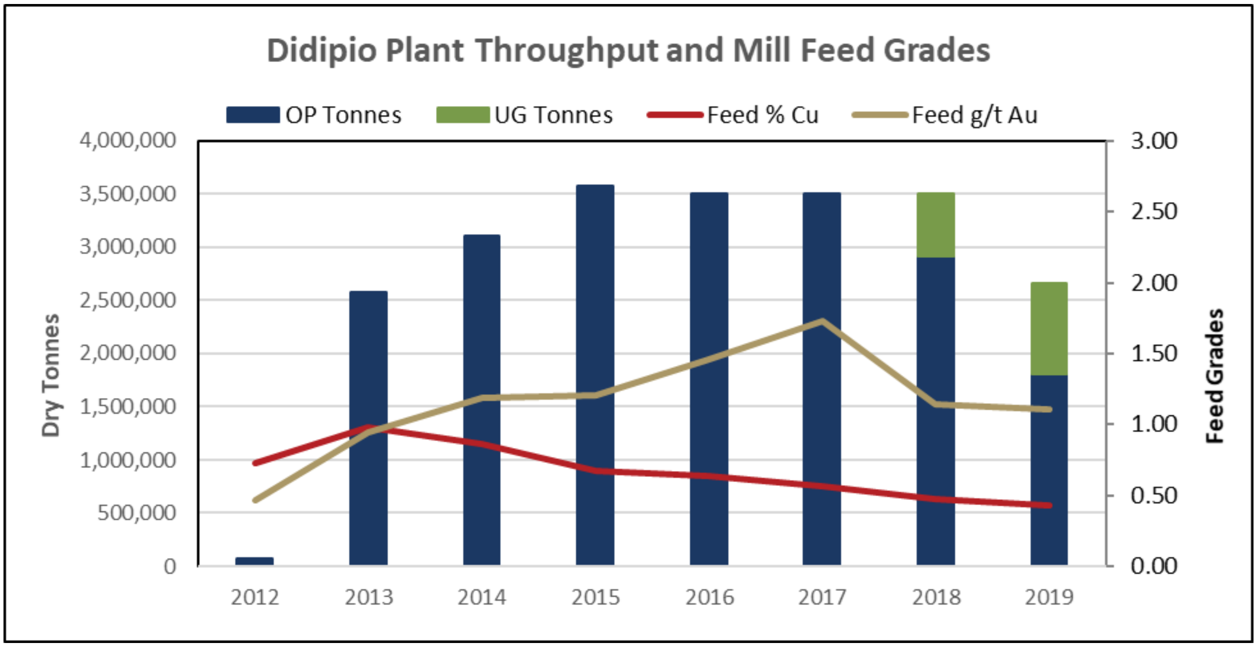


Figure 17-3: Process Plant Throughput and Mill Feed Grades 2012-2019

Concentrate production data is shown in Figure 17-4 below from the commencement of operations. Concentrate grade has remained consistently within the target of 23-24% copper with gold grade in concentrate varying in line with head grade. Silver content of the concentrate has been tracking around 90g/t and is a payable credit. No penalty elements have been recorded in the concentrate that affects the calculation of payable metal. Declining concentrate production is in line with the resource estimate with higher copper and lower gold grades in the upper open pit mined portions of the orebody and higher gold lower copper grades seen as the feed transitioned into underground areas.

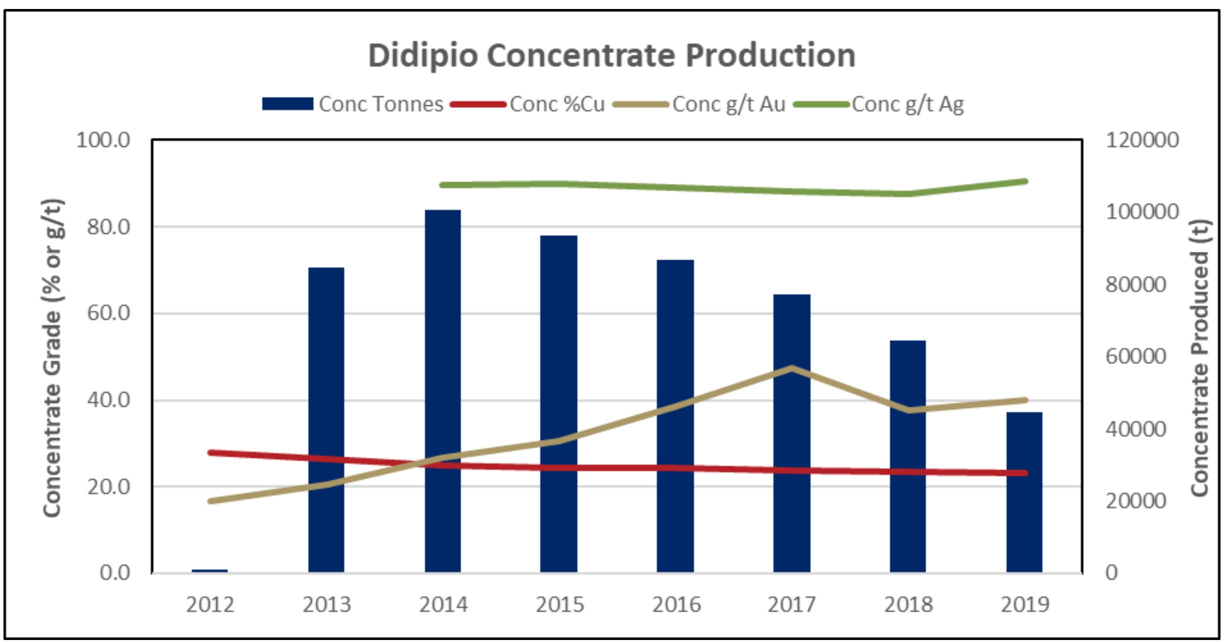


Figure 17-4: Annual Didipio Concentration Production Data

Recovery of copper and gold to concentrate since the project started is shown in Figure 17-5 and have been fairly consistent since stable operation was achieved in 2013. As noted in Section 13.2 the achieved recoveries have tracked well with the budget forecast models, at an average copper recovery of 93.2% and an average gold recovery of 89.8%. Copper recovery started to decrease from 2017 due to partial oxidation of the rehandled stockpile ore, while gold recovery was mainly affected by the head grade and the grind size. Gold recovery sensitivity to grind size is fairly flat with the impacts of coarsening the primary grind from 120um to 150um seeing a increase in flotation tail grades equivalent to a 0.4% drop in overall gold recovery.

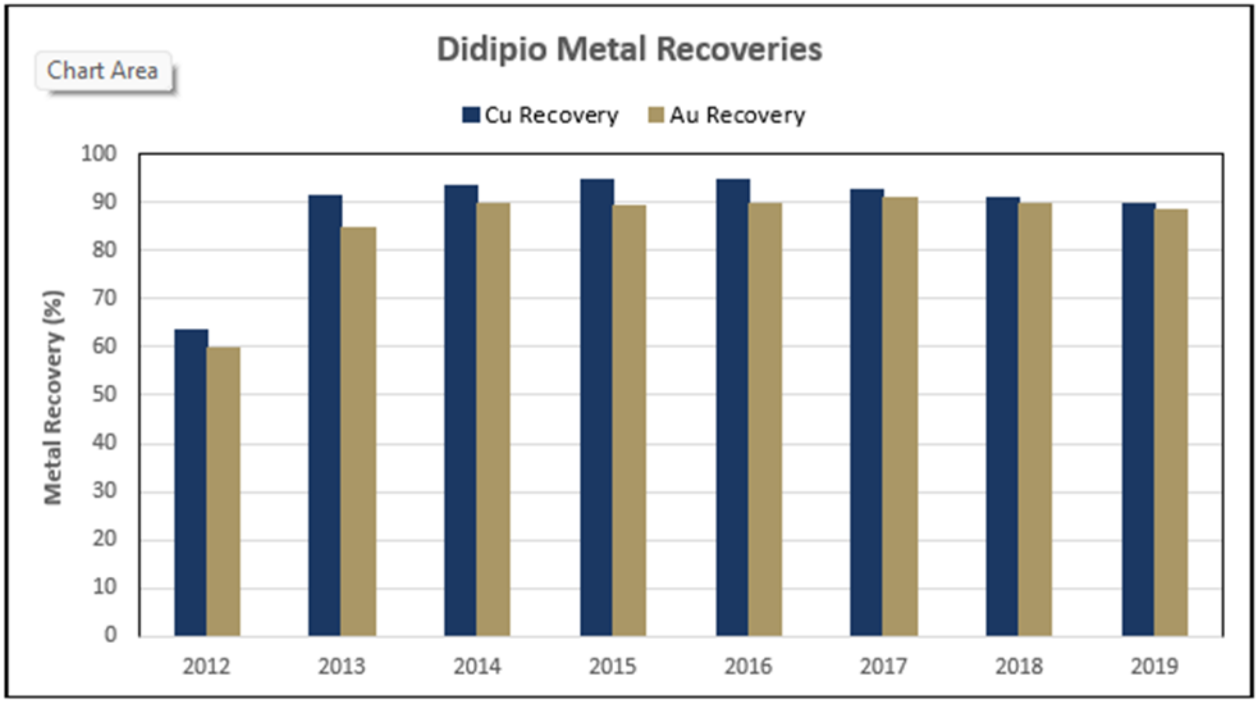


Figure 17-5: Annual Copper and Gold Recovery Data

Gold recovery shown is the combined recovery of gold to gravity bullion and gold contained in copper concentrate.

Mill utilisation has historically been in the 94-96% range since 2015 when operating within the permit criteria of 3.5Mtpa and monthly utilisation is shown in Figure 17-7. The maintenance team is supported by both planning and condition monitoring teams assisting in maintaining the high asset utilisation. Due to the permit limit of processing 3.5Mtpa of ore until 2018 the mill strategy was to run at target tonnage until this was achieved then shutdown for a period of time towards the end of the year hence the annualised mill utilisation figure runs below 90%. This latent capacity remains an opportunity to increase total ore processed at minimal cost.

17.5 Energy, Water and Consumable Requirements

17.5.1 Energy

Process plant power requirements are approximately 10.2MW of a total site power requirement of approximately 18-22MW.

Power is sourced from the National Grid Corporation of Philippines ("NGCP") with emergency back-up onsite power station consisting of 14 generator sets rated at 1.3MVA each. The connection to grid supply was completed in late 2015. In the event of grid power outage, generators will supply essential services including to the UG dewatering station.

17.5.2 Water

Raw water is currently sourced from the underground mine dewatering discharge water that has undergone solids removal via coagulant and flocculant addition, followed by flow through four settling ponds. Part of this discharge is from a pair of production bores located outside the completed open pit. These bores pump water to the mine dewatering tank which transfers water to the plant raw water tank for use in gland water systems, gravity and gold room operation, reagent mixing and potable water treatment. Raw water requirement is approximately 80 m^3/h.

Process water is recovered from within the plant from the tailings and concentrate thickeners with makeup sourced from the TSF pond at 340m^3/h. Recycle rates of process water are high, exceeding 80% with the only raw water makeup into the system from services requiring higher quality water.

The Paste Plant requires approximately 140m^3/h clean water supply for its operation. To supply this requirement, underground dewatering water is used. This is pumped through several stages of ponds intended for turbidity treatment before most of it is released to environment and part of it is directed to mine dewatering tank that supplies the Paste Plant.

17.5.3 Water Treatment Plant

The level of the decant water pond in the TSF is maintained by discharging excess water to the Dinauyan River via a Water Treatment Plant ("WTP"). The WTP currently consists of a 34m diameter Outotec clarifier located remote from the plant capable of treating up to 2,000m^3/h of decant water to reduce the total suspended solids to below 30ppm prior to discharge to the river. Local coagulant and flocculent dosing systems are provided with periodic transfer of solids underflow pumped back to the TSF.

An Arsenic treatment plant is planned to be constructed in 2022 to treat underground dewatering water that contains elevated levels of arsenic. The arsenic treatment plant is currently under review and awaiting approval from the Philippines Environmental Management Bureau.

17.5.4 Consumables

Key consumables in the plant are the flotation reagents and grinding media and are generally transported to site from Manila. Consumption rates of key consumables during 2019 period of operation are listed in Table 17-1. Collector consumption rates have reduced significantly from pre-commissioning estimates with natural hydrophobicity in the orebody reducing collector usage.

Lime usage has also stopped since 2015 to allow recovery of gold bearing pyrite to the flotation product.

Table 17-1: Consumable Consumption Rates

Reagent	g/tonne
SAG Media	204
Ball Media	295
CMS2500	3
SIBX	4.6
Frother IF6510B	19.1
Flocculant (MAN4510+4520)	25
Coagulant (AdClear 215)	2.7

17.6 Labour

The process plant currently operates with a three-panel crew roster on a continuous shift 14 on, 7 off roster. Total mill operations numbers 70 people.

Plant maintenance is performed by OceanaGold personnel and totals 74 people to maintain the crusher, process plant and back-up power station.

17.7 Unit Costs

Process plant unit cost hjstory is shown in Figure 17-6 below since commercial operation commenced until Aug 2019 when the FTAA expired. Unit costs have consistently improved from a combination of increased throughput to 3.5Mtpa, several cost saving initiatives and connection to the national electricity grid reducing the need for diesel powered generation. In 2017 and 2018, the operation has reached maximum allowable milled tonnes of 3.5Mtpa as per ECC permit conditions and must either reduced throughput in last month of the year or go on stand-by, hence the increase unit costs in Dec 2016 , 2017 and 2018. The actual achieved unit cost has generally been at or slightly lower than the budget costs predicted.

Budgeting is based on drivers of milled tonnes and operating time. Key consumable rates going forward are based on actual consumable price. Power cost is estimated based on historical power consumption model and operating time. Operating experience since 2013 has allowed benchmarking of maintenance cost and long-term maintenance schedule such as for reline activities is scheduled based on actual lifetime of the parts.

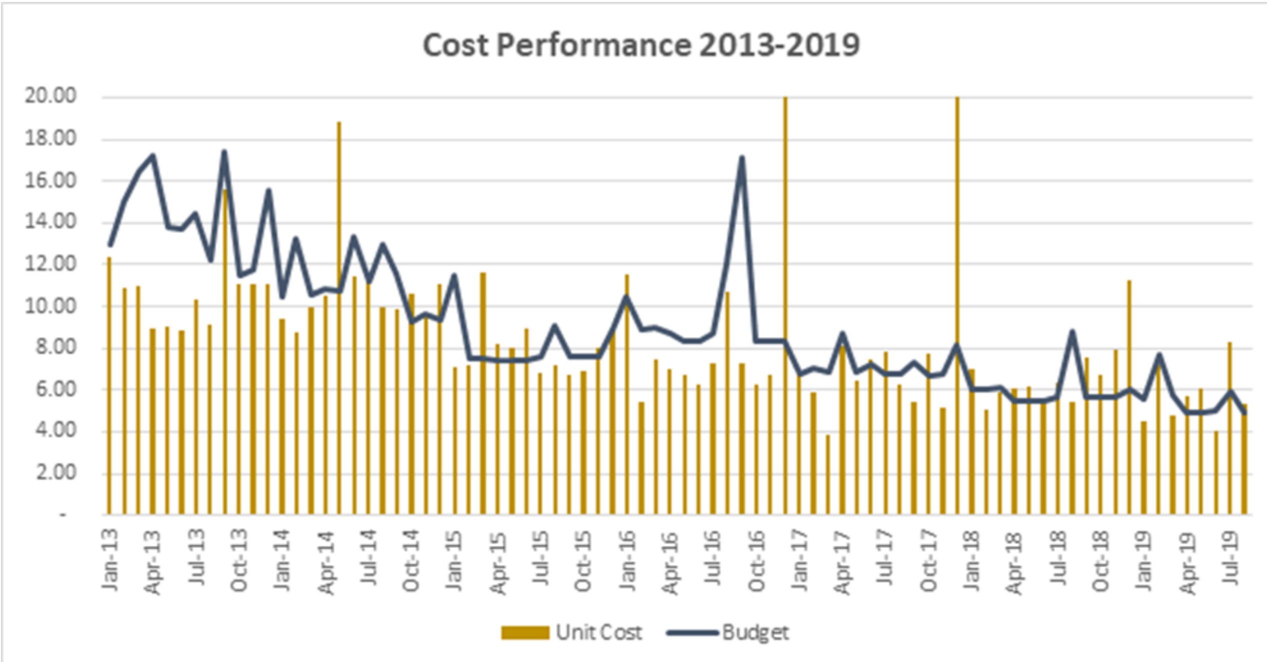


Figure 17-6: Processing Plant Cost Performance against Budget

At the current forecast mill throughput rates of 3.5 Mtpa process costs are budgeted at an average of US$5.81/tonne of ore milled over the LoM.

17.8 Future Development Projects

17.8.1 Cyclone Underflow to Gold Room Gravity Concentrator

The gold mineralogy at Didipio has changed over the life-of-mine from fine native gold and gold in solid solution with sulphides to electrum and telluride materials, and this trend is expected to continue into the future. Gold grain size has also become coarser which is expected to negatively impact recoveries as the Didipio process design is optimised for recovery of finer gold particles via Flash flotation and gravity concentration on the flash flotation copper concentrate stream.

Analysis of test work concludes that an additional gravity concentration unit which will process the cyclone underflow may increase gravity gold recovery from 7% to 17% and increase total recovery by 1%-4%. The detailed design for the gravity circuit upgrade was finalised in 2019 with procurement of major equipment commenced prior to the interruption to ore processing.

The upgrade will involve the installation of a dedicated circuit feed pump on the mil discharge hopper, scalping screen, Falcon SB5200 gravity concentrator, additional Diester table in the gold room and ancillary services. The installation is expected to be completed in Q3 2022.

17.8.2 Controlled Potential Sulphidisation (CPS) Project

Since late 2016, Didipio has started to process stockpile ore in addition to supplement lower volumes of Underground ore. Ore blend of life-of-mine will vary between 60%-70% of stockpile and 30%-40% of Underground ore. Several test programs and plant trials have confirmed adverse effect negative impacts of increased surface oxidation of stockpile ore on copper recovery.

CPS method will be utilised to mitigate the copper recovery reduction due to oxidation of stockpiled open pit ore. The introduction of sodium hydrosulphide (NaHS) into the circuit as a sulphidising agent will be the main treatment mechanism to lessen the copper losses associated with flotation of oxidised ore. An actual plant trial of oxidised ore with an oxidation ratio of 5% was conducted in 2018 and showed a copper recovery loss of up to 2%. The copper recovery model used for production forecast and planning was changed to incorporate the stockpile ore oxidation and found more accurate than the old model when compared with the actual recovery achieved from the plant trial.

17.8.3 4Mtpa throughput increase from 3.5Mtpa

The current LoM is based on the assumption of 3.5Mtpa rate. Since 2017, following the completion of pebble crusher circuit expansion and optimisation of the processing circuit the plant has been able to operate at up to 4Mtpa as shown on Figure 17-7 from a combination of high mill utilisation up to 96% and from a slight coarsening of the primary grind size to 150um. However, in 2017 due to the 3.5Mtpa ECC limitation the process plant was on a month-long stand-by at year end having reached the 3.5Mtpa limit. In Q2 2018 the process plant reduced throughput to enable whole year run within the 3.5Mtpa limit in order to supply tailings to the Paste Plant that was commissioned in Q4 2018.

In 2019 prior to the operational stand-by, most of the process plant optimisation project work was completed and the processing plant operated at 4.1Mtpa rate (around 490 tph rate) for a sustained period of 10 weeks. No significant capital expenditure is envisaged to operate in this more in the future.

An amendment of the current ECC to lift processing limit to 4.3Mtpa is in progress, however, it is uncertain when this amendment may be approved and so the 2022 LoM is based on the historically permitted and achieved 3.5Mtpa rate. There is opportunity to increase the processing rate on award of the new ECC to around 4Mtpa with only minor impact on metal recovery.

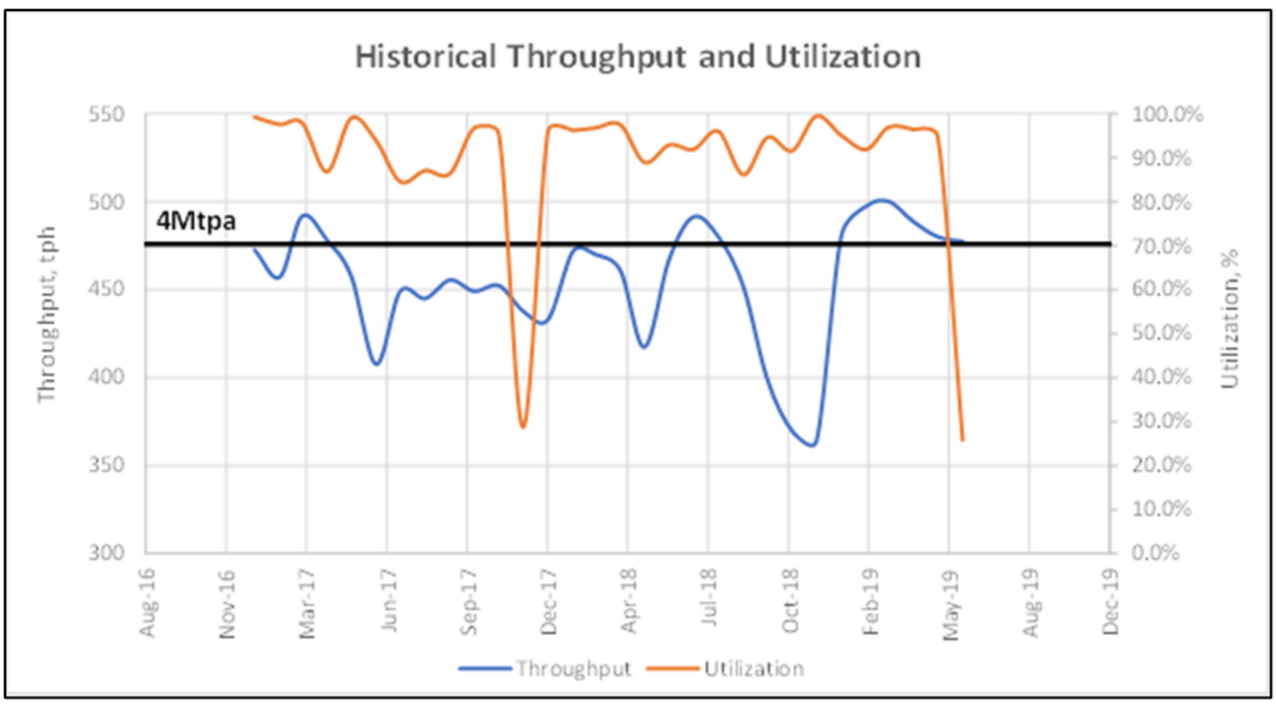


Figure 17-7: Plant Throughput and Utilisation

18 PROJECT INFRASTRUCTURE

A general infrastructure site plan is show in Figure 18-1.

18.1 Clean Water

Most of the water used in the processing plant is recycled using the overflow water from thickeners and the decant water from the TSF tailings pond. Any fresh makeup water was sourced previously from the five deep bores around the perimeter of the open pit mine. In the third quarter of 2018, these boreholes have been decommissioned. The current source of domestic and raw water supply for the camp and processing plant, respectively comes from underground mine dewatering.

18.2 Power Supply

For the first five years of operation, the Didipio gold-copper mine was planned as a conventional truck and shovel open pit targeting the mineralised rocks of the Didipio Igneous Complex. The required power demand during open pit mine operation was approximately 10MW and was supplied by the on-site diesel power generation (14 x 1.3MW individually enclosed diesel generators). It was initially planned that in 2016 a decline would commence for underground development with underground production to begin in 2019. However, the underground project at Didipio was brought forward by one year and the development of the underground portal and surface facilities commenced in the first quarter of 2015. The first underground ore was mined in 2018, almost two years earlier than originally planned. The power demand for the Didipio operation is currently 18 to 22MW.

The on-site diesel power generation (14 x 1.3MW units) initially represented 50% of the processing costs. However, at the end of 2015, a power line connecting Didipio to the Luzon electricity grid was commissioned resulting in significant power cost savings. Didipio operations are connected to the 69kV Luzon electricity grid NGCP via a 60km HV overland single power line from NUVELCO (“Nueva Vizcaya Electric Cooperation”) Bambang Metering Station to a substation located near the existing Didipio site diesel power station. The construction of the overhead power line was completed in September 2015 and was followed by commissioning. Since 5 November 2015, the Didipio mine site has been operating on National Grid Power as its main operational power supply with the on-site diesel power generation remaining as an emergency backup power supply. A new 25MVA high voltage transformer was installed as part of a new incoming HV Sub-station to step down the 69kV National Grid Power to the Didipio mine site voltage of 13.8kV. The power from the substation now feeds into the original power station substation from where power is distributed to the main consumers on-site at 13.8kV.

The Didipio Mine proposes to have a direct connection of 69kV power line to the NGCP at Bayombong and discontinue the use of Nueva NUVELCO Bayombong-Bambang 69 kV power line. The feasibility study of this proposal has been approved by the Philippines Department of Energy (“DOE”). A design and construction project for the NGCP direct connection, which will include an additional 17km of OPHL from Bayombong to Bambang, has been constructed and is ready for energisation. The new direct connection line is expected to be complete by the first quarter of 2022. It is estimated there will be a 23% power cost reduction at Didipio following direct connection to NGCP Bayombong.

18.3 Sewage

Sewage from the project site is piped to a site-based sewage treatment plant, whereas sewage from small, isolated locations is held in holding tanks and then transferred to the sewage treatment plant. Sewer pump stations, septic tanks and leach fields are located in the camps.

18.4 Refuse Disposal

As a commitment, the company complies with its ECC. Best practices in waste management include:

- Refuse wastes generated by the operation are disposed into a category II type sanitary landfill which caters for both biodegradable and residual wastes;
- Recyclable wastes are housed in a Material Recovery Facility operated by the local corporation (Dicorp). Scrap metals generated are temporarily housed in a metal scrap yard. Collection is carried out via communication to local waste bidders;
- In compliance with the Environmental Compliance Certificate, specifically hazardous waste management, hazardous waste (used oil, lubricants etc.) being generated is temporarily stored in individual hazardous waste storage areas;
- A centralized hazardous waste area is scheduled for construction within the next six months. These wastes are being sent out to DENR accredited transporters and hazardous waste treatment facilities for final disposal and treatment in accordance with the Philippine Government Regulations; and
- Waste management policies implemented on site utilise the principles of reuse and recycle. Hazardous waste including hydrocarbons (used oil and lubricants), reagent packaging and batteries, among others are collected from site by an accredited hauler and treater by the DENR.

18.5 Accommodation

Single-status accommodation is available in a central camp for all personnel recruited from outside the Didipio area. The accommodation consists of varying standards of sleeping quarters, with their allocation based upon the role of the employee.

The styles of permanent operational accommodation and the numbers of buildings are as follows:

- 550 Person Camp:
    - Senior management/VIP accommodation – two single bedrooms with a shared lounge area,
    - Senior staff accommodation - 48 single bedrooms with ensuite;
    - Junior staff accommodation – 84 bedrooms with shared ensuite;
    - Junior shared staff accommodation - 36 bedrooms with shared ensuite;
    - Rank & File staff accommodation – barracks-style accommodation with shared ablutions block for 288 beds;
    - Kitchen and mess hall suitable for approx. 600 persons, 240 per sitting;
    - Camp office for contractor (Dicorp);
    - Guard House;

  - Camp laundry;
  - Recreation room which includes training room and music room;
  - Coffee Shop (Teamco-Employee Cooperative);
  - Gym;
  - TV Block for the Rank and File staff;
  - Administration Office (OGPI staff);
  - Medical clinic; and
  - Emergency generators.
- 150 Person Camp:
  - Senior staff accommodation - 32 single bedrooms with ensuite;
  - Junior shared staff accommodation - 104 bedrooms with shared ablutions;
  - Rank & File staff accommodation – barracks-style accommodation with shared ablutions block for 90 beds;
  - Recreation room/TV room;
  - 2x Administration Office (OGPI staff);
  - Camp laundry and linen storage; and
  - 1x Emergency Response Team ("ERT") office and equipment storage.
- CCO Camp:
  - Senior staff accommodation-two single bedrooms with ensuite;
  - Junior shared staff accommodation-20 bedrooms with shared ensuite;
  - Rank and File staff accommodation – barracks-style accommodation with shared ablutions block for 320;
  - Kitchen and mess hall suitable for approx.350 persons, 160 per sitting;
  - Camp laundry and linen storage;
  - Recreation Room;
  - Guard House; and
  - Emergency generators.
- Other Buildings within the Site:
  - Guard House at main gate, and
  - Sewage treatment plant for all three camps.

The camp is operated by a Dicorp, whose role includes providing meals, cleaning duties for the camp buildings, cleaning duties for the mine site buildings, laundry services, provision of linen, cutlery etc. The site G&A costs include the accommodation camp operating costs.

18.6 Bulk Waste

The tailings storage facility has been constructed approximately 1km to the west of the open pit on a tributary creek to the Dinauyan River and consumed most of the generated open pit mine waste. The site chosen for the TSF has a relatively small rainfall recharge and allows the main river to flow by the facility.

In addition to the TSF embankment, open pit mine waste is placed in the valley between the TSF and the mine, in effect buttressing the downstream embankment of the TSF.

18.7 Port Facilities

The existing copper concentrate storage and shipment facility at Poro Point is sufficient to handle the concentrate shipments from the Didipio operation. The shipment entails a 365-kilometre truck haul over an existing well maintained sealed pavement national highway, prior to storage at the port. The storage facility has capacity for 12,000 tonnes of concentrate.

18.8 Personnel

Manning profiles were derived from the following sources:

- Assessment of labour requirements from first principles;
- Contractor's assessment of labour requirements; and
- Operational experience.

Currently there are expatriate positions on site now that a steady-state operation has been achieved. The site satisfies the requirements for localisation under the FTAA.

Where possible, recruitment, particularly of mining and processing plant personnel, will be from the local area. Contractors servicing the project will be obliged to follow a similar employment policy

The FTAA sets out targets for localisation, which requires up to 100% Filipinos in unskilled, skilled and clerical position and up to 60% Filipinos in professional and management positions.

18.9 Sufficiency of Surface Rights

The company has acquired, through voluntary agreements, the surface rights to all the land required for the project for the foreseeable future. If a requirement arises for some additional area in the future due to any alteration to the project design, it is not anticipated to result in a material impact on the capital cost required to sustain the operation.

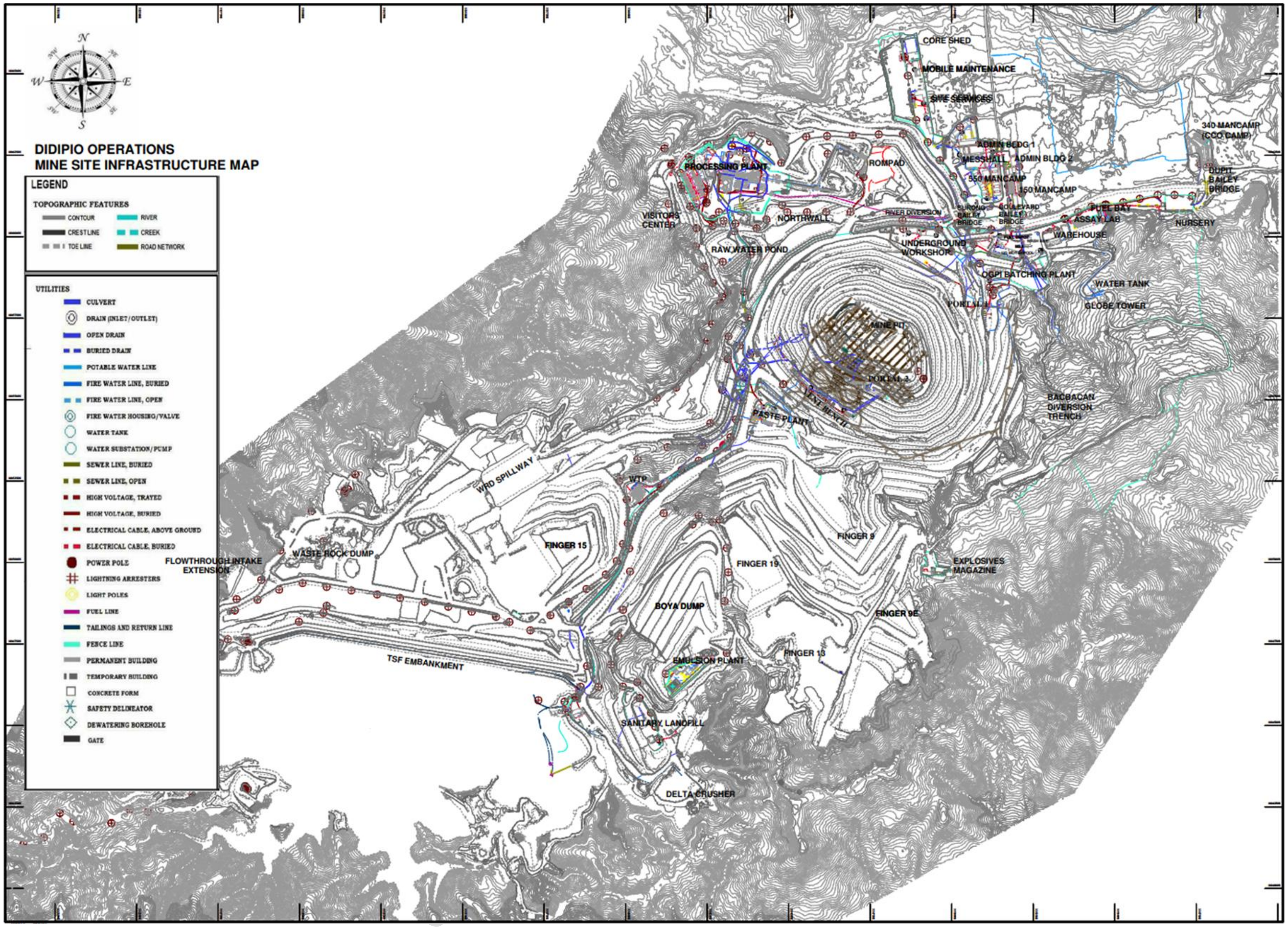


Figure 18-1: Didipio Site Plan November 2021

18.10 Tailing Storage Facility (TSF)

18.10.1 TSF Development to 2801mRL and Flow Through Drain (FTD) with the Waste Rock Dump (WRD)

To meet the tailings storage requirement at the Didipio operation in 2022, expansion of the existing 2797mRL TSF to 2801mRL is required. With the planned raise, it is forecasted to increase total current storage capacity of 22.8Mm^3 to 26Mm^3.

To facilitate for the construction of the TSF embankment to 2801, clay borrows and rock sources according to specifications had been identified. The Waste Rock Dump built in 2017 will be the major source for the rock while clay will be extracted from the perimeter of the TSF impoundment area which are planned for progressive tree cutting on an as required basis.

TSF raise to 2801mRL is expected to start in February 2022 adapting a stage approach with respect to the result of the LoM study and is planned to be completed by Q4 2022. Further TSF lifts will also be part of the GHD LoM Study for TSF Construction which is to be completed by end of year 2021.

18.10.2 TSF Design Review

GHD (Australia) completed a review in 2019 of the 2019 planned production forecast which showed the forecast tailings tonnages have increased since the 2014 study.

Associated works includes update of tailings management, update closure spillway design for the revised crest height. Based on the results of the tailings deposition schedule as shown in Table 18-1, a raise height schedule was completed\.

Table 18-1: GHD 2019 TSF Deposition Schedule

Date	DMT (Tonnes)	Cumulative (Tonnes)	Paste DMT/year (Tonnes)	Paste Cumulative (Tonnes)	Tails to TSF/year (Tonnes)	Tails to TSF Cumulative (Tonnes)
Dec-21	330,619	330,619	63,619	63,619	267,000	267,000
Dec-22	3,464,236	3,794,855	253,322	316,941	3,210,914	3,477,914
Dec-23	3,459,835	7,254,690	308,213	625,154	3,151,622	6,629,536
Dec-24	3,459,398	10,714,088	322,515	947,668	3,136,883	9,766,420
Dec-25	3,438,890	14,152,978	323,928	1,271,596	3,114,962	12,881,382
Dec-26	3,442,438	17,595,416	375,959	1,647,555	3,066,479	15,947,861
Dec-27	3,469,662	21,065,078	351,768	1,999,323	3,117,894	19,065,755
Dec-28	3,475,601	24,540,679	368,592	2,367,915	3,107,009	22,172,764
Dec-29	3,474,056	28,014,735	380,173	2,748,087	3,093,883	25,266,648
Dec-30	3,456,274	31,471,009	368,115	3,116,202	3,088,159	28,354,807
Dec-31	3,478,447	34,949,456	360,354	3,476,557	3,118,093	31,472,899
Dec-32	3,503,819	38,453,275	385,819	3,862,376	3,118,000	34,590,899
Dec-33	3,485,021	41,938,296	378,254	4,240,630	3,106,767	37,697,666
Total	**41,938,296**		**4,240,630**		**37,697,666**	

Two options were developed to calculate earthworks requirements from RL 2798m to RL 2820m. The common features include a final crest width of 17.0m nominated by OGPI as the minimum required, downstream slope of 1V:2.5H to meet closure stability and removal of the zone 3C on the upstream face.

The current Zone 3C material being used is rockfill, this provides a permeable zone upstream of Zone one clay which introduces a risk of rapid hydraulic loading should the pond reach the embankment. Due to not needing significant clay raises above the tailings beach, the 3C zone is no longer required for stability and only provides an access for construction. Removal of Zone 3C and shifting the Zone one clay upstream provides the following benefits.

- Removes permeable zone ensuring tailings beach is in contact with clay, reducing phreatic surface and risk for full hydraulic load on clay in case flood events reach the embankment; and
- Moves zone one upstream allowing a higher dam for the same crest alignment.

The move to this arrangement requires a zone 3C to be replaced with clay until the design slope is reached which 'seals off' the existing Zone 3C. Then once the minimum profile is reached a 10m wide (hoz) at 2.5H:1V or equivalent normal width at 2H:1V will be constructed (dependant on the options discussed below). A tailings pipeline bench will be built using Zone 3C approximately 3m width, these will be small enough such that they are discontinuous on the upstream face and tailings can effectively 'seal off' the permeable pipe benches.

The 2014 Didipio Optimisation Study, resulted in a TSF crest height of RL2812m, for which the downstream shell of the TSF has already been constructed. The GHD 2019 proposed construction schedule is shown in Table 18-2. The modification for the 2019 LoM tailings storage to RL2820m requires additional downstream rockfill. This rockfill requires rehandling from the adjacent waste rock dump.

Table 18-2: GHD 2019 TSF Proposed Construction Sequence

Year	Infrastructure
2019	Relocate Power lines at the west abutment to prepare foundation and extend the west embankment construction in early 2020.
	Raise existing coffer dam public barangay road Q3 to suit pond level at EOY 2020 at RL 2796m
2020	Construct RL 2812m public access road / decant access road.
	Raise powerline and tails pipeline to allow foundation preparation of west and east abutments (Q1).
	Power lines realigned to 2812m road.
	Move TSF office/laboratory Q4 (post TSF Raise construction, could be deferred to Q1 2021)
2021	Construct perimeter tails pipe access road (Q1, could be Q3 2019 before wet season).
	Cease tails deposition to west Q3. Move decant Q3 2021.
	Commission west public (pilot road), realigned.
	Raise west abutment to suit pilot/public road.
	Remove public access to decant pipes/tank infrastructure.
2022	Commence perimeter discharge Q1.
	Beach developed Q4 mostly along perimeter discharge.
2023	Design for closure spillway to be submitted for regulator approvals and application of tree cutting permits for spillway/road.
2025	Raise perimeter road Q2 to suit RL 2820m requires tree permit.
	Update tailings pumps.
2026	Cut closure spillway if RL2812m end of LOM . It can deferred if dam will built to RL 2820m.
	Source TSF of borrow bring forward if need.
	Requires tree clearing permit beyond RL 2812m.
2028	End of LOM if the mill will not process the low grade stockpiles.
	TSF closure work to commence.
2031	End of LOM if the mill will process the low grade stockpiles.
	TSF closure work to commence.

A review of the 2019 LoM plan is currently underway to reflect all project changes post-FTAA renewal to realign all timelines and schedules. This is expected to be completed by the end of year 2021 and recommendations finalized in Q1 2022.

The current design of the TSF will allow the storage of the current reserves and additional capacity beyond this exists should additional resource conversion prove successful.

18.11 Core Shed

A new core shed has been constructed at Didipio site to meet core storage requirements and needs of exploration personnel.

18.12 Water Treatment Plant

The major component of the Water Treatment Plant is the 34m Clarifier circuit that was constructed to treat the decant water from the TSF using coagulant and flocculent reagents to reduce the total suspended solids

("TSS") prior to discharge into the Dinauyan river. Clarifier underflow solids recycle and flocculent is added to bind and settle the solids impurities which are then discharged back to the TSF.

18.13 Underground Infrastructure

Underground infrastructure is covered in Section 16.14.

18.14 Site Water Management

A comprehensive discussion of the site water management process is covered in the Water Management Plan ("WMP") which covers the surface and underground operating processes and strategies for efficient, effective and safe management of the related infrastructure and systems within the Didipio operation. The WMP is reviewed and updated annually to ensure that the quality of any site discharges do not adversely affect the ecology of the receiving river system, the following key elements are implemented within the Didipio Operation are shown in Figure 18-2 and Figure 18-3:

- Clean water characterised by natural seeps, creeks or water course within the mine footprint are diverted directly into the major rivers through the drainage systems;
- All water from areas disturbed by mining activities (haul roads, stockpiles/waste rock dumps, borrow pits, OP and UG) are directed towards sedimentation ponds before discharged offsite; and
- All excess water from the Process Plant is pumped to the TSF. The water from the TSF is recycled back to the Process Plant and the excess water treated at the Water Treatment Plant are directly discharged.

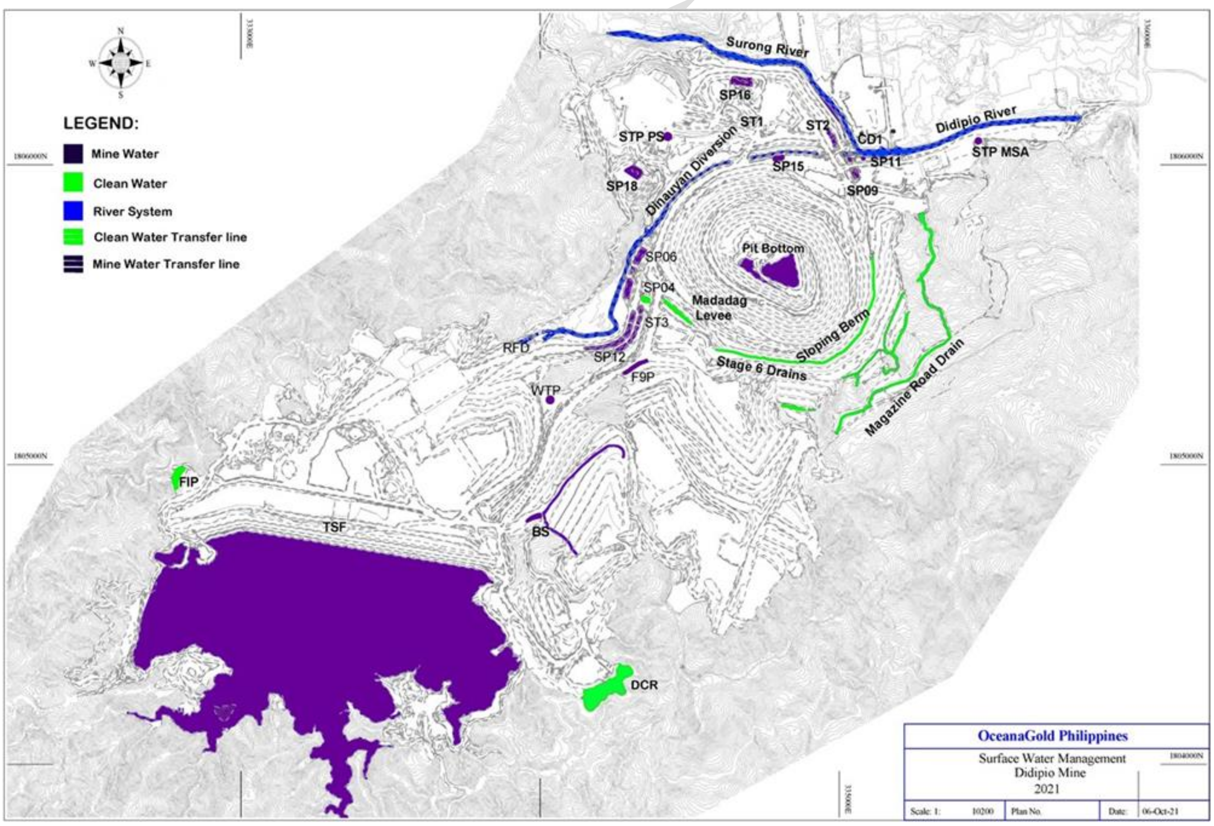


Figure 18-2: Location of Facilities and Infrastructures for Surface Water Management

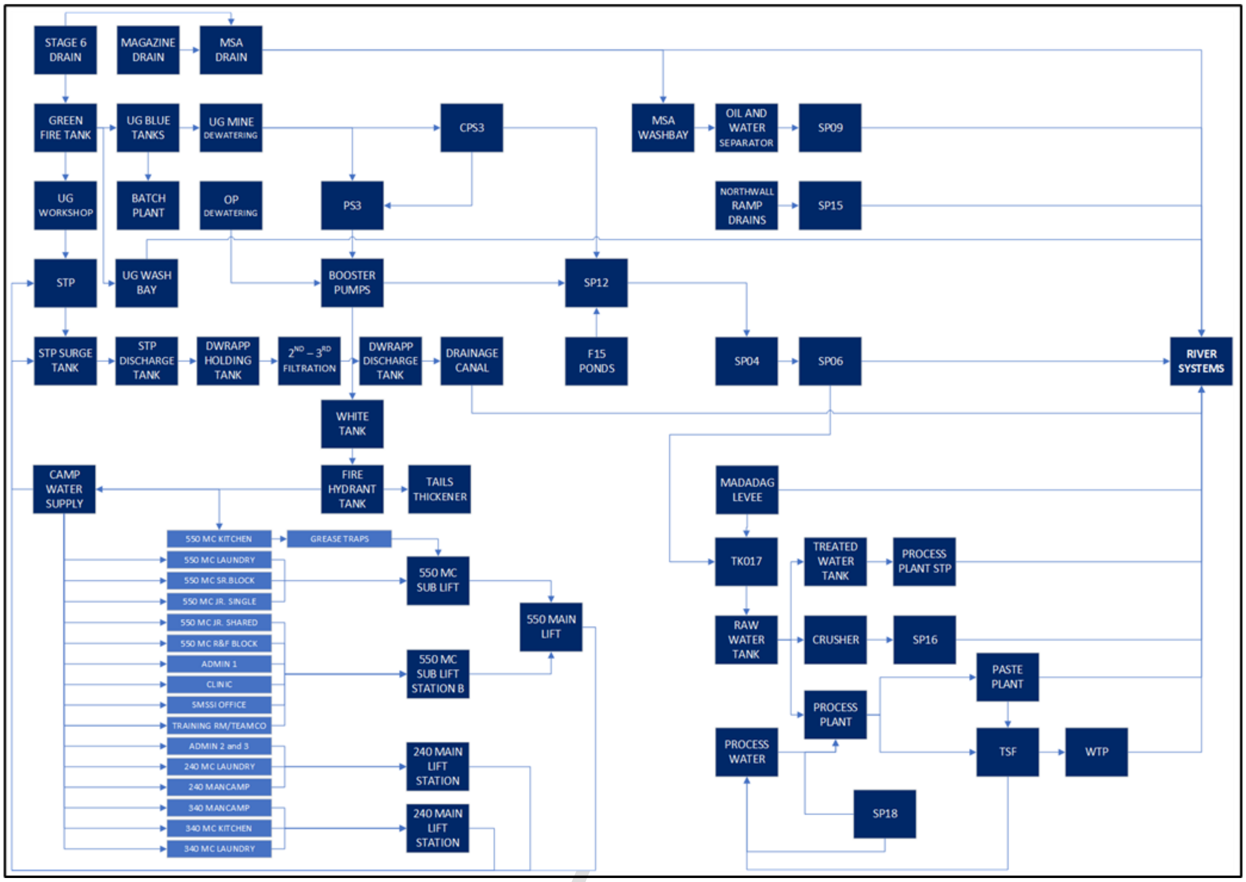


Figure 18-3: OGPI Didipio Mine Water Distribution Schematic Diagram

18.14.1 Tailings Storage Facility

The TSF is the repository of process plant slurry (solids and water) tailings throughout the LoM. 30% of the water requirement of the process plant is provided by the TSF recycled water (with around 60% of plant water being recycled internally within the plant prior to discharge to the TSF). During the wet season, large volumes of surface water runoff reports to the TSF. To maintain the 7m freeboard level of the TSF, TSF water is pumped to the WTP for treatment prior to discharge to Dinauyan River. If TSS at the Header Tank are below the standard limit of 70ppm which is common during dry season, the TSF water can be discharged to the Dinauyan River. There is normally no flow to overflow spillway, as a freeboard of 7m is maintained. Of the total 6.7Mm^3 of TSF water pumped out in 2017, 71% was treated in the WTP, 28% was discharged directly to river and 1% recycled to the process plant.

OGPI has committed to improving water recycling to lower the consumption from natural water sources such as the Madadag creek and groundwater production bores. Post commissioning, raw water from natural sources was used to make-up the balance of the plant process water requirements as shown in Figure 18-4. To reduce requirement on clean water sources for raw water make-up, a second return water line from the TSF to the Process Water Tank ("PWT") was installed, this approximately doubled the flow available from the TSF and increased the recycling of process/raw water block to 90% (internal plant recycling via the thickeners) and overall recycling effort to 79% (excludes thickener recovery so is a measure of recycling effort external to the plant).

Since 2018, an additional 30-50L/s of raw water is required for the operation of the Paste Plant. The source of this water is the Mine Dewatering Tank ("MDT"), which is supplied with a combination of groundwater production bore and OP/UG water.

In 2019, underground mine discharge was recycled to supply the mine dewatering tank and was used in the Process Plant. UG discharge was treated at Sediment Pond 12 (SP12) and further cleaned at Sediment Pond 06 (SP06). At SP06, pump and pipes were installed to supply the mine dewatering tank ("MDT"). This development helps to lower the natural water source consumption and provide alternative source of water supply in the event of extremely low raw water supply.

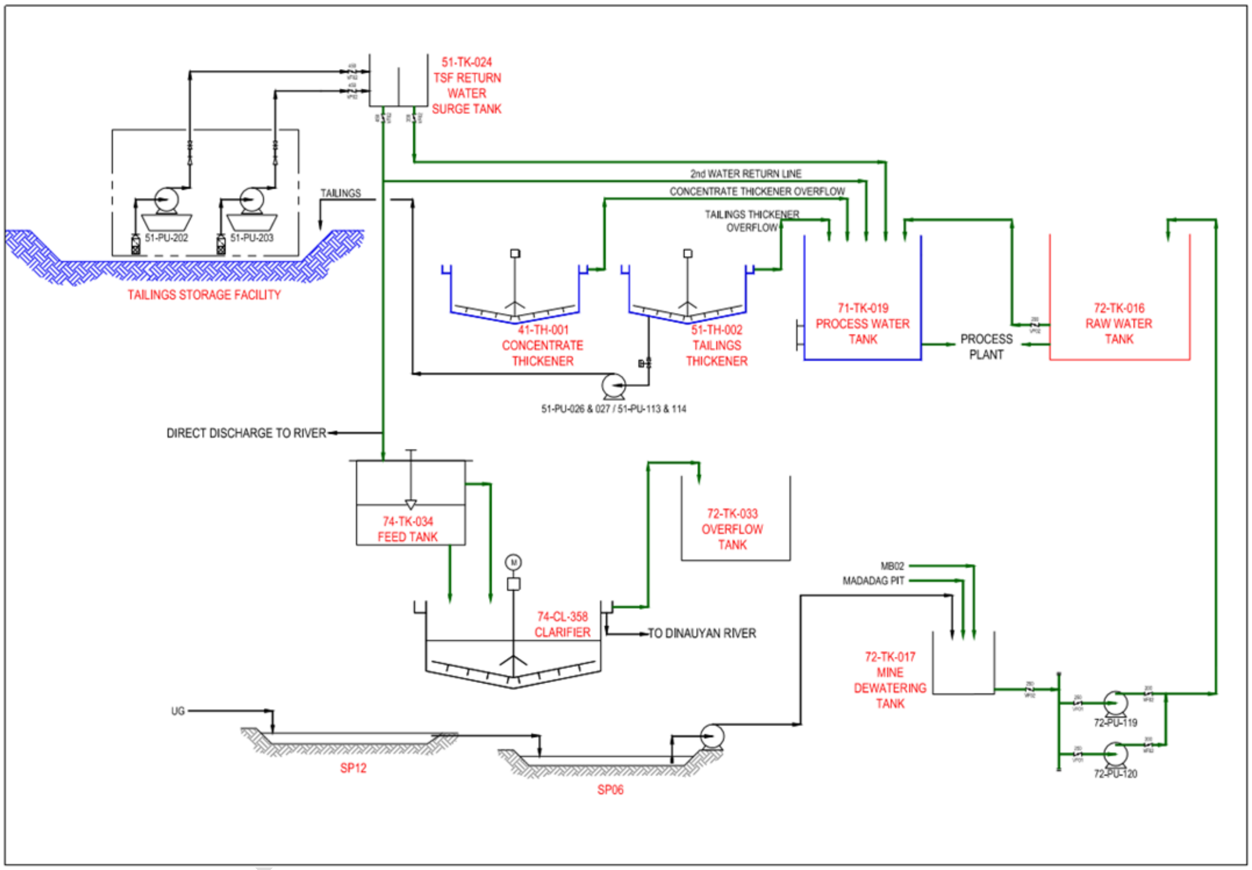


Figure 18-4: Schematic Diagram of Process Plant Water Balance

Recycled water is used for ~90% of all functions at the plant as shown in Figure 18-4. Raw water is solely used for non-potable supply to safety showers, ablution blocks, gland water, gold room processing, reagent mixing and for filtration where clean water is required, highlighting the commitment to recycling water and reducing reliance on raw water.

18.14.2 Water Treatment Plant (WTP)

The Water Treatment Plant has been designed to treat TSF decant water prior to discharge to river by reducing the suspended solids to an allowable limit of 70ppm or lower. WTP feed source comes from the TSF header tank and is gravity fed to the WTP feed tank and then into the feed well of the 34m diameter WTP Clarifier. To reduce the incoming feed TSS concentration, coagulant is dosed into the TSF decant water before going into the feed tank to neutralise the strong surface charge of colloidal particles which leads to the particles remaining in suspension. Flocculant is then added prior to the Clarifier feed well together with the underflow solids recycle to bind and settle the solids impurities.

The flocculated slurry settles to form a bed surface with a well-defined interface with clarified liquid above it. The thickened slurry from the Clarifier underflow is recycled back to the feed tank to increase and maintain the required feed density and enhance the contact between the polymeric flocculants and the fine suspended solids in the feed stream. To reduce the bed of solids down to the lower limit as indicated by the bed pressure transducer, the thickened slurry is discharged to the TSF.

The treated water containing the permissible TSS level flows to a peripheral collection launder at the top of the clarifier and is then discharged into the Dinauyan River. This water is also collected in the overflow tank and is utilized for pump gland seal, flocculant mixing, flocculant dilution and as flushing water in the WTP.

18.14.3 Sewage Treatment Plants (STP)

There are two sewage treatment plants ("STP") at the operation:

- Plant STP (Single module) This treats wastewater and sewage from the Process Plant ablution blocks; and
- Mine Services Area (MSA) STP (four modules) This treats wastewater and sewage from the 550 and 150 person camps, CCO and the buildings along the MSA.

The flow coming from the sewerage tank is discharged into pre-aeration tank and divided into four streams. Each module has its own transfer pump in the pre-aeration tank, plus one spare pump, which can be utilised for any of the modules by valve settings. The extended aeration process makes use of biological processes to remove organic matter from sewage, thereby purifying it before it is returned to the river system.

18.14.4 Open Pit Water Management

Surface Water Drains

The surface water drains have been constructed to divert clean water runoff from seeps and streams that occur around the mine. These are constructed using a combination of clay lining, rock armour, concrete, HDPE liner, reinforced concrete pipe ("RCP") culverts and transfer pipelines. Several LoM surface drains have been installed along the perimeter of the open pit to minimise rainfall runoff entering the pit area. Listed below and shown on Figure 18-2 are the main drainage structures:

- Magazine road drain (clay-lined earth drain);
- Stage six drains (concrete and HDPE liner);
- MSA drain (concrete);
- Madadag levee (clay-lined and rock armoured);
- Sloping berm drain (concrete); and
- Dinauyan River Diversion (GHD/Engineering concrete design).

Drains and river diversion inspections are conducted on a weekly basis to ensure that they are functioning correctly. Inspections are also conducted following high rainfall events (e.g., typhoons) to check the structural integrity of the drains and assess if repair works need to be completed.

Sediment Ponds

Didipio operation has implemented a number of sediment ponds to treat surface runoff from haul roads and slopes. Surface water drains along roads are designed to intercept water and direct it towards the nearest sediment pond before discharge into the river system. Several sediment ponds serve as both runoff and mine dewatering discharge points. OGPI has two discharge locations for treated mine water, namely SP06 and SP09 shown in Figure 18-2.

A total of eleven sediment ponds have been commissioned and are used for desilting of mine water and to accommodate surface runoff in active work areas as summarised in Table 18-3. Majority of these sediment ponds are sealed using a combination of clay/geofabric and rock armoured using locally sourced material. During the wet season and high rainfall occurrences, continuous maintenance of sediment ponds is required due to large volume of sediment-saturated water passing through the ponds. Desilting and repairs are required to preserve the state of the ponds. Maintenance frequency during the dry season is reduced.

Contingency ponds are emplaced to capture process wastewater at the mill SP18 (Process Plant Run Off Pond), while SP05 (Emergency Tailing Discharge Pond) serves as an emergency impoundment for tailings during the maintenance of TSF pipelines.

Table 18-3: Sediment Ponds at The Didipio Operation

Sediment Pond	Volume Capacity (m3)	Status
ROM Pad (CD1)	37	Constructed
Mother Pond (SP04)	5,804	Constructed
Polishing Pond (SP06)	2,201	Constructed
UG Silt Ponds (SP09)	1,288	Constructed (planned upgrade)
Green Tank (SP12) – upper ponds	2,477	Constructed (planned upgrade as part of the Arsenic Treatment
Green Tank (SP12) – lower ponds	4,214	XXXXXX
UG Cement Ponds (SP15)	418	Constructed (planned upgrade)
Primary Crusher Pond (SP16)	84	Constructed
Emergency Discharge Pond (SP05)	373	Constructed
Process Plant Runoff Pond (SP18)	3,182	Constructed
Finger 9 Pond (F9P)	862	Constructed
Boya Sump (BS)	476	Constructed

18.14.5 Underground Water Management

Underground

The underground water is collected in a series of sumps to allow the sediment to settle out. The overflow from these sumps is reticulated to the underground pump station and pumped to surface. Because the underground water has elevated levels of Arsenic the underground water will be pumped to the Arsenic Treatment plant (“ATP”) for treatment.

Arsenic Treatment Plant

The Didipio ATP is designed to treat underground mine water. The facility will have a capacity of around 15million m³/annum. It will be built in the existing three ponds shown on Figure 18-3.

- Treatment Pond, SP12;
- Monitoring Pond, SP04 (5,804 m³); and
- Compliance/Buffer Pond, SP06 (2,201 m³).

The treated water will be directed to an intake at the compliance/buffer pond and will be transferred by gravity through a 630mm pipeline and discharged into the Class D Didipio River as shown in Figure 18-5.

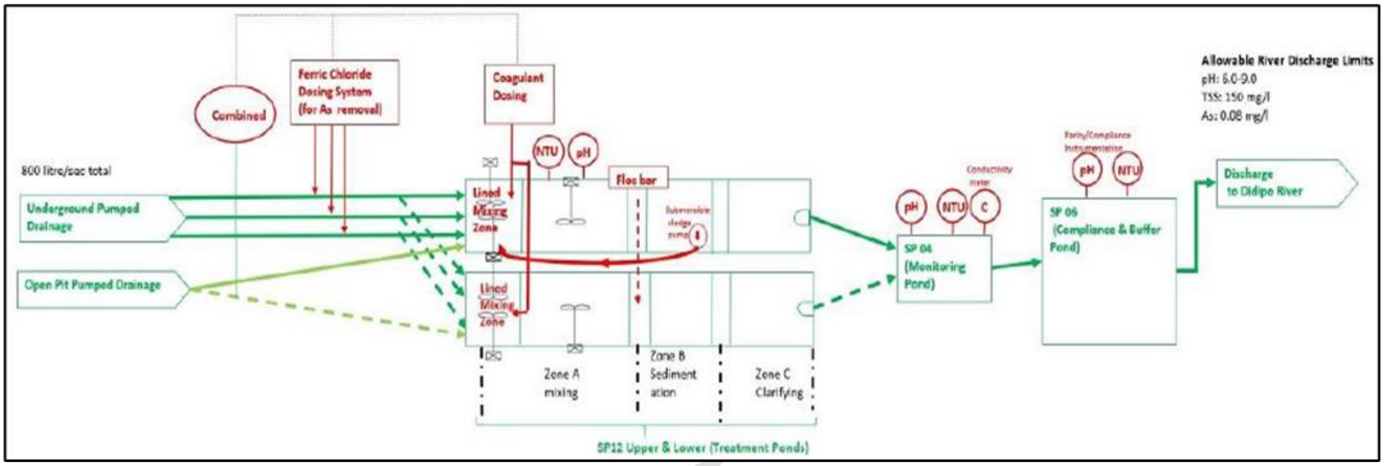


Figure 18-5: Flow Sheet of the Didipio ATP

To ensure that the equipment and instruments are in satisfactory operating condition, scheduled maintenance tasks will be performed on a weekly/monthly basis or depending on the number of run hours. Reporting will be based on the discharge permit that will be issued upon the completion of the construction of the ATP.

In the event of increasing discharge as value, reagents are adjusted, and reagent flows are checked for any blockages. If discharge as value is still above the allowable limit despite reagent dosage adjustments, UG personnel will be contacted for possible stoppage of underground mine water pumping until issues are resolved. Construction of the facility is anticipated to be completed by the end of 2022.

18.15 Site Communications

The site maintains terrestrial communications links with a fibre optic cable following the 69kV OHPL to Bambang and a microwave link to Cabrroguis to join the Globe Telecom network. A satellite based data link is also available providing additional redundancy.

Onsite facilities are connected via fibre optic cables to the underground, workshops, process plant and camp areas. Cellular phone coverage for the site and local communities exists.

19 MARKETING STUDIES AND CONTRACTS

19.1 Mining

Delta provides a comprehensive civil works and ancillary services to the Didipio operation under an industry standard contract with OGPI. The contract covers the provision of equipment and manpower to support the TSF construction, maintenance of haul roads and drainage systems, rehandling of stockpiled ore, crusher feeding and various projects around the mine.

Provision of services in support of the TSF annual raise includes rental of equipment and manpower and supply of aggregates material sourced from the Delta crushing plant located on site.

The underground mining fleet is owned by OGPI, with the majority of the equipment acquired from Sandvik. OGPI has a contract with Sandvik for the provision of supplies and services. The contract expired on December 31, 2020, however a new contract is in the process of being finalized.

SGS provides laboratory services whilst the camp is operated by Dicorp.

19.2 Processing

OGPI owns the on-site processing plant and undertakes all processing directly. Supply contracts with a typical term of one year are in place for a range of the main reagents, grinding media and other consumables used in processing the ore. These supply contracts set prices or contain mechanisms for the setting of prices for the relevant commodities under terms and conditions which generally comply with industry norms.

19.3 Transportation and Refining of Bullion

A contract currently is in place with Western Australian Mint (Perth Mint) for the refining of doré bullion into fine gold and silver for sale. The contract commenced in March 2013 and had an indefinite term, but subject to termination by either party. This contract sets a range of prices and surcharges for refining the doré under terms and conditions which generally comply with industry norms.

A review of the Refining Agreement that commenced in 2021 identified a new refinery option, ABC Refinery. Transitioning to ABC Refinery is now underway and will result in approximately AUD$50k per annum savings in refining charges and a higher metal return. There will also be a saving in transport charges as ABC are located on the east coast of Australia compared to the Perth Mint in Western Australia. Bullion transport will remain with Brinks.

In consideration of the 2021 renewal of the FTAA, Didipio Mine will offer for purchase by the Central Bank of the Philippines not less than 25% of the annual doré production of the Didipio Mine at fair market price and pursuant to the terms and conditions as may be agreed upon by both parties.

Perth Mint, ABC Refinery and Bangko Sentral ng Pilipinas (“BSP”) are accredited with the London Bullion Market Association (‘LBMA’’) and operate to the policies and procedures consistent with LBMA Standards to prevent contributing to conflict, human rights abuses, terrorist financing practices, and to combat money laundering.

19.4 Transportation and Sales of Copper/Gold Concentrate

In October 2012, OGPI signed a off-take agreement with Trafigura Pte Ltd (as Buyer) and Trafigura Beheer B.V (as Guarantor) (collectively "Trafigura") for the sale of copper concentrate from the Didipio operation. Trafigura is a leading international commodities trader, specialising in the supply and transport of concentrates. Trafigura owns and operates concentrate storage facilities worldwide which support OceanaGold's trading activity. The key terms of the off-take agreement, as amended and restated, are:

- 100% of the Didipio gold-copper concentrate production is sold to Trafigura under a pricing formula, including treatment / refining charges, that is considered competitive in world markets;
- The offtake was for a term of five years beginning April 4, 2013 and was renegotiated in February 2021 for a further two years;
- Trafigura takes delivery of the gold-copper concentrate at the delivery point, which is currently the warehouse at Poro Point, La Union; and
- While Trafigura was initially responsible for the land transportation from the mine site to the port, the agreement was amended such that OGPI is now responsible for the land transportation of the concentrates with its own fleet of trucks. OGPI continues to engage the community corporation and other local contractors to provide additional trucks and in 2022 will transition from owner-operator to contractor haulage from the mine site to port.

19.5 Power Supply

For the first five years of operation, the Didipio gold-copper mine was planned as a conventional truck and shovel open pit targeting the mineralised rocks of the Didipio Igneous Complex. The required power demand during open pit mine operations was approximately 10MW (Megawatts) and was supplied by on-site diesel power generation which consisted of 14 x 1.3MW individually enclosed diesel generators. With the operation now transitioned to underground, the power demand is approximately 18 to 22MW.

At the end of 2015, a power line connecting Didipio to the Luzon electricity grid was commissioned resulting in a large reduction in diesel cost and usage. Didipio operations have been connected to a 69kV Luzon electricity grid NGCP by a 66km HV overland single power line from NUVELCO Bambang Metering Station to the new incoming substation located near the existing Didipio site diesel power station.

Since November 2015, the Didipio mine site has been operating on National Grid Power as its main operational power supply with the on-site diesel power generation as an emergency backup power supply. A new 25MVA high voltage transformer was installed as part of a new incoming HV Sub-station to step down the 69kV National Grid Power to the Didipio mine site voltage of 13.8kV. The power from the new incoming substation now feeds into the original power station substation from where power is distributed to the main consumers on-site at 13.8kV.

The Didipio Mine proposes to have a direct connection of 69kV power line to the NGCP Bayombong and discontinue the use of Nueva Vizcaya Electric Cooperative, Inc Bayombong-Bambang 69 kV Power Line. The feasibility study of this proposal is already approved by the DOE. A design and construction project for The NGCP direct connection, which will include an additional 17km of OPHL from Bayombong to Bambang, is already constructed and ready for energisation. The new direct connection line is expected to be utilised in the first quarter of 2022. It is estimated there will be a 23% saving in power costs resulting from a direct connection to NGCP Bayombong.

19.6 Fuel Supply

OGPI has an arrangement with Petron Corporation ("Petron") for the supply and delivery of diesel for use in mining activites, power generation, and general vehicle and equipment use at the Didipio operation. Under the contract, Petron delivers fuel to the Didipio site into OGPI's modular, transportable "Transtank" brand fuel-farm consisting of two 60,000L tanks and two 12,000L tanks. The contract contains a pricing scheme based on international fuel-oil pricing and is consistent with industry norms.

19.7 Supply of Explosives

Orica manufactures and supplies bulk emulsion, initiating and packaged explosives and provides associated "down-the-hole" loading services under a contract for a term of five years that commenced in March 2012. In 2021 the contract was rolled over and extended into 2022 until a full tender review can be completed.

The site-based emulsion manufacturing facility is owned, operated, licensed and maintained by Orica, and will be removed from site at the completion of the contract. The site-based magazines for storage of initiating and packaged explosives are owned, licensed and maintained by OGPI.

Pricing for the explosives and associated services supplied under OGPI's contract with Orica is based on a mix of fixed charges and unit rates, with price adjustment clauses, and the contract is reflective of industry norms.

19.8 Project Financing

There is no external third-party project financing in place for the Didipio operation. The Didpio operation is funded out of operating revenues and a loan with an OceanaGold group entity.

19.9 Gold Hedging and Forward Sales

There are no hedge contracts in respect of production from the Didipio operation. Refer to Section 19.4 for a description of the gold/copper concentrate off-take arrangements.

19.10 Market Studies for Gold and Copper

OceanaGold Corporation Executive Management committee (EXCO) annually sets its gold, silver and copper prices to be used in Annual Mineral Resource and Reserve statements and technical studies. The prices used in this study where set by EXCO in September of 2021 and refined in early 2022.

20 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.1 Permitting

20.1.1 Permits Required

The Didipio operation holds the permits, certificates, licences, and agreements required to conduct its current operations. Refer to Section 4.9.1 for a list and discussion of the most materially significant of these.

20.1.2 Main Environmental Permits

OGPI is required to ensure that mining activities are managed in a technically, financially, socially, culturally and environmentally responsible manner. The DENR requires an Environmental Compliance Certificate ("ECC") for any mining activity based on an Environmental Impact Statement ("EIS") prepared by the company in accordance with procedures stated under Presidential Decree No. 1586 or the Philippine Environmental Impact Statement System ("EISS"). An ECC obliges the company to comply with a comprehensive set of conditions, including submission and implementation of an Environmental Protection and Enhancement Program ("EPEP") and Final Mine Rehabilitation and/or Decommissioning Plan ("FMR/DP") for the LoM. The EPEP forms the parent document for the development and implementation of Annual Environmental Protection and Enhancement Program ("AEPEP"). As an operating condition, OGPI is required to allocate 3-5% of its direct mining and milling costs for EPEP implementation.

The Philippine EIS System and the Implementing Rules and Regulations of the Mining Act (DENR Administrative Order No. 2010-21) regulate a funding structure to ensure company's compliance with its commitments and ensure immediate funding in the form of Environmental Guarantee Fund ("EGF"), Mine Rehabilitation Fund ("MRF"), and Final Mine Rehabilitation and Decommissioning Fund ("FMRDF") is available for rehabilitation in the event of environmental damage during mining operations. These funds are held in a government depository bank and administered by the Contingent Liability and Rehabilitation Fund Steering Committee ("CLRFSC").

Under the Mining Act, OGPI is also required to make a minimum contribution of 1.5% of its operating costs annually during mining operations for the development of the host and neighbouring communities under a Social Development and Management Program ("SDMP"). The SDMP provides for the advancement of mining technology and geosciences, development of information, education, and communication programs. Of the1.5%, 75% must be apportioned to the implementation of the SDMP.

In the Addendum and Renewal Agreement of the FTAA, OGPI is mandated to allocate additional funds to a Community Development Fund ("CDF") and Provincial Development Fund ("PDF") equivalent to 1% and 0.5% respectively of its gross mining revenue of the preceding calendar year. These funds contribute to the sustainable social, economic, and cultural development of the communities in the region.

Environmental Compliance Certificate (ECC)

The current revised ECC (No. ECC-CO-1112-0022) issued on December 10, 2012, covers the full 975 ha area covered by the Partial Declaration of Mining Feasibility (PDMF).

The revised ECC specifies the project mining methods, production rate, processing methods and other aspects of the mining operation on which it is based. Following its revision in 2012, a Utilisation Work Program was submitted to the DENR on March 27, 2013, to cover the first three years of commercial production. Thereafter, OGPI continued to submit three Year Utilisation Work Programs with the last one being valid until March 2022. The ECC allows for activities including (but not limited to):

- Mine facilities including the open pit and underground mine workings;
- Milling and processing plant;
- Tailings storage facility;
- Waste rock dumps;
- Activated sludge sewage treatment plant;
- Explosive mixing and storage facility;
- Powerhouse (diesel powered generator sets up to 16 MW);
- Road networks;
- Administration and housing facilities; and
- Other support facilities and infrastructures.

On July 4, 2016, OGPI requested for the amendment of the ECC to increase its throughput from 3.5Mtpa to 4.3Mtpa. The application, however, was impacted by the moratorium under DENR Memorandum Order No. 2016-01 which also includes the processing of any ECC related applications. Following issuance of the DENR's clarificatory memorandum dated December 22, 2017, eliminating the processing of ECC applications from the coverage of the moratorium, the ECC amendment application was resubmitted on February 19, 2018, and the first review was completed on January 21, 2019, followed by the conduct of the public hearing on March 7, 2019. Subsequently, the Environmental Impact Assessment Review Committee ("EIARC") completed the review of ECC amendment application and endorsed the approval thereof. After the confirmation of the renewal of the FTAA, the EIARC conducted final deliberation of the ECC amendment in September 2021 and is now awaiting review and/or approval by EMB under the authority of the DENR Secretary.

Environmental Protection and Enhancement Program (EPEP) and the Annual Environmental Protection and Enhancement Program (AEPEP)

An EPEP is a regulatory requirement and involves a conceptual environmental management plan for the LoM, including an estimated total cost. An EPEP was approved by the Mines and Geosciences Bureau ("MGB") in January 2005. There has been a series of revisions to this document since that time. OGPI has engaged a consultant, AECOM, to assist in finalising the most recent revisions to the EPEP and associated FMRDP. The most recently revised EPEP was submitted to the DENR on February 24, 2014. The EPEP and FMRDP have received a technical review by both OGPI and MGB and have been presented to the Mine Rehabilitation Fund Committee ("MRFC") body, comprising representatives of the DENR, local authorities, community representatives and a representative of OGPI, for their acceptance and endorsement to the CLRF Steering Committee.

On 17 June 2017, OGPI submitted the revised EPEP and FMRDP without an underground was approved on 20 March 2018 with Certificate of Approval No. 129-2018-08. As the UG Mine was not included, OGPI updated and resubmitted a LoM EPEP and FMRDP to include the UG mine on 15 April 2018 and this was approved on 18 October 2021 with Certificate of Approval No. 193-2021-18.

The EPEP provides a description of the expected impacts and proposed mitigation of the activities comprising the Didipio operation, sets out the LoM environmental protection and enhancement strategies based on best practice in environmental management in mining, and presents the environmental management program for the operation.

An AEPEP is a yearly environmental management work plan based upon the EPEP, which OGPI is required to lodge with the MGB. The AEPEP makes provision for monitoring of meteorological data, noise levels, and water quality data from designated measurement stations within the river and TSF systems, water quality and flow velocity data from the stream gauging stations, and groundwater data. Air and water quality monitoring is carried out to ensure compliance with Philippine ambient and water air quality objectives during both construction and operation activities, and similarly noise and vibration monitoring checks for compliance with noise and vibration requirements.

OGPI has submitted AEPEPs annually since 2007. For 2021, pending the renewal of the FTAA, OGPI submitted an Interim AEPEP incorporating all activities to ensure environmental protection and compliance to regulatory requirements while operation was in standby phase. The interim AEPEP was approved on July 21, 2021 and was used as reference for the regular inspections by the MRFC and Multipartite Monitoring Team ("MMT"). With the renewal of FTAA on July 14, 2021, OGPI submitted an amended AEPEP to cover the mine becoming operational and was approved on October 7, 2021, with COA #2021-13-II. In November 2021, OGPI submitted the AEPEP for 2022.

Contingent Liability and Rehabilitation Fund (CLRF)

A Contingent Liability and Rehabilitation Fund ("CLRF") is required to be established and maintained with regular contributions under the terms of the Mining Act and its Implementing Rules and Regulations. It is a financial requirement in the form of an environmental guarantee fund to provide for rehabilitation and compensation costs arising from any adverse environmental impacts of the Didipio operation. It ensures the availability of funds to comply with the commitments and performance standards stipulated in the EPEP and AEPEP. The CLRF comprises the MRF, the payment of Mine Waste and Tailings Fees and a FMRDF. The CLRF is administered by the CLRF Steering Committee.

Prior to the commencement of commercial production, under a Memorandum of Agreement signed by OGPI with the Mine Rehabilitation Fund Committee established by MGB dated October 18, 2004, OGPI has established bank deposits to service the Monitoring Trust Fund ("MTF"), Environment Trust Fund ("ETF") and the Rehabilitation Cash Fund ("RCF"), which collectively form the MRF. As of 05 October 2021, the balance of the MRF associated with the Didipio operation stood at PHP7.322M.

Social Development and Management Program (SDMP)

Under the Philippine Mining Act of 1995, OGPI is required during mining operations to allocate annually a minimum of 1.5% of its operating costs with 75% of the 1.5% apportioned to the implementation of the SDMP. The remainder amount would be utilised for the development of mining technology and geosciences and for institutionalisation of public awareness and education on mining and geosciences. Prior to its mining operations and in February 2005, the DENR approved the first five-year SDMP. On September 17, 2013, the MGB approved the first five-year SDMP commencing in January 2013 up to December 2017, with a total estimated SDMP fund in the amount of PHP215 Million. On February 27, 2018, the second five-year SDMP covering January 2018 to December 2022 was also approved by the MGB with total estimated amount of PhP375 Million. Every year, OGPI submits to MGB the Annual SDMP providing details of the projects, programs and activities identified for the SDMP funding.

In December 2011, ten barangays comprising of the host barangay, and nine adjacent barangays, and the two municipalities of Kasibu and Cabarroguis from the FTAA host provinces of Nueva Vizcaya and Quirino, signed a Memorandum of Agreement reiterating their support to the Didipio operation and agreeing on the sharing of the SDMP fund.

In 2015 and after consultation with the host and adjacent barangays, Memorandum of Agreement was executed for the inclusion of one additional adjacent barangay. This new adjacent barangay began participating in the SDMP in 2016 and will continue until the end of mine life. Since 2016, a total of eleven Barangays and two Municipalities are sharing from the SDMP fund.

Community Development Fund (CDF) and Provincial Development Fund ("PDF")

On July 14,2021, the Philippine government confirmed the renewal of the FTAA. The renewed FTAA provided additional benefits to the regional communities and provinces that host the operation.

To assist in the development of other communities outside of the host and neighbouring communities covered by the SDMP, OGPI will allocate annually each calendar year starting on the FTAA addendum date:

- A Community Development Fund equivalent to one percent (1%) of the gross mining revenues of the preceding calendar year;
- A Provincial Development Fund equivalent to one half of a percent (0.5%) of the gross mining revenues of the preceding calendar year; and
- The provision for additional social development fund shall contribute to the sustainable social, economic and cultural development of the communities in the region.

OGPI will be collaborating and partnering with the relevant local government units, community groups and organisations, indigenous peoples, or indigenous cultural communities to determine the plan and implementation for the Community Development Fund. The consultation process will be commencing in December of 2021.

OGPI has also consulted with the provincial local government units of Nueva Vizcaya and Quirino and the regulatory authority for the implementing guidelines of the Provincial Development Fund. The projects to be funded will be aligned with the respective provincial development plans of the two provinces. The two local government units are in the process of determining their respective shares from the fund.

The implementation of the projects under the two development funds will commence in the second quarter of 2022.

20.1.3 Other Permits

Clearance was obtained for the Didipio operation from the National Irrigation Authority during the ECC permitting process. In accordance with Philippine requirements for the grant of water rights, OGPI has entered into an agreement with a Philippines company covering the water requirements for the operations, including securing the water permits necessary for the development and operation of the project.

Permits were obtained to construct and operate various infrastructure, including for Pollution Source Equipment ("PSE") and Pollution Control Equipment ("PCE"), primarily comprising the power station, the crushing plant, the TSF and the camp. Permits to construct and operate any new installations will be required on an ongoing basis. Securing these permits requires all design details to have been finalised, allowing the various construction permits, and subsequent permits-to-operate, to be granted.

Zoning and Location Clearances were also required and obtained from the Housing and Land Use Regulatory Board ("HLUR" (Region 2)) covering the PDMF area in March 2007. There were likewise local permits (such as locational clearances, construction permits, and occupation permits) obtained from the Municipality of Kasibu for the construction of the structures at the Didipio operation.

Other related permits such as discharge permits and permit to operate are continuously secured/renewed as required under Philippine laws.

20.2 Environmental Studies

20.2.1 Location of Didipio Operation

The Didipio operation is located approximately 270km north of Manila in the southern part of the rugged, forested, Mamparang mountain range. The FTAA straddles the borders of Nueva Vizcaya and Quirino provinces on Luzon Island. The site is located 30km south of the Quirino provincial capital of Cabarroguis, at an elevation of between 500 and 1100m above sea level. The site is located in an area below the forest line in a relatively isolated and sparsely populated valley that has established all- weather road access pre-dating the mine.

The project lies to the south-west of the more densely populated Cagayan Valley. The major economic activity is agriculture with rice, corn, vegetables and citrus being the main products. Commercial activity centres on trading, some manufacturing and food processing. The majority of families in the Didipio area earned below the poverty line prior to the development of the mine. Cabarroguis is the local municipal centre. Although commercial activity is strong in areas such as retailing, agriculture is the municipality's main economic activity.

The Didipio operation site is located along a stretch of the Dinauyan River, which flows into the Didipio River, which eventually discharges into the Diduyon River. The Diduyon River is used as a source of irrigation water.

Refer to Section 5.4 for a discussion of the local climate.

20.2.2 Environmental Impact Statements (EIS)

Baseline Studies

An EIS was submitted in 1998, in support of an application for an ECC. An amended application was lodged a few months later. There followed an EIS (reference Environmental Impact Statement Amendments for CAMC's Didipio Gold-Copper Project – Gaia South Inc., July 1999 and April 2004) completed by Gaia South Inc, environmental consultants, on behalf of OGPI in April 2004. This formed the basis for a revised ECC issued on August 8, 2004.

On November 23, 2011, ahead of commencement of operations, OGPI submitted its Environmental Performance Report and Management Plan ("EPRMP"), comprising the updated Environmental Impact Statement ("EIS") for the Didipio operation. The EPRMP included survey work completed in November 2011 in conjunction with the Nueva Vizcaya State University which established updated baseline conditions for ambient air and water quality. The revised ECC for the current project was issued on December 10, 2012.

An updated EPRMP was submitted to amend the current ECC to include increase in throughput rate from 3.5Mtpa to 4.3Mtpa and amendment process is still on-going. These studies establish the baseline environmental survey pre-dating the commencement of operations as the basis for future environmental assessment. The studies note that the natural environment in the vicinity of the site had been highly modified by human land use which is dominated by slash and burn or "kaingin" agriculture and small-scale mining activity. In terms of water quality (surface water and groundwater) the surface waters within and adjacent to the project area were compromised by forest clearance and small-scale mining. Baseline sediment monitoring similarly indicated effects on rivers of surrounding activities.

Ambient air quality parameters monitored included total suspended particles ("TSP"), SO2, NO2 and noise level. Overall, the air quality of the Didipio operation prior to operations was satisfactory and typical of that for a rural area.

Flora and fauna surveys indicated a low-populated wildlife environment in the vicinity of the project.

Potential Impacts Identified in the Environmental Impact Statements (EIS)

Potential environmental impacts were assessed for surrounding land, water, terrestrial and aquatic biota, and people. Primary impacts assessed for land included change in geomorphology or topography of the mine area, loss of topsoil, increased sedimentation, potential subsidence in relation to the underground mine workings and potential slope stability concerns. Impacts assessed for the water environment included potential impacts to water quality and flow. Potential impacts identified for the terrestrial and aquatic biota included loss of vegetation due to clearing activities and possible encroachment or loss of habitat for both terrestrial and aquatic fauna as mine development progresses. Changes in air quality and elevation of noise levels particularly during the construction phase were anticipated for the air quality module. As for the socio-economic concerns, potential in-migration and competition of social services were anticipated as potential negative impacts. On the other hand, generation of employment opportunities and improvement of basic social services and utilities were anticipated as positive impacts that could be realized from the mine development and the company's corporate social responsibility initiative. Appropriate mitigation measures were recommended in the EPEP and monitoring parameters by which the efficacy of these measures may be assessed were presented in the document.

The EIS concluded that the predicted change in land use for the open pit, underground mine, excavations, adits, and related engineering structures and installations, where permanent mine facilities are established, are expected to result in consequential impacts brought about by identified environmental aspects associated with this mining operation within acceptable regulatory limits.

20.3 Environmental Performance of the Didipio Operation

20.3.1 Tailings Disposal

Tailings are stored in an engineered TSF (Section 18.10). The TSF concept design has been developed by a division of GHD Group Pty Ltd, a respected specialist consulting firm specialising in tailings dam design. GHD also conducted geotechnical site investigations. In addition, Cullen Mining Services Pty Ltd conducted a review of the TSF design in 2011. These designs formed the basis for an application to the National Water Resources Board for a permit to dam and divert water and deposittailings in the affected catchment.

The single cell TSF has been designed to store approximately 50Mt of dry tails (which is sufficient to accommodate the current Didipio Gold-Copper Deposit Mineral Reserves) and a design storm event. The TSF is located in a tributary area above the Dinauyan Valley, approximately 2km southwest of the plant site, and designed as a cross-valley impoundment. It has been built in increments over the life of the project, using waste rock material from the open pit and underground, as a staged downstream construction design. If the Didipio operation is extended, there is capacity to raise the TSF above its current final design height, subject to necessary approvals.

OGPI pumps all tailings from the tailing's thickener (sited near the process plant), at 60% solids, into the TSF for storage. The tailings are deposited into the TSF using a spigot discharge method and directed against the TSF wall to make the wall more impermeable. Water is reclaimed via a floating pontoon pumping system.

The TSF has a contained catchment and all precipitation within the catchment is collected in the TSF. Water collected in the TSF is used, as required, in the process plant. Water in excess to this requirement flows into a controlled decant system and is discharged into the Dinauyan River at a standard suitable for discharge and in accordance with a discharge permit 2017-DP-D-0250-010. Monitoring ensures any water that is released complies with discharge standards for Class D waterways and DENR approval needs to be obtained prior to release.

Tailings liquor samples from test work indicate alkaline liquor, with low levels of Pb, Cu, Zn, and Hg. Tailings waste characterisation studies have been undertaken and indicate that the tailings are low in both total and soluble metals. Monitoring throughout the LoM will continue to ensure that the tailings characterisation is understood, and potential changes managed throughout the life of the operation.

The spillway draining into the Dinauyan River is constructed on the western side of the TSF wall and adjacent waste rock dump as a "last line of defence" for managing surplus decant/rainfall waters. After mine decommissioning, this spillway is planned to carry water to the Dinauyan River, once the decant system is removed. The hydrologic design storm event for the TSF storage volume (below the spillway) is a one in 100 years average return interval for a 24-hour event, over and above maximum operating volume of tailings and water. The hydrologic design storm event for the spillway design (which is available to pass major storm events greater than the 1:100 average return intervals) is sufficient to contain and pass a probable maximum precipitation rainfall event. Ongoing monitoring and risk reviews are undertaken, as required by DENR, to ensure compliance and TSF containment integrity.

The TSF is designed to be decommissioned as a mainly dry facility, with final tailings generated from the processing of oxide material to provide a suitable capping for re-establishment of vegetation. Upon closure, the decant system will be decommissioned. Surface run-off and seepage from the capped dam will be allowed to flow to the downstream river system via a permanent spillway. A post- decommissioning monitoring program will monitor water quality to ensure that water quality criteria are met.

20.3.2 Seismic Design Criteria

A seismic hazard assessment of the site has been undertaken by Knight Piésold, which shows that the site is located in a seismically sensitive zone. Three major sources of seismic activity are present within 200km radius of the site: the Philippine Fault (40km to the west); the Manila Trench (125km to the west); and the East Luzon Trench (70km to the east).

The results of the seismic hazard evaluation have been used to determine a design ground acceleration value for the TSF and for a waste rock dump stability analysis.

The TSF embankment has been assigned a dam failure consequence category of "High C" and has therefore been designed to sustain a 1:1,000 Annual Exceedance Probability ("AEP") Operating Basis Earthquake ("OBE") and a 1:10,000 AEP Maximum Design Earthquake ("MDE"). The OBE design has increased from 1:475 used in earlier designs due to a change in the applicable ANCOLD guidelines, which were issued in May 2012.

The design allows limited deformation of the tailings dam under seismic loading from the MDE, provided that the overall stability and integrity of the facility is maintained and there is no release of stored tailings or water.

As part of the 2021 LoM Tailings Storage Facility study, the seismic criteria relevant to the consequence category of the TSF had been included for review. The LoM study is expected to be completed mid-2022.

20.3.3 Waste Rock Dump

Waste material is used in construction of the TSF and other infrastructure. In addition, a waste rock dump has been established across the Dinauyan River Valley and was operational throughout open pit mining. Waste generated from underground mining will be crushed and available for road maintenance, with capacity to store surplus waste from underground mining operations in the waste dump if required. No additional waste rock dumps are planned.

A flow through drain has been designed and constructed into the waste rock dump to allow the Dinauyan River to pass through the waste rock dump at a rate exceeding the average annual flow of the river. This flow through drain was designed to have an effect of attenuating flood flows in the Dinauyan River during the peak of the flood and increasing the duration of slightly higher than average flows after the flood event has passed.

Currently, monitoring of the flow through performance is undertaken monthly through the Dinauyan weir. A weir monitoring station was constructed downstream of the WRD in August 2014 to monitor the flow through rates. Flows have been measured at the weir with a daily manual reading since construction and drain performance has more than sufficient capacity to manage rainfall events.

20.3.4 Open Pit and Underground

The permitted final open pit footprint is 52ha. Dewatering of the pit and its environs is by perimeter boreholes and by pumping from a sump located in the pit.

Following completion of the open pit operation, access to the pit will be restricted by fencing, however cut-off drains will be maintained to minimise surface water flow through the base of the pit and into the underground zone. The roadways on each underground extraction levels will be graded to direct any water to level sumps, from where it will be directed to sumps below the production levels for containment before pumping to a surface settlement dam for removal of sediment and hydrocarbons prior to release into the Didipio River system.

The decommissioning phase will make provision for the surface and groundwater flows to enter and be retained in the pit and the remaining open underground workings, eventually flooding the pit to the level of the lowest point on the pit crest. The pit is intended to become a permanent lake and sediment trap for water flowing over the tailings dam and waste rock areas. Overflows from the pit are planned to be directed to a reinstated river channel that flows into the Didipio River.

Given the potential for some minor wall rock acid drainage to develop during and after mining, and in view of the high rainfall in this area, it is proposed that the final pit will be flooded, which will submerge any potential acid-generating pit wall rock (see Section 20.3.6 for a discussion of the potential for acid-generating materials). Surface flow from the completed pit will be tested to ensure it continues to meet the water quality discharge criteria. Environmental monitoring of water quality in the vicinity of the closed open pit will be undertaken by a long-term, multi-partite committee funded by the company (see section Contingent Liability and Rehabilitation Fund (CLRF) above).

20.3.5 Water Management

Baseline Water Quality

The Didipio operation is sited along the Dinauyan River, which has a catchment area generating some 27Mm^3 maximum annual water flow. The Dinauyan River flows into the Didipio River and is joined by flow from the Camgat and Surong Rivers, which contribute 36Mm^3 maximum annual water flow. The Didipio River becomes the Diduyon River, downstream of the confluence with the Alimit River.

Baseline water surveys undertaken prior to the commencement of development at the Didipio operation and updated in 2011 concluded that the existing water quality of the Dinauyan River, Camgat River, Surong River, Didipio River, Alimit River and Diduyon River is compromised by sediment runoff from forest clearing and agriculture and that sediment containing elevated heavy metals (copper and others) were a result of long-term small-scale mining in the area. Elevated mercury levels have also been recorded in sediments of the Dinauyan and Didipio Rivers resulting from small scale mining in the catchment. The water is generally highly turbid and home to a reduced range of aquatic biota and riparian vegetation.

Water Takes

The daily water demand for the Didipio operation at 3.5Mtpa processing rate is approximately 20,000m^3, of which the majority (about 90%) is recycled water for the process plant, sourced from decant water from the thickeners and the tailings pond.

Any fresh make-up raw water that is required for processing or other site use is sourced from Madadag levee and from the underground active dewatering. The raw water from Madadag levee is distributed to be used in the processing plant and the raw water from the underground dewatering is to be used at camp.

Water Discharges

The overall approach to water management at the Didipio operation is to minimise discharge from the operating site and direct all dirty surface water flows including any waste rock seepage to a series of settlement ponds to remove suspended solids before discharge to the Didipio River. Water is monitored prior to release to ensure compliance with the DENR Administrative Order No. 2016-08.

The majority of the water used on site is recycled from the TSF via floating pontoon mounted pumps to the plant for reuse in the process cycle. A project design water balance was completed in the development stage by Knight Piésold and this was updated by MWES Consulting, covering the range of possible rainfall events. This determined that a net discharge would be necessary in most years, and this is managed via the decant system discharging to the processing plant and the water treatment plant.

A water discharge permit for the TSF (Permit No. 2017-DP-D-0250-010) is currently held to allow the release of up to 67,462.8m^3 per day of clean water from the decant pond on the surface of the TSF. A water treatment plant with capacity to process 48,000m^3 per day ensures OGPI meets the required discharge standards for the TSF.

In the event of a storm in excess of the combined capacity of the decant system, the water treatment plant and available storage capacity in the TSF, clean decant water from the TSF can be discharged via a spillway to the Dinauyan River. Any such discharge would be covered by Permit No. 2017-DP-D-0250-010. In practice OGPI maintains a seven meters freeboard at all times.

Make-up water is sourced from the open pit dewatering bores. Most of this water comes from the Biak Shear Zone. Water exceeding the capacity of the two bores is pumped from the pit sump to the sediment settling.

Analyses of the groundwater show some elevation of Arsenic and Boron. To address these elevations, a Compliance Action Plan ("CAP") was submitted to EMB R02 in accordance with Section 10 of DAO 2016-08 to implement the enhancement and mitigating measures.

As part of the 2014 optimisation studies, including the review of the site-side water management plan by GHD, recommendations have been made for additional treatment options, utilising the storage capacity of the TSF and the water treatment plant, to supplement the capacity of the settlement ponds, which receive flow from the open pit sump pumps and surface run-off. An updated water balance completed by GHD as part of the optimisation studies indicates enhanced LoM capacity to manage rainfall events as a result of proposed changes to the open pit, with capacity to store and handle a 1:100-year flood event, assuming the current capacity of the water treatment plant is unchanged.

A water discharge permit (Permit No. DP-R02-20-06237) for the sewage treatment plant (STP MSA) allows the discharge of wastewater not exceeding a flow rate of 5.23m^3 per day. A minor discharge associated with the vehicle wash-down pad also has a water permit (Permit No. DP-R02-20-06236).

Pre-development test work undertaken by the Mineral Resources Development Laboratory of the Department of Mineral Resources, NSW, Australia using waste material samples indicates that the dominant rock types excavated from the open pit have negative acid producing potential ("NAPP") and that leachate from the weathered material would be alkaline, thereby having an acid-neutralising capacity. Similarly, tailings liquor samples have also been found to be slightly alkaline. If potentially acid-generating material is identified in the waste (e.g., from low-grade stockpile reject material), it will be placed in engineered cells and encapsulated in non- acid forming waste. No acid-forming waste requiring sequestration has been encountered to date.

In 2019, Green Development Sustainable Solutions, Inc. came to site for an initial assessment on the plan and to conduct a study on Potential Acid Mine Drainage ('AMD'). However due to the operation being placed on standby, the study was not completed. With the restart of operations in late July.

20.3.6 Noise and Impacts on Villages

A noise assessment has been conducted and noise mitigation measures implemented. Noise levels from construction and operation of the open pit and processing plant are not perceived to be issues of concern, particularly as the nearest village is approximately 1km from the noise-generating areas. Noise effects of the power station have been assessed and comply with DENR standards and statutory requirements.

Noise level monitoring at the community is conducted fortnightly and shows compliance to regulatory standards.

20.3.7 Health and Safety Issues Associated with Road Transport

The use of existing roads in the project area by mine vehicles and the construction of access, service and haul roads raises positive and negative potential health, safety and environmental issues. Multiple trips daily hauling concentrate from the plant site to the port have the potential for significant effects on villages located along the route. Therefore, the extent of the impact on affected settlements is closely monitored and measures are taken to mitigate the risk of accidents and damage to infrastructure associated with these haulage operations.

20.3.8 Biodiversity Impacts

An annual Biodiversity and Ecological Assessment and Monitoring is being conducted to monitor biodiversity resources from various ecosystems. Monitoring will be carried out within the established sampling sites or within a permanent biodiversity monitoring area throughout the LoM and the results of which will determine the effective management and mitigation plans to be undertaken to reduce the impacts of the mining activities to the ecosystem and further enhance biodiversity in the surrounding areas of the Didipio Operations.

20.3.9 Archaeological, Historical and Cultural Impacts

On November 21, 2003, the National Museum issued a Certification to the effect that the PDMF area was inspected for possible archaeological remains by the Archaeological, Cultural and Environmental Consultancy, Inc. The finding was that the area has no visible archaeological resources based on the over-all negative result of the archaeological assessment survey.

OGPI was likewise mandated to report to the National Museum should archaeological materials be found in earth-moving activities. No reports have been made to date.

20.3.10 Refuse Disposal

Waste management policies implemented on site utilise the principles of reuse and recycle. Hazardous waste including hydrocarbons (used oil and lubricants), reagent packaging and batteries, among others are collected from site by an accredited hauler and treater by the Department of Environment and Natural Resources (DENR).

A separate ECC has been approved for the establishment and operation of onsite Sanitary Landfill under ECC No. ECC-OL-RO2-2016-0083 issued on 28 June 2016 as an addition to the main project ECC.

20.3.11 Fuel and Chemicals

The twelve diesel storage tanks comprising the diesel fuel farm are located adjacent in an appropriately bunded and secured area. Plant chemicals are also stored in an appropriately bunded area. Waste oils and lubricants are recovered and transported to a DENR registered and accredited facility for treatment and disposal.

20.4 Site Monitoring

DENR officials conduct routine inspections and audits of the operation. There is also a quarterly Multi Partite Monitoring Team, involving various government agencies, non-government organizations and local government units, which conducts inspection of the operation.

The Environment Section of the Didipio Mine conducts regular internal monitoring which includes daily water quality monitoring, fortnightly noise monitoring and monthly air quality monitoring. An annual stack emission testing is also conducted at the power station.

DENR officials conduct routine inspections and audits of the operation.

The Didipio operation conducts routine self-monitoring of a range of environmental parameters including monthly surface water analysis, noise monitoring and air quality measurement. Annual emission testing is also conducted at the power station. Results of site environmental monitoring are made available to the DENR. Annual ecological surveys are also undertaken.

20.5 Community Development

From a legal and regulatory perspective, OGPI has complied with its obligations under the Mining Act and it’s implementing Rules and Regulations to obtain community endorsement for the Didipio operation to the satisfaction of the DENR. The establishment of the SDMP is discussed in Social Development and Management Program (SDMP) section above.

There were also agreements executed by OGPI with the Didipio community and various local government units for their respective community development priorities, these agreements are;

- Memorandum of Agreement ("MoA") with the Didipio community was executed in 2013 and supercedes the earlier MoA's signed in 1999, 2001 and 2006;
- Memorandum of Agreement with the Municipality of Kasibu executed in 2012 for the improvement, rehabilitation, and maintenance of various barangay roads;
- Memorandum of Agreement with the Province of Quirino executed in 2012 for the concreting of 22km Provincial Road (Dibibi-Tucod-Didpio); and
- Memorandum of Agreement with the Province of Quirino executed in 2017 and amended in 2020 for the Quirino Provincial Development Fund.

These commitments are all ongoing with agreed timeline for the completion of the infrastructure projects.

OGPI has continued to partner with and seek the full support of the Didipio community through an open consultation process. OGPI continues to hold regular information meetings for community members to raise their concerns and resolve any issues in an open forum, as well as the daily interaction between community members and the personnel of the OGPI's Community Relations and Development Department who are members of the community. In addition, OGPI is committed to assisting the long-term development of the Didipio community beyond the LoM through its social development programs.

The SDMP is intended to provide a sustained improvement in the living standards of the host and neighbouring communities by helping them to define, fund and implement development programs before commercial production at the Didipio operation begins, during the LoM and after mine closure.

Since 2013, OGPI funded various SDMP projects covering education, infrastructure, sports and socio- cultural, enterprise development and agriculture, health and capacity building. The bulk of the projects covered infrastructure such as farm to market road improvements, road upgrading, construction of rice sheds, bridges, concrete fences and pathways, construction of day care centres, levelling of school grounds, construction and improvement of irrigation systems and rehabilitation of water systems. On education, OGPI continued with its scholarship grants, salary and subsidy for day care workers, teachers and utility workers, provision of various sports equipment and school facilities, assistance to training and seminars of teachers. There was also the initial capital assistance for different livelihood projects. On health, there was the provision of first aid kits, assistance to medical missions, procurement of medicines and clinic facilities, salary assistance to community health workers and adoption of a mother and child health program. OGPI likewise funded the conduct of a population census as well as for the training and seminars of various local government leaders, including assessment and planning workshops to prepare the community leaders for implementing the SDMP.

As of end 2020, a total of PHP539 Million was spent for community development initiatives from the SDMP fund for Didipio, the 10 adjacent communities, and the two Municipalities

From 2013 to 2019, approximately PHP1.35 Billion was spent for the projects under the various MoA's and other corporate social responsibility programs that are on top of the SDMP commitment.

OGPI is also proceeding with the design and implement of the Provincial Development Fund and the Community Development Fund as per the requirements of the FTAA renewal. OGPI is working with key community and government stakeholders to implement a participatory design process for each fund. The two funds will expand the benefits sharing from the Didipio mine across the two host provinces and to local communities in each.

The implementation of the projects under the two development funds will commence in the second quarter of 2022.

20.6 Mine Closure

Conceptual mine closure planning is included within the Final Mine Rehabilitation and/or Decommissioning Plan and approved by the CLRFSC.

Last September 8, 2021, the CLRFSC approved the Environmental Protection and Enhancement Program ("EPEP") and FMR/DP for the LoM with Certificate of Approval No. 193-2021-18. Under the Implementing Rules and Regulations of the Mining Act, the FMR/DP is submitted to the MRF Committee through the MGB Regional Office, and to the CLRFSC through the MGB Central Office.

The current EPEP document approved by the CLRFSC contains details which are expected to form the basis of the detailed mine closure plan. This closure plan will be refined and finalised throughout the LoM in consultation with various stakeholders. Development of a detailed plan and financial provisioning for final closure/decommissioning costs at an early stage is considered to be best practice.

The main rehabilitation and closure work streams will be the closure of the waste rock dumps, the open pit and TSF. Closure planning will ensure that these structures are geotechnically and geochemically stable landforms. Rehabilitation will be undertaken progressively during the operating phase and this is considered an operating expense.

It is required that the FMRDF contain a cost estimate for the implementation of the FMR/DP. The FMRDF is established to ensure that the full cost of the approved FMR/DP is accrued before the end of the operating life of the mine. The FMRDF has been deposited as a trust fund in a Government depository bank and may be used solely for the implementation of the approved FMRDP. An annual cash provision to the FMRDF is based on a required mode of payment set under the FMR/DP guidelines. It is required that based on the expected mine life, the initial annual cash provision is made to the MRF Committee within sixty (60) days from the date of the FMRDP's approval and every anniversary date thereafter.

The FMRDF, which is part of the CLRF, is administered by the CLRF Steering Committee, which includes DENR officials as members. Under the FMRDP submitted by OGPI, the estimated total fund amounts to US$8,848,088.48 at a FOREX of PhP50.00/USD. Didipio implements progressive rehabilitation which is included in annual plans and budgets. The company anticipates reduced activities and costs for progressive rehabilitation in the coming years with the transition to underground mining and a reduction in the impact on new surface areas.

In 2022, the company will launch a multi-stakeholder closure initiative to review closure plans and advance detailed planning and closure costs will be reviewed as this work progresses.

20.7 Conclusions

The Didipio operation holds the permits, certificates, licences, and agreements required to conduct its current operations. Refer to Section 4.9.1 for a list and discussion of the most materially significant of these.

OGPI is required to ensure that mining activities are managed in a technically, financially, socially, culturally, and environmentally responsible manner. The DENR requires an ECC for any mining activity based on an EIS prepared by the company in accordance with procedures stated under Presidential Decree No. 1586 or the Philippine Environmental Impact Statement System. An ECC obliges the company to comply with a comprehensive set of conditions, including submission and implementation of an EPEP and Final Mine Rehabilitation and/or Decommissioning Plan for the life of the mine.

The ECC system and the Implementing Rules and Regulations of the Mining Act regulate a funding structure to ensure company compliance with EPEP and FMR/DP commitments and ensure immediate funding in the form of Environmental Guarantee Fund, Mine Rehabilitation Fund, and Final Mine Rehabilitation and Decommissioning Fund is available for rehabilitation in the event of environmental damage during mining operations. These funds are held in a government depository bank and administered by the Contingent Liability and Rehabilitation Fund Steering Committee.

OGPI's Environmental Performance Report and Management Plan submitted in November 2011 includes survey work completed in November 2011 in conjunction with the Nueva Vizcaya State University, which establishes baseline conditions for ambient air and water quality, together with other studies that establish the basis for future environmental assessment. The studies note that the natural environment in the vicinity of the site had been highly modified by human land use which is dominated by agriculture and small-scale mining activity. In terms of water quality (surface water and groundwater) the surface waters within and adjacent to the operational area were compromised by forest clearance and small-scale mining. Baseline sediment monitoring similarly indicated effects on rivers of surrounding activities. Changes in land use to allow for the open pit, underground mine, and related engineering structures and installations are permanent land use modifications and will result in consequential impacts that are within acceptable regulatory limits.

21 CAPITAL AND OPERATING COSTS

21.1 Capital Cost Estimates

A summary of the total capital cost for Didipio is provided in Table 21-1. The basis of the capital cost estimate is discussed below.

Table 21-1: Capital Cost Summary

Description	Sustaining Capital (US$000's)	Non-Sustaining Capital (US$000's)	Total (US$000's)
Operations Information Technology	3,306		3,306
General Operations Expenditure	40,271		40,271
Brownfields Exploration	1,646		1,646
Operations Based Mining Projects	16,537		16,537
UG Mine Development	16,314		16,314
Rehabilitation	2,150	3,119	5,269
General Corporate Expenditure		26,423	26,423
Greenfields Exploration		5,683	5,683
Stand-alone CSR Projects		13,280	13,280
UG Mine Development		8,111	8,111
Total Capex	**80,225**	**56,615**	**136,840**

21.1.1 Basis of Estimate

The capital cost estimate is based on a combination of equipment supplier quotations, supplier pricing and OceanaGold operational experience. Capital cost estimates for enhancement of operations and growth projects are based on the current 2022 Didipio LoM estimates.

21.1.2 Exclusions

Inflation and price escalation have not been included in the capital cost estimates.

21.1.3 Underground

Significant underground capital infrastructure is already in place at Didipio, with the main decline developed down to the 2180mRL level. Despite this, underground capital accounts for 60% of the LoM capital estimate at Didipio. Major additional underground capital expenditure required for the underground mine includes development, installation of the lower pump station (CPS 1), mobile equipment, installation of an underground fuel bay, and diamond drill programs (resource definition and exploration). Underground capital costs are estimated at US$83.5M. Table 21-2 provides a breakdown of these costs.

Table 21-2: Underground Capital Cost Estimate

Description	Sustaining Capital (US$000's)	Non-Sustaining Capital (US$000's)	Total (US$000's)
Development	16,314	8,111	24,425
Exploration	1,846	5,683	7,529
Mobile Equipment	12,707	23,639	36,346
Infrastructure	9,294	927	10,221
Electrical Equipment	1,835	989	2,824
UG Other	1,247	909	2,156
Total	**43,243**	**40,258**	**83,501**

Underground Capital Development

Development costs have been built up from the following activities:

- Equipment operating cost;
- Ground support;
- Explosives;
- Ventilation;
- De-watering; and
- Labour.

Mobile Equipment

Mobile equipment costs are based on operational experience and quotations sourced from suppliers.

Electrical Equipment

Electrical equipment costs are based on operational experience and quotations sourced from suppliers.

Infrastructure

Major Infrastructure costs include US$5M for the lower pump station (CPS1) and US$1.3M for primary underground dewatering pump stations.

Other

Other underground capital costs include safety equipment, mine communications and survey equipment.

21.1.4 Other Capital

Major LoM capital expenditure outside of the underground includes TSF study, design and construction, processing plant upgrades, and community relations. Table 21-3 below provides a summary of departmental capital expenditure.

Table 21-3: Site Capital Summary

LoM Capital Allocation	Total (US$000's)
Underground Mining	83,501
Surface Operations (TSF)	14,063
Community Relations and Development	13,980
Processing	12,227
Occupational Health, Safety and Environment	6,531
Asset Management	4,390
Commercial	834
People and Culture	700
Legal & Compliance	325
External Affairs and Communications	208
Asset Protection	80
Total	**136,840**

21.2 Operating Costs

21.2.1 Introduction

A detailed cost model provides the basis for the estimate of underground operating costs. The cost model was developed using first principles derived from realised operational underground mining cost data and supplier quotations. Surface operations operating costs accounts for all CSP activity and rehandle of stockpile material and is higher in the initial years of the LoM due to costs associated with CRF backfill. Table 21-4 reports the total LoM operating costs which total US$1,155M or US$27.37/t milled.

Table 21-4: Operating Cost Summary (excluding selling costs)

Description	Total (US$000s)	$/t Mined
Surface Operations (CSP and Stockpile Reclaim)	64,273	3.21
Underground Mining	510,705	25.48
Total Mining	574,978	27.56
Description	**Total (US$000s)**	**$/t Milled**
Processing	245,258	5.81
General and Administration	335,013	7.94
Total Operation ($/t Milled)	**1,155,249**	**27.37**

Table 21-5 provides an annual breakdown of operating costs and unit costs.

Table 21-5: Operating Cost Breakdown (excluding selling costs)

	Unit	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ore Summary														
UG Ore Production	kt	20,044	1,498	1,518	1,671	1,764	1,772	1,764	1,764	1,764	1,764	1,764	1,764	1,237
Stockpile Ore Milled	kt	22,162	2,023	1,997	1,845	1,732	1,731	1,763	1,767	1,763	1,734	1,757	1,773	2,276
Total Ore Milled	**kt**	**42,207**	**3,521**	**3,515**	**3,516**	**3,495**	**3,504**	**3,527**	**3,531**	**3,527**	**3,498**	**3,521**	**3,537**	**3,513**
Opex Summary														
Surface Operations	$000s	64,273	12,737	10,776	7,520	3,869	3,885	3,893	3,900	3,609	3,478	3,484	3,560	3,563
Underground Mining	$000s	510,705	43,334	46,401	47,849	47,185	44,304	42,851	43,617	42,471	41,231	40,352	38,076	33,034
Processing	$000s	245,258	21,420	20,665	20,898	21,204	21,229	20,857	20,781	20,888	21,972	20,563	17,319	17,461
General & Admin	$000s	335,013	33,157	33,986	32,298	31,732	30,504	29,621	28,975	27,900	25,728	24,307	19,390	17,416
Total	**$000s**	**1,155,249**	**110,648**	**111,828**	**108,565**	**103,990**	**99,922**	**97,222**	**97,273**	**94,868**	**92,409**	**88,706**	**78,345**	**71,474**
Unit Operating Cost														
Surface Operations	$/t mined	3.21	8.50	7.10	4.50	2.19	2.19	2.21	2.21	2.05	1.97	1.98	2.02	2.88
Underground Mining	$/t mined	25.48	28.93	30.57	28.63	26.75	25.00	24.29	24.73	24.08	23.37	22.88	21.59	26.70
Processing	$/t milled	5.81	6.08	5.88	5.94	6.07	6.06	5.91	5.89	5.92	6.28	5.84	4.90	4.97
General & Admin	$/t milled	7.94	9.42	9.67	9.19	9.08	8.71	8.40	8.21	7.91	7.35	6.90	5.48	4.96
Total	**$/t milled**	**27.37**	**31.43**	**31.81**	**30.88**	**29.75**	**28.52**	**27.57**	**27.55**	**26.90**	**26.42**	**25.19**	**22.15**	**20.35**

Several cost items are excluded from the operating cost, as detailed in Table 21-6 which OceanaGold does not consider to be direct operating costs but the operation does incur. These include costs associated with transport, handling, and refining costs.

Table 21-6: Indirect Cost Summary

Description	Total (US$000's)	$/t Milled
Gold Dore Freight, Handling and Refining	3,678	0.09
Concentrate Freight, Handling and Refining	203,864	4.83
Total Freight, Handling and Refining	**207,542**	**4.92**

21.2.2 Power and Fuel

Current Didipio power costs are US$0.109/kWh which has been used for cost build ups. This includes overhead grid power and onsite diesel generators for backup power. The diesel cost used is US$0.75/litre, which is the current market price.

21.2.3 Surface Operating Costs

Surface operating costs are based on haulage contractor mining rates and include all costs associated with the completion of the CSP Project. The average operating cost for surface operations is US$3.21/t with higher costs incurred in earlier years of the LoM due to CRF filling of the base of the pit as part of the CSP Project. Cost by activity is presented in Table 21-7.

Table 21-7: Surface Operating Cost Breakdown

Description	Total (US$000's)	$/t Mined
Diesel	14,440	0.72
Labour	34,334	1.71
Electrical	1,080	0.05
Mobile Fleet Operation & Maintenance	7,739	0.39
Backfill (Cement for CRF)	5,970	0.30
Other	710	0.04
Total	**64,273**	**3.21**

21.2.4 Underground Operating Costs

Underground operating costs have been developed based on the LoM production schedule. The average cost of underground ore mining is US$25.48/t. Breakdown of underground operating activity is presented in Table 21-8.

Table 21-8: Underground Operating Cost Breakdown

Description	Total (US$000's)	$/t Mined
Diesel	22,790	1.14
Labour	104,220	5.20
Explosives	39,534	1.97
Services	3,824	0.19
Ground Support	21,844	1.09
Drill Cons	11,075	0.55
Electrical	96,163	4.80
Mobile Fleet Operation & Maintenance	83,987	4.19
Consumables	3,567	0.18
Backfill	81,038	4.04
Fixed Plant & Infrastructure	28,698	1.43
Other	13,964	0.70
Total	**510,705**	**25.48**

21.2.5 Ore Processing Costs

A breakdown of processing costs by activity is presented in Table 21-9.

Table 21-9: Processing Operating Cost Breakdown

Description	Total (US$000's)	$/t Milled
Reagents	11,333	0.27
Power	112,845	2.67
Grinding Media & Liners	35,103	0.84
Labour	39,855	0.94
Assay Lab	8,875	0.21
Spare Parts	37,284	0.88
Total	**245,295**	**5.81**

21.2.6 General and Administration Costs

General and Administration costs refer to site wide operational costs rather than costs directly associated with operational departments. These costs are summarised and reported in Table 21-10.

Table 21-10: General and Administration Costs

Description	Total (US$000's)	$/t Milled
Asset Protection	14,417	0.34
Government Relations	4,128	0.1
Health, Safety and Environment	23,640	0.56
People and Culture	20,323	0.48
Operations Support	190,293	4.51
Site Services	22,141	0.52
National Office	19,069	0.45
Community Partnership	41,003	0.97
Total	**335,013**	**7.94**

21.2.7 Transportation, Refining and Selling

Sales refining charges are incurred during the transport and sale of material to the refiner and are listed below. These total US$207.7M over the LoM, which equates to US$4.92/t milled. Table 21-11 and Table 21-12 provide a summary of product sales assumptions and transport and refining charges.

Table 21-11: Payable Product Sales Assumptions

Description	%
Dore Composition	
Gold	85%
Silver	11%
Copper	4%
Dore Payable	
Gold	99.94%
Silver	99.20%
Concentrate Payable	
Gold	97%
Silver	90%
Copper (Assay less 1%)	22%

Table 21-12: Transport & Refining Charges

Description	
Refining	
Gold Dore Refining Charge	$0.26/oz
Gold Concentrate Refining Charge	$4.50/oz
Silver Concentrate Refining Charge	$0.40/oz
Copper Concentrate Refining Charge	$9.00/lb
Copper Concentrate Treatment Cost	$90/t
Transportation	
Mine to Port Transport Cost	$69/wmt
Shipping Port to Smelter Cost	$50/wmt

22 ECONOMIC ANALYSIS

22.1 Methods, Assumptions and Basis

The economic results summarized in this section are based upon work performed by OceanaGold in 2022. Assumptions used have been considered by OceanaGold as appropriate and used across the group for evaluation purposes. They are based on a review of forecasts in the markets as well as historical prices. All costs incurred prior to January 2022 are considered sunk with respect to this analysis. Financial models start from January 1, 2022 with a mine life of 12 years.

Selected discount rate is 5%. A sensitivity analysis of the discount rate is discussed later in this section.

Annual cash flow forecasts are located in Appendix B of this report.

All costs and revenues are denominated in US dollars. As the project is operating and is valued on a total project basis with prior capital treated as sunk, and not by an incremental analysis of the underground mine, an IRR value is not relevant in this analysis.

Two pricing scenarios have been used for the economic analysis of the project.

A consensus scenario has been developed based on the latest broker research and uses a sliding scale for commodity prices, with higher prices prevalent during the initial years of the project. Consensus case assumptions are summarized in Table 22-1.

Table 22-1: Consensus Case Financial Parameters

Description	Value	2022	2023	2024	2025	2026 - 2033
Gold Price	US$/oz	1,800	1,700	1,650	1,600	1,600
Copper Price	US$/lb	4.20	4.00	3.75	3.50	3.50
Silver Price	US$/oz	24	22	21	20	20

A reserves case uses flat metal prices across the LoM and is summarized in Table 22-2.

Table 22-2: Reserve Case Financial Parameters

Description	Value
Gold Price	US$1,500/oz constant
Copper Price	US$3.00/lb constant
Silver Price	US$18/oz constant

22.2 Royalties and Other Fees

The following royalties, other fees and taxes are deducted from the pre-tax cash flows and are included in AISC calculations. A 2% net smelter return ("NSR") royalty is payable to third party addendum holders over the life of the project. There is an excise tax of 4% of gross sales less treatment charges, refining charges, metal losses and sea freight. Also included in other fees and taxes are:

- Real Property Tax imposed by the local Province based on the value of improvements to the land; and
- Local Business Tax which is imposed by the local municipality based on 2% of gross revenues.

22.3 Salvage Value

Salvage value has been excluded from the economic evaluation.

22.4 Taxation

The corporate income tax rate in the Philippines is 25% from July 1, 2020, as per the Bureau of Internal Revenue ("BIR") CREATE Act.

The Philippines Board of Investments provided a six-year income tax holiday plus an approved extra one-year for the project which expired on March 31, 2020.

22.5 Financing Costs

Financing costs have been included on the unamortised balance of an initial US$350 million construction loan funded via a subsidiary of the ultimate holding company which was used to finance the project. The assumed applicable interest rate is 10.5%. Intercompany financing charges related to the unamortised balance have been eliminated for cash flow modelling purposes, but these charges are included in the calculation of in-country taxes and other government payments as applicable.

22.6 Third Party Interest

Pursuant to a 1991 addendum agreement, a family syndicate became the holder of an 8% interest in the operating vehicle that is formed to operate the Didipio mine. The interest entitles the holder to 8% of equity in the operating vehicle and dividends to be paid once OceanaGold recovers its initial investment. Any such dividends paid to the claim owner form part of the Government Share as detailed below.

22.7 FTAA

Pursuant to the terms of the FTAA, the project "Net Revenue" is shared between the Government of the Philippines and OceanaGold on a 60/40 basis; that is 60% of the Net Revenue is the Government's portion and 40% applies to OceanaGold. OceanaGold had a period of up to five years after the Date of Commencement of Commercial Production (being April 1, 2013) as a recovery period related to its initial investment. After this period the right of the Government to share in the "Net Revenue" accrues. Royalties, production taxes, other fees and corporate income tax are included as part of the 60% Government share.

In the event OceanaGold had not recovered its investment in that 5-year period, the FTAA allowed a further three years in which the remaining unrecovered amount is amortised as a deduction against net revenue.

The initial investment included not only the construction and development of the project but also payments to claim owners, landowners, exploration programmes, and maintenance of the exploration tenement, feasibility studies, interest, administration of offices and the net commissioning costs up to the commencement of commercial production.

Under the Addendum and Renewal Agreement of the FTAA, with effect from 14 July 2021, the 2% NSR is treated as allowable deduction from Net Revenue and no longer part of the additional Government Share and unrecovered pre-operating expenses as defined in the FTAA at that time will be amortized equally for thirteen (13) years starting on the calendar year of the addendum date.

Table 22-3 illustrates the calculation of the additional Government Share.

Table 22-3: Calculation Methodology for Additional Government Share

FTAA Calculation
Gross Mining Revenue
Less (Allowable Deductions As listed below):
Mining costs (including capitalised mining costs)
Processing costs
General and Administrative costs
Freight, Handling and refining costs
Depreciation of capex (not otherwise deducted under FTAA)
Community and social development funds
Interest on intercompany loans
2% Net Smelter Royalty
Unrecovered pre-operating expenses (amortized equally for 13 years)
Management Fees
Exploration costs (within FTAA area)
= NET REVENUE
THEN:60% of Net Revenue
Less As listed below:
Excise tax
Value added tax
Real property tax
Local business tax
Corporate income tax
Other Philippines taxes as applicable e.g. withholding tax, stamp duties etc
Dividends paid relating to the 8% free carried interest
= Additional Government Share

22.8 Production and Cashflow Forecasts

Model inputs/results for the Cashflow Forecasts are summarized and presented on an annual and LoM basis in this section.

22.8.1 Underground Mine Production

Table 22-4 is a summary of the estimated mine production over a 12-year period for the underground operation. Ore mined refers to Proven and Probable Mineral Reserves.

Table 22-4: LoM Underground Production Summary

Description	Units	Value
Underground Ore Mined	kt	20,044
Underground Waste Mined	kt	1,017
Underground Mined Gold Grade	g/t	1.54
Underground Mined Silver Grade	g/t	1.79
Underground Mined Copper Grade	%	0.42
Total Contained Gold	**koz**	**991**
Total Contained Silver	**koz**	**1,151**
Total Contained Copper	**kt**	**84**

Figure 22-1 below shows annual underground production and contained gold.

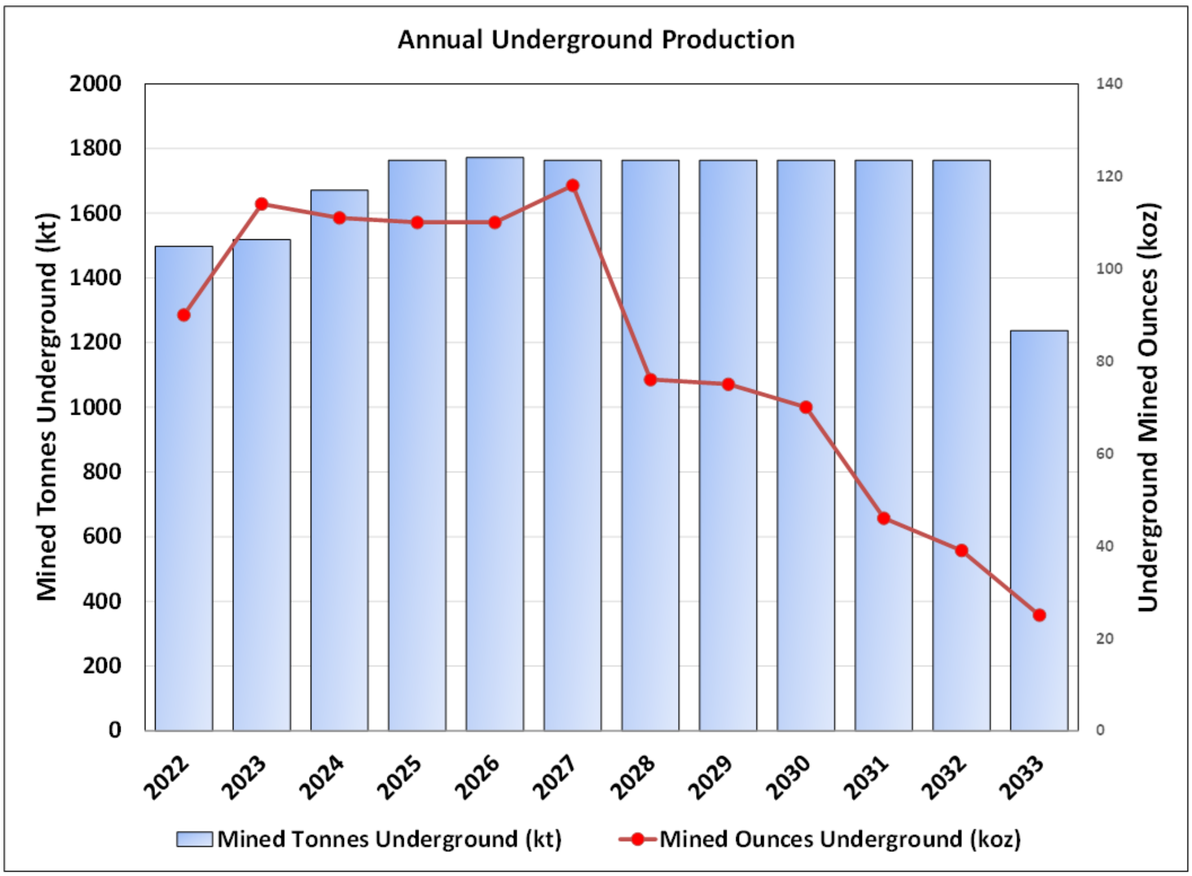


Figure 22-1: Annual Underground Production

22.8.2 Mill Production

Previously mined lower grade stockpiled material provides supplemental mill feed to the underground ore. Combined annual throughput (underground ore + surface stockpiles) is approximately 3.5Mtpa. A summary of the estimated process plant production is contained in Table 22-5 for a 12-year operating life.

Table 22-5: LoM Processing Production Summary

Description	Units	Value
Total Ore Processed	kt	42.2
Gold Processed Grade	g/t	0.91
Silver Processed Grade	g/t	1.89
Copper Processed Grade	%	0.35
Gold Recovery	%	90.8
Silver Recovery	%	47.4
Copper Recovery	%	89.2
Recovered Gold	**koz**	**1,128**
Recovered Silver	**koz**	**1,226**
Recovered Copper	**kt**	**133**

Figure 22-2 shows the split of mill feed between underground and stockpiles. Underground feed ramps up from 2022 to 2024 in line with the schedule and starts tailing off after 2032.

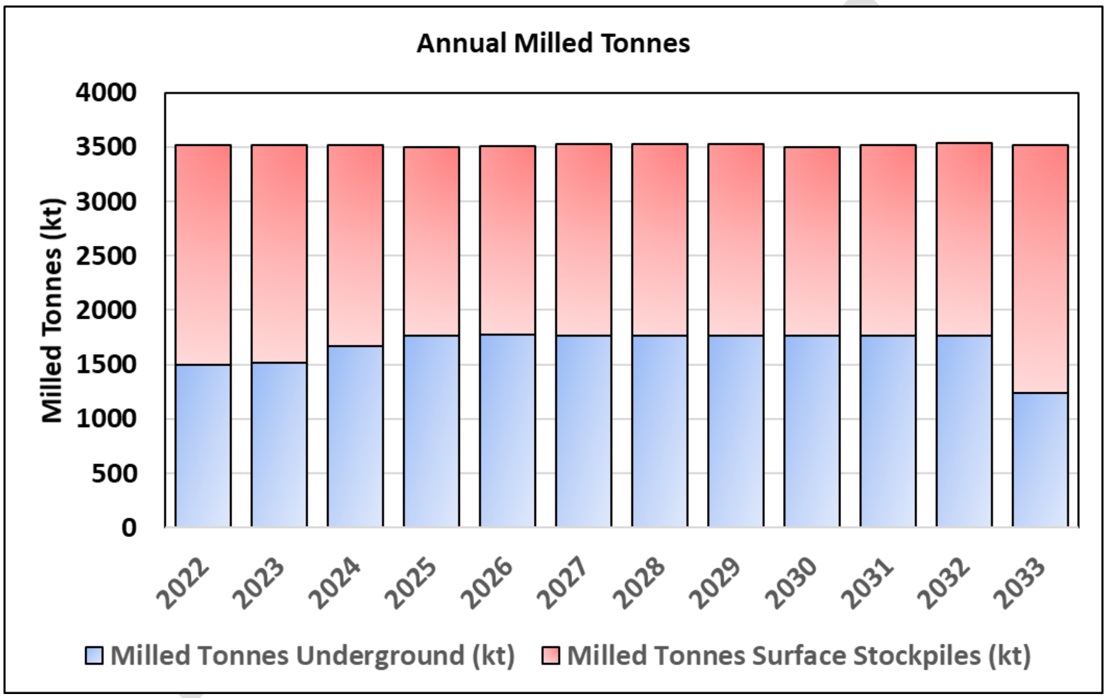


Figure 22-2: Annual Processing By Source

22.8.3 Operating and Capital Costs

No contingency was applied to capital and operating costs within the economic model. The total operating cost unit rate of US$27.37/t milled is summarised in Table 22-6.

Table 22-6: Operating Cost Summary

Description	Total (US$000s)	$/t Mined
Surface Operations (CSP and Stockpile Reclaim)	64,273	3.21
Underground Mining	510,705	25.48
Total Mining	574,978	27.56
Description	**Total (US$000s)**	**$/t Milled**
Processing	245,258	5.81
General and Administration	335,013	7.94
Total Operation ($/t Milled)	**1,155,249**	**27.37**

Several cost items are excluded from the operating cost, as detailed in Table 22-7, which OceanaGold does not consider to be direct operating costs but the operation does incur. These include royalties and costs associated with transport, handling, and refining costs.

Table 22-7: Selling Costs

Description	Total (US$000's)	$/t Milled
Gold Dore Freight, Handling and Refining	3,678	0.09
Concentrate Freight, Handling and Refining	203,864	4.83
Total Freight, Handling and Refining	**207,542**	**4.92**

Total LoM capital costs totalling US$136.8 million are summarized in Table 22-8.

Table 22-8: Capital Cost Summary

Description	Sustaining Capital (US$000's)	Non-Sustaining Capital (US$000's)	Total (US$000's)
Operations Information Technology	3,306		3,306
General Operations Expenditure	40,271		40,271
Brownfields Exploration	1,646		1,646
Operations Based Mining Projects	16,537		16,537
UG Mine Development	16,314		16,314
Rehabilitation	2,150	3,119	5,269
General Corporate Expenditure		26,423	26,423
Greenfields Exploration		5,683	5,683
Stand-alone CSR Projects		13,280	13,280
UG Mine Development		8,111	8,111
Total Capex	**80,225**	**56,615**	**136,840**

22.8.4 Cashflow – Consensus Scenario

The results of the consensus scenario are summarized in Table 22-9. The results indicate that at metal prices as per Table 22-1, the project returns after-tax net cashflows of US$848 million and an after-tax NPV5% of US$709 million, with an All-In Sustaining Cost("AISC") of US$726/oz Au equivalent.

Table 22-9: Consensus Scenario Economic Results

Consensus Scenario Cashflow US$000's	
Market Prices	
Gold (US$oz)	As per price deck
Copper (US$/lb)	
Silver (US$/oz)	
Revenue	**US$000's**
Gross Gold Revenue	1,844,696
Gross Copper Revenue	1,065,989
Silver by-Product Credit	25,357
Total Revenue	**2,936,042**
Direct Operating Costs	
Underground Mining	(574,978)
Processing	(245,258)
General and Administration	(335,013)
Total Direct Operating Costs	**(1,155,249)**
Selling Costs	(207,542)
Royalties, production taxes, levies, government payments	(416,738)
EBITDA/Operating Cashflow	**1,156,514**
Income Tax	(172,051)
Capital Expenditure	(136,840)
After-Tax Net Cash Flow	**847,623**
After-Tax NPV @ 5%	**709,041**

Figure 22-3 shows net cashflows and capex for the consensus scenario.

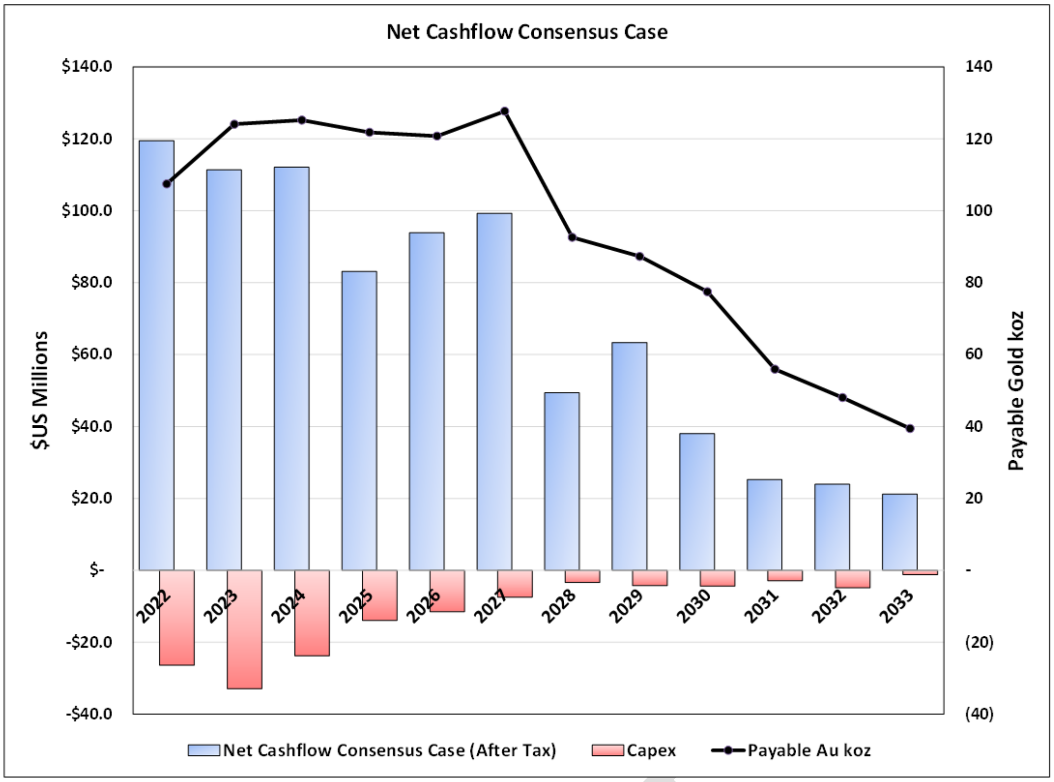


Figure 22-3: Consensus Scenario Net Annual Cashflow

Cumulative net cashflow and NPV (both after tax) for the consensus scenario are shown in Figure 22-4.

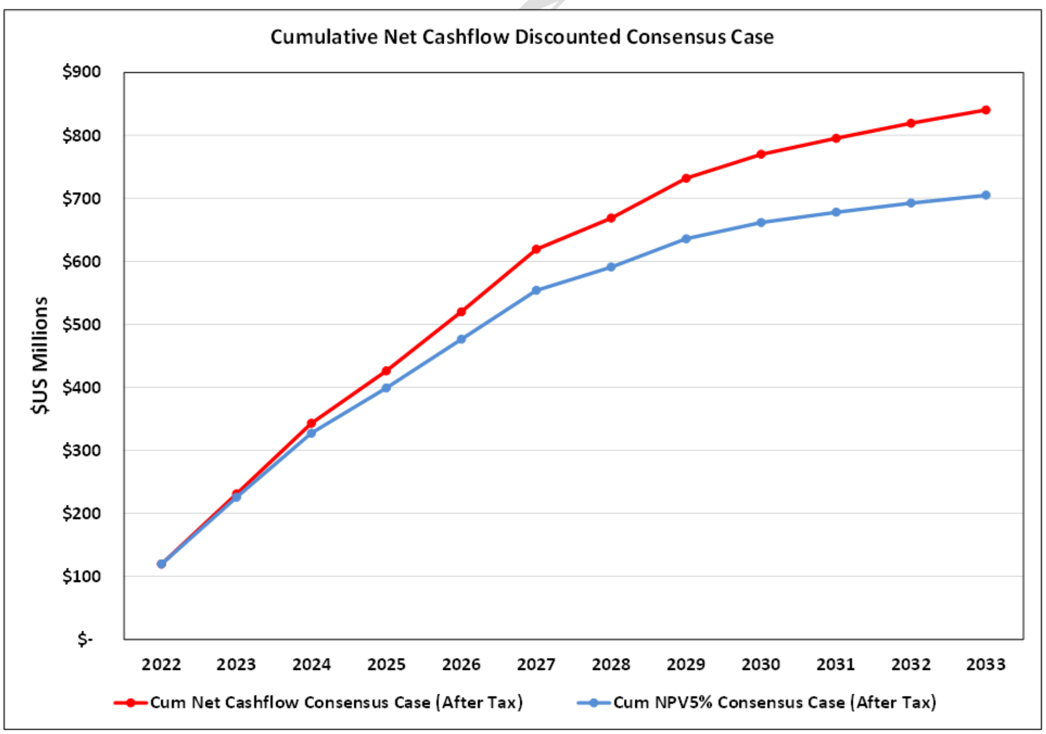


Figure 22-4: Consensus Case Cumulative Cashflow and NPV5%

22.8.5 Cashflow - Reserves Scenario

The economic model is prepared on an annual after-tax basis, the results of which are summarized in Table 22-10. The results indicate that at a US$1500/oz gold price the project returns after-tax net cashflow of US$703 million with an after-tax NPV 5% of US$579 million. All-in Sustaining Cost ("AISC") for the reserves scenario is US$807/oz Au equivalent.

Table 22-10: LoM Reserves Scenario Economic Results

Reserves Scenario Cashflow US$000's	
Market Prices	
Gold (US$oz)	1500
Copper (US$/lb)	3.00
Silver (US$/oz)	18.00
Revenue	**US$000's**
Gross Gold Revenue	1,691,752
Gross Copper Revenue	879,863
Silver by-Product Credit	22,069
Total Revenue	**2,593,684**
Direct Operating Costs	
Underground Mining	(574,978)
Processing	(245,258)
General and Administration	(335,013)
Total Direct Operating Costs	**(1,155,249)**
Selling Costs	(207,542)
Royalties, production taxes, levies, government payments	(295,232)
EBITDA/Operating Cashflow	**935,661**
Income Tax	(95,990)
Capital Expenditure	(136,840)
After-Tax Net Cash Flow	**702,831**
After-Tax NPV @ 5%	**579,129**

With significant capital infrastructure already in place at Didipio, the project generates total positive cashflow. No negative cashflow annual periods are incurred throughout the LoM. The latter years production incurs lower grades resulting in declining ounce production and lower positive cashflows. Figure 22-5 shows net cashflows and capex along with payable gold ounces.

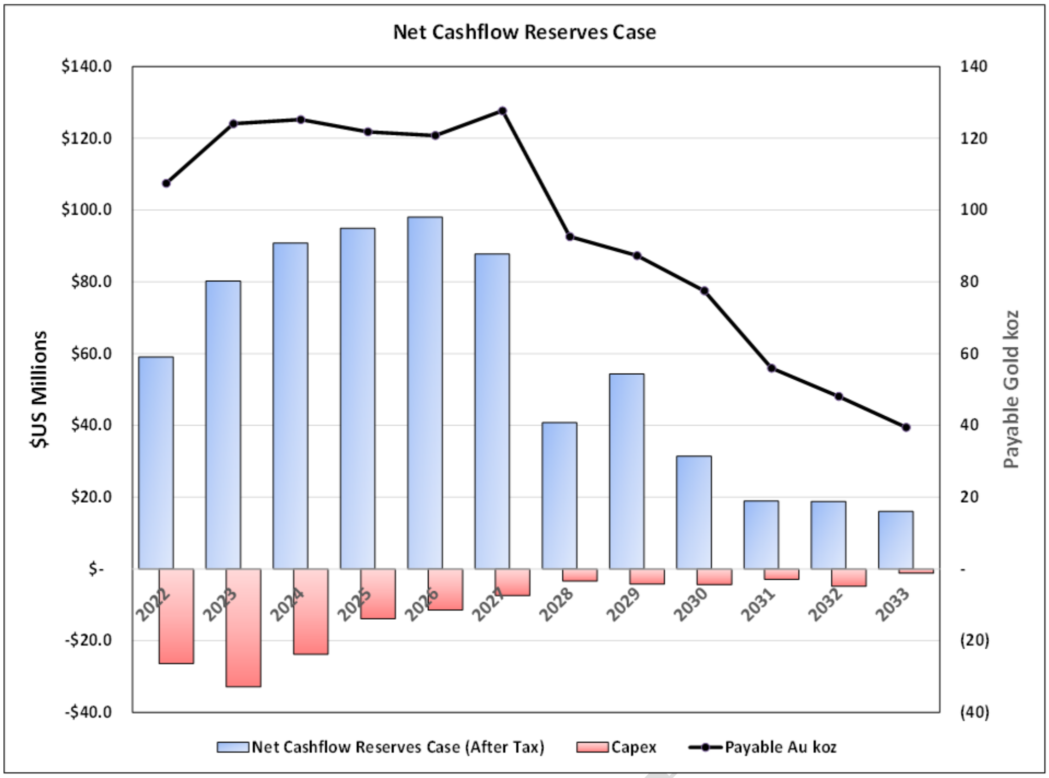


Figure 22-5: Reserves Case Net Annual Cashflow

Cumulative net cashflow and NPV (both after tax) over the LoM are shown in Figure 22-6.

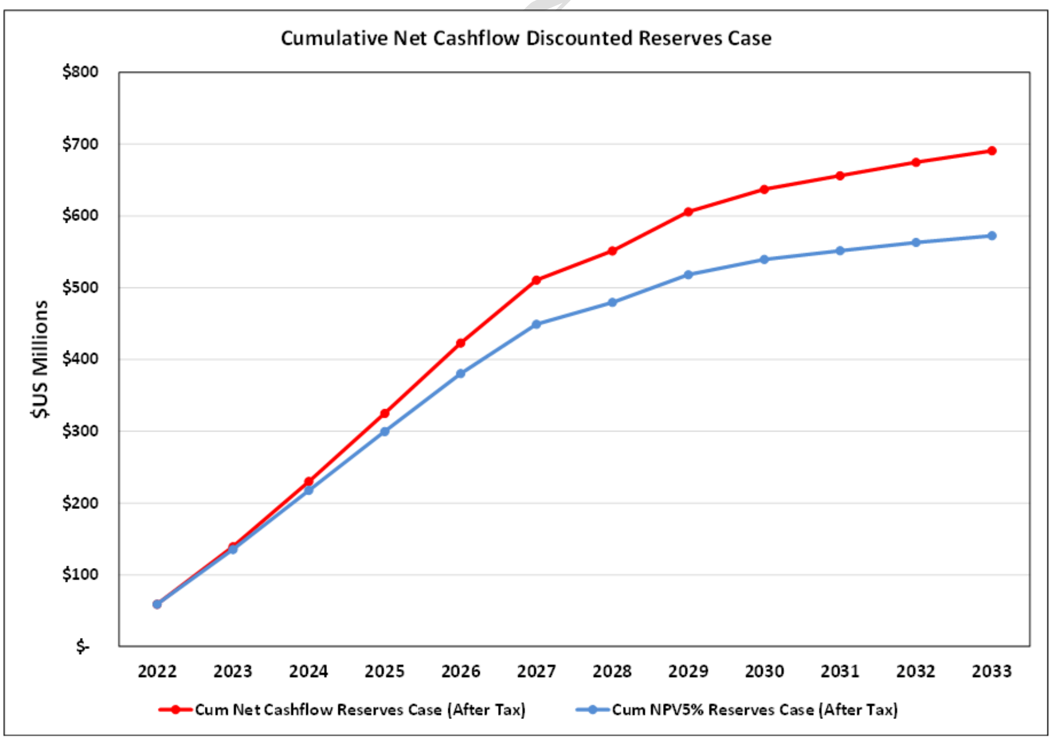


Figure 22-6: Reserves Case Cumulative Cashflow and NPV5%

22.9 Sensitivity Analysis

A sensitivity analysis has been conducted on the reserves case scenario.

22.9.1 Operational Sensitivity

After-tax sensitivity analyses for capital and operating costs are shown in Figure 22-7. The project is more sensitive to operating costs than capital expenditure which is understandable given the large amount of surface and underground infrastructure already in place.

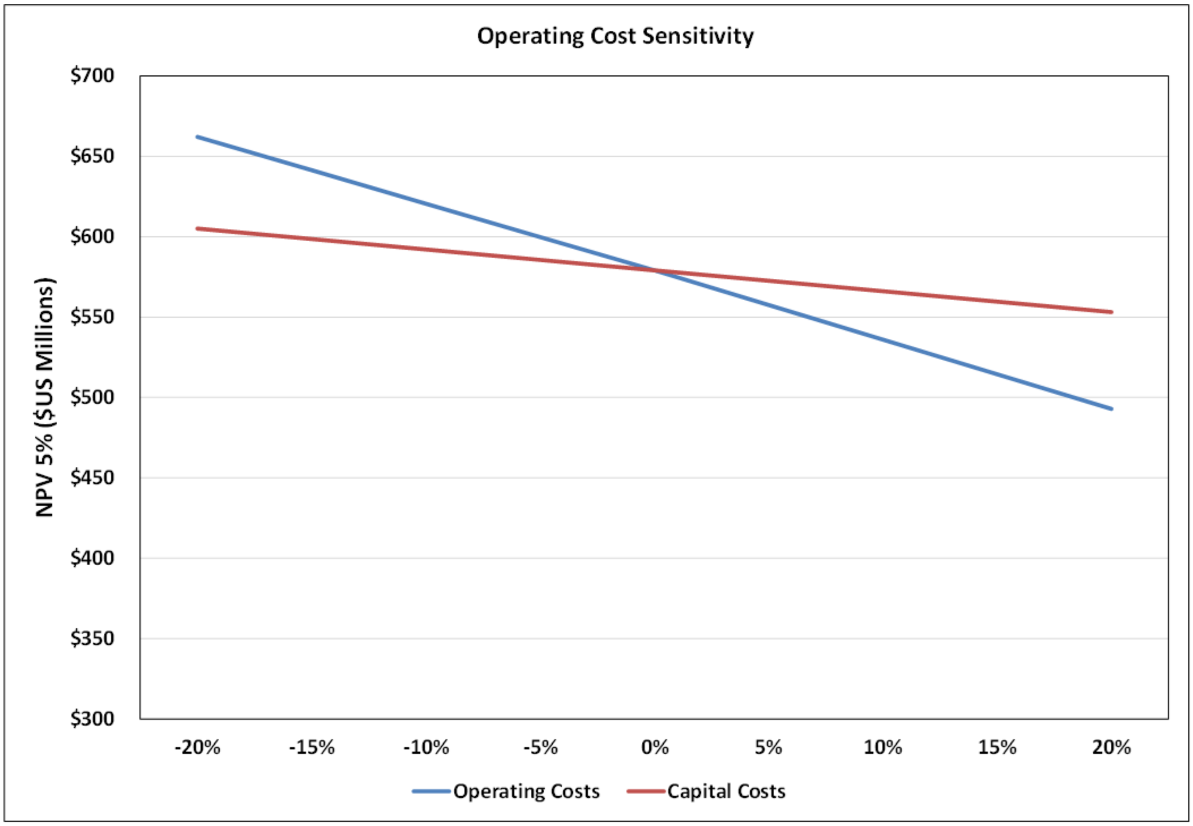


Figure 22-7: Operational Sensitivity

22.9.2 Gold Price Sensitivity

Gold price for the reserves scenario is a flat US$1,500/oz. Additional gold price sensitivity analyses are shown in Figure 22-8 at gold prices of US$1,250/oz and US$1,750/oz.

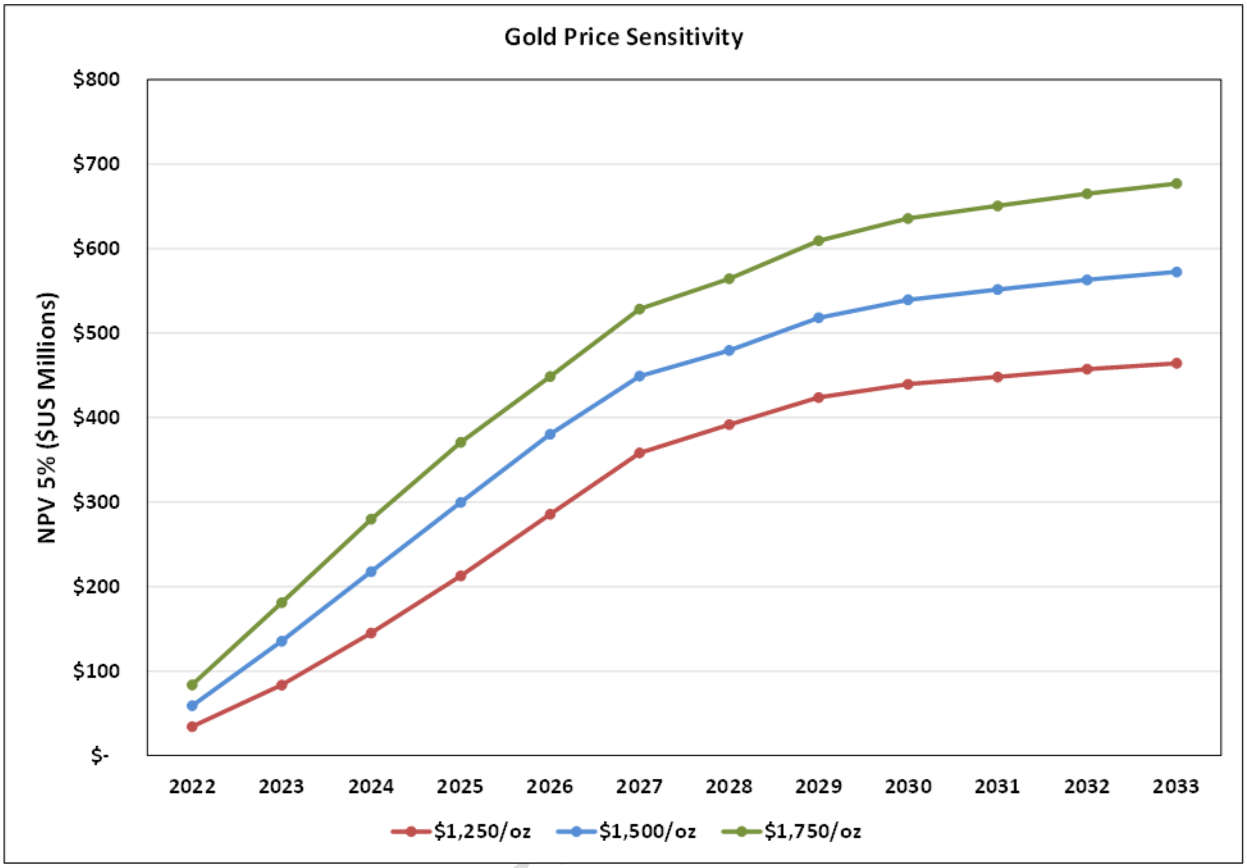


Figure 22-8: Gold Price Sensitivity

22.9.3 Copper Price Sensitivity

Copper price for the reserves scenario is a flat US$3.00/lb. Additional copper price sensitivity analyses are shown in Figure 22-9 at copper prices of US$2.50/lb and US$3.50/oz.

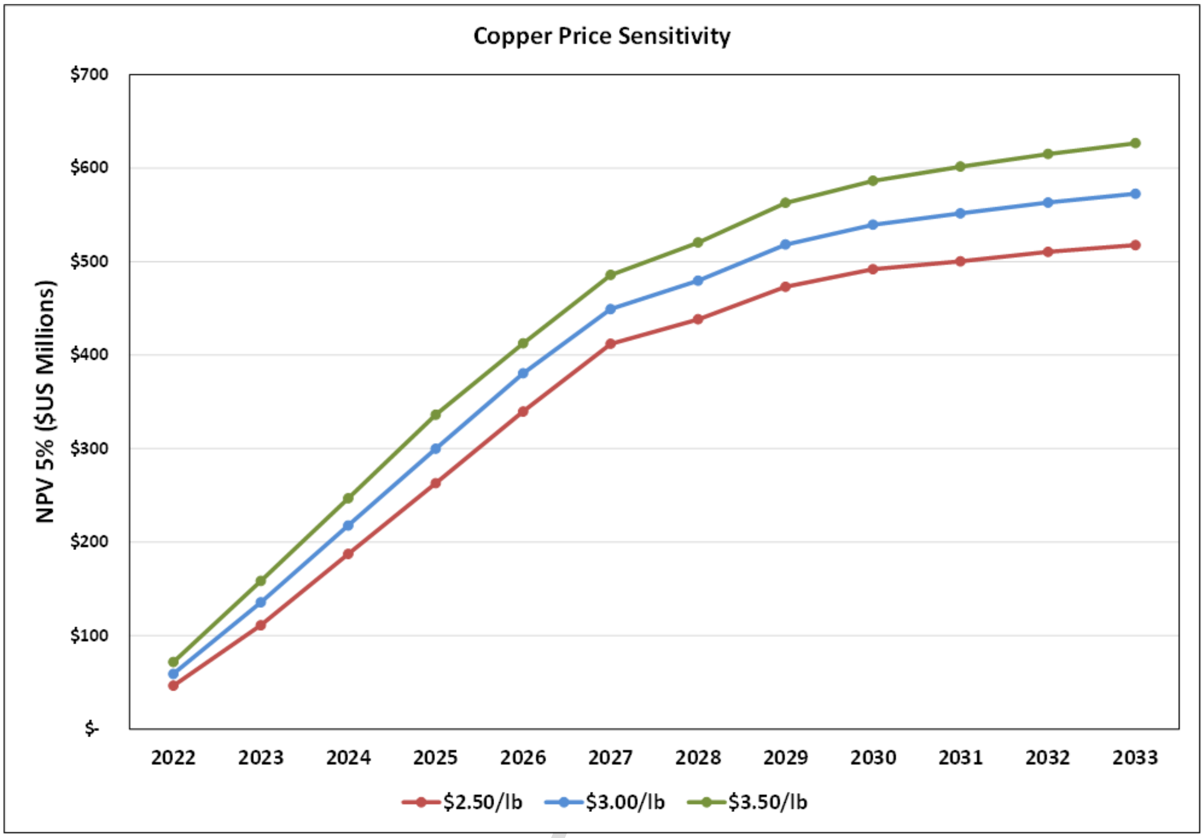


Figure 22-9: Copper Price Sensitivity

22.9.4 Discount Rate Sensitivity

A sensitivity analysis of discount rates presented in Figure 22-10 shows that the project would be NPV positive through a 20% discount rate.

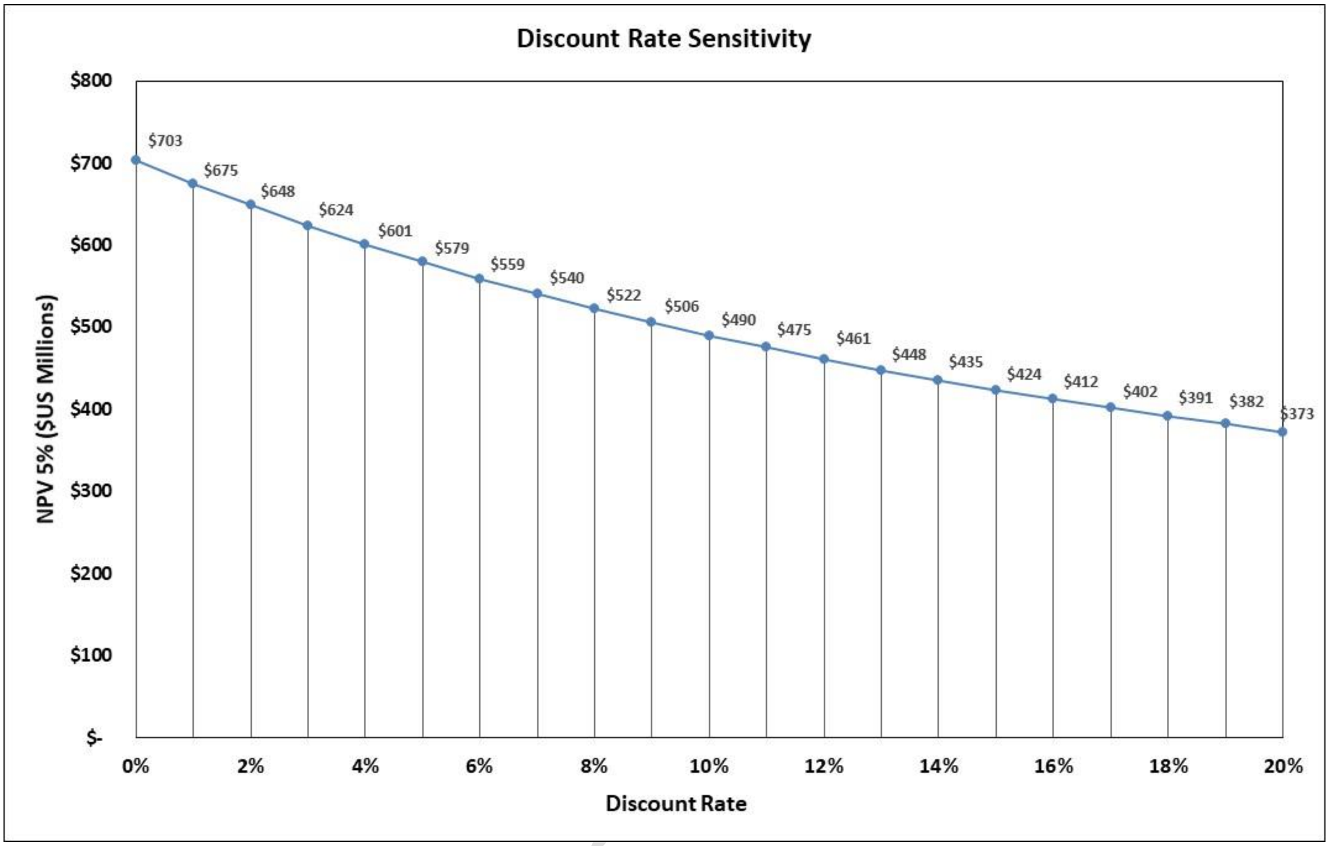


Figure 22-10: Discount Rate Sensitivity

23 ADJACENT PROPERTIES

There are no adjacent properties that are being explored, have identified resources or have any potential impact on the Didipio operation. The area of the renewed Didipio FTAA title held fully contains all the known significant gold-copper mineralisation associated with the operation in the area.

24 OTHER RELEVANT DATA AND INFORMATION

24.1.1 Risk Management

The current study represents an understanding by operations personnel and the project team of significant risks associated with the Didipio operation, while recognising that the level of risk may change over time and that new risks may emerge. A risk register is maintained as a ‘live’ document which forms part of the risk management plan and is subject to regular review.

24.1.2 Health & Safety Performance

The health and safety performance of the Didipio operation is well above the industry average and as a result it has received several awards in recognition of OGPI’s focus on employee health and safety.

Health and safety remain a key focus for OceanaGold. The Health & Safety team promotes continuous improvement through targeted safety initiatives. OGPI’s aim remains ‘Zero Harm’ with a focus on all employees being safe at work and at home.

25 INTERPRETATION AND CONCLUSIONS

25.1 Sampling Method, Approach and Analysis

727 drill holes totalling 106,306m have been used for the estimation of the underground resource. Underground drilling is generally fanned on sections orientated mine grid north-south. This results in a range of intersection angles, from perpendicular to strike and dip, to 45 degrees to strike and dip. The resource estimate is based on diamond core samples, which generally have good recoveries within the mineralised zones. Given the style of deposit, ore body geometry and structural controls on mineralisation, the sampling is considered to be appropriate for the purposes of resource estimation.

25.2 Sampling Preparation, Analysis and Security

The author considers that the sample preparation, security and analytical procedures used for the Didipio operation are appropriate and adequate for the style of mineralisation being assessed. Comparisons between the resource and production samples have provided additional validation.

25.3 Mineral Resources

The resource estimate was constructed in June 2019 using a methodology tested against seven years of open pit and underground geological and geochemical data.

The resource estimate is sub-divided for reporting purposes:

- Surface stockpiles resulting from open pit mining from 2012 to 2017;
- An underground resource between 2,460mRL (base of completed open pit) and 1,980mRL, which has been depleted for mining as at December 31, 2021;
- Mineral Resources are inclusive of Mineral Reserves. There is no certainty that Mineral Resources, not included as Mineral Reserves, will convert to Mineral Reserves;
- The underground resource is reported to an 0.67 g/t AuEq cut-off grade within a volume guided by an optimised stope design which was based on metal prices of US$1,700 per ounce for gold and US$3.50 per pound for copper; and
- AuEq = g/t Au + 1.39 x % Cu. Although silver grades are reported, silver does not contribute to the gold equivalence calculation and is considered as an incidental by-product.

The stockpile, underground and combined resource estimates are presented in Table 25-1 to Table 25-3 and resources are classified in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves and the Joint Ore Reserves Committee's publication Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves - The JORC Code 2012 Edition ("JORC 2012").

Table 25-1: Stockpile Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	22.9	0.33	1.99	0.29	0.25	1.46	0.067
Indicated	-	-	-	-	-	-	-
Measured & Indicated	**22.9**	**0.33**	**1.99**	**0.29**	**0.25**	**1.46**	**0.067**
Inferred	-	-	-	-	-	-	-

Table 25-2: Underground Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	12.6	1.94	2.09	0.49	0.79	0.84	0.062
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.043
Measured & Indicated	**24.9**	**1.45**	**1.78**	**0.42**	**1.16**	**1.42**	**0.10**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

Table 25-3: Combined Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Au (Moz)	Ag (Moz)	Cu (Mt)
Measured	35.5	0.90	2.03	0.36	1.04	2.3	0.13
Indicated	12.3	0.95	1.46	0.35	0.38	0.58	0.043
Measured & Indicated	**47.8**	**0.92**	**1.88**	**0.36**	**1.41**	**2.88**	**0.17**
Inferred	15	0.87	1.3	0.29	0.43	0.64	0.04

The Qualified Person ("QP") considers that the sample preparation, security and analytical procedures used for the Didipio operation are appropriate and adequate for the style of mineralisation being assessed.

The resource estimation and classification approach used for the Didipio deposit has been internally reviewed, including reproduced from first principles and is considered to be appropriate for reporting and mine planning purposes. Long term open pit and underground mine to mill reconciliation performance shows acceptable performance and supports the validity of the resource estimates.

Additional drilling is planned to test and convert Inferred resources that are within the current LoM mined volume and to test convert the Inferred resources that lie below the base of the reserves. The resource estimates have been both internally reviewed and reconciled against production.

25.4 Mineral Reserves

Open pit stockpiles are reported against a 0.40g/t AuEq cut-off grade. Underground is reported against a 1.16g/t AuEq cut-off grade. Underground and surface stockpile reserves are estimated to be 1.23 million ounces of gold, 0.15 million tonnes of copper and 2.57 million ounces of silver as at 31 December 2021. The operating mine life remaining is 12 years with underground production and processing complete in 2033. The average ore grade for underground material is 1.54g/t Au, 0.42% Cu and 1.79g/t Ag. Surface stockpile ore has an average grade of 0.34g/t Au, 0.29% Cu and 1.99g/t Ag as presented in Table 25-4.

Table 25-4: Combined Open Pit and Underground Mineral Reserve Estimate

Reserve Area	Reserve Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Cu (%)	Contained Au (Moz)	Contained Ag (Moz)	Contained Cu (Mt)
Underground	Proven	12.7	1.83	1.98	0.46	0.75	0.81	0.06
	Probable	7.33	1.03	1.44	0.34	0.24	0.34	0.03
Open Pit (Stockpiles)	Proven	22.2	0.34	1.99	0.29	0.24	1.42	0.07
	Probable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Proven		**35.6**	**0.87**	**1.99**	**0.35**	**0.99**	**2.23**	**0.12**
Total Probable		**7.33**	**1.03**	**1.44**	**0.34**	**0.24**	**0.34**	**0.03**
Didipio Total (Dec 2021)		**42.2**	**0.91**	**1.89**	**0.35**	**1.23**	**2.57**	**0.15**

25.5 Mining Methods

25.5.1 Open Pit

Major open pit mining was completed in May 2017. Since that time the only work that has been undertaken in the open pit has been associated with the crown strengthening project, where mining will be complete in early 2022 and backfilling complete in 2024.

25.5.2 Underground

Following recent renewal of the FTAA in 2021 and remobilisation of the workforce, underground activities recommenced in September 2021. Underground production throughput will ramp up from 1.4Mtpa in 2022 to 1.7Mtpa in 2024. This mining rate is maintained before a reduction in available stoping fronts towards the tail end of the mine results in reduced throughput in 2032 and 2033. The underground schedule is based on productivity assumptions using a combination of historic rates achieved at Didipio and first principles. The schedule was completed using Deswik mine planning software and is based on operations occurring 365 days/year, seven days/week, with two 12-hr shifts each day.

Top-down LHOS is the preferred method of stope extraction at Didipio, utilising paste backfill. The primary/secondary sequence allows for multiple stoping fronts, increased throughput and scheduling flexibility. Optimisation of the crown pillar area has resulted in a safer and more efficient sequence for extraction of stopes near the pit floor. A previously planned sill pillar at the 2250mRL is no longer required due to the change to a top-down mining sequence, reducing geotechnical risks and improving recovery of ore through this level. Stoping through the breccia zone has initially proved problematic due to poor ground conditions, however changes to the mining method through this area via a pre-placed paste fill crown have alleviated these issues. Dual lift stopes up to 60m in the monzonite zone have been extracted successfully. Dill and blast cycle times and accuracy are anticipated to improve with the recent mobilisation of a Rhino Raisebore rig.

Groundwater modelling is an important tool at Didipio to ensure that dewatering strategies are appropriately sized, funded and implemented. High groundwater inflows at Didipio have been successfully predicted in advance of mining fronts allowing for adequate planning and resourcing. Lateral development priorities include extensions of the main decline in the lower part of the mine to allow for active dewatering ahead of stoping fronts. Adequate dewatering infrastructure is in place for the upper sections of the mine (Panel One) and the installation and commissioning of CPS1 (lower pump station) in 2024 will allow for stoping to commence in Panel Two.

25.6 Metallurgy and Processing

The process plant has been successfully run for seven years since commencement of commercial production. In October 2019 there was an approximate two-year cessation of milling activities while the FTAA was renewed. Milling operations restarted in November 2021 following some minor plant modification/upgrades and will be operating at 3.5Mtpa by early Q2 2022. The mill workforce and management team has been re-established and achieved a mill restart two weeks ahead of schedule. The plant is capable of operating at rates over 4Mtpa, however the LoM is based on the plant operating at 3.5Mtpa in line with the current ECC permit.

Plant recovery for both copper and gold has tracked well for over six years with recovery models developed for the orebody from testing of drill core samples of ore, testing of core samples from established stockpiles and plant data on grind size sensitivity and provides ongoing confidence in forward production planning using the established relationships.

25.7 Infrastructure

All mine site infrastructure is in place and maintained to support the underground operations including tailings storage facility, paste backfill plant, workshops, change rooms, electrical sub-stations and switch gear, camp, water treatment plant and ore processing facilities.

No further significant new infrastructure or upgrades are planned.

Ongoing projects to optimise the operation include the construction of an additional water treatmnet plant for underground water discharged off site.

25.8 Environmental and Permitting

The Didipio operation holds the permits, certificates, licences and agreements required to conduct its current operations. In addition to the FTAA, ECC, PDMF and the other primary permits associated with the site, OGPI maintains a range of secondary operating permits. Permits are reviewed and, where applicable, renewed as part of the ordinary course of OGPI's business.

OGPI is required to ensure that the subject mining activities are managed in a technically, financially, socially, culturally and environmentally responsible manner, in accordance with the ECC. An ECC obliges the company to comply with a comprehensive set of conditions, including submission and implementation of an Environmental Protection and Enhancement Program ("EPEP") for the life of the mine.

The ECC system and the Implementing Rules and Regulations of the Mining Act regulate a funding structure to ensure company compliance with EPEP commitments and ensure immediate funding in the form of a Contingent Liability and Rehabilitation Fund ("CLRF") is available for rehabilitation in the event of environmental damage during mining operations. CLRF funds are held in a Philippine government deposit account and administered by the DENR.

The Didipio operation also has a Final Mine Rehabilitation Plan/Decommissioning Plan and Final Mine Rehabilitation/Decommissioning Fund to pay for end of mine life rehabilitation.

The Didipio operation, including land uses associated with the open pit, underground mine, excavations, and related engineering structures and installations where permanent mine facilities are established, are expected to result in consequential environmental and social impacts that are within acceptable regulatory limits.

25.9 Economic Analysis

The project over it's 12-year LoM incurs capital costs of US$186 million and operating costs of US$1,155 million.

Project economics presented in this report using a consensus price scenario results in after-tax net cash flow of US$848 million and NPV5% of US$709 million.

Using a flat US$1,500/oz gold price and US$3.00/lb copper price results in an after-tax net cash flow of US$703 million results in an NPV 5% of $579 million.

Project economics are robust for both scenarios.

The project is most sensitive to gold price and operating costs. With significant capital infrastructure already in place, the project is not particularly sensitive to capital costs.

26 RECOMMENDATIONS

26.1 Resource Definition

- During the ramp up phase, OceanaGold will focus on rebuilding site technical capacity in geological mapping, logging, interpretation and estimation;
- Underground infill drilling will continue to convert Indicated Resources to Measured Resources and the models will be updated periodically. Extensional drilling will also be undertaken;
- The geological understanding and classification of the high-grade breccia complex and Balut complex at depth will continue to be advanced; and
- Rock-type characteristics to allow 3D geometallurgical modelling and scheduling will continue be investigated.

26.2 Open Pit Mining

The key recommendations relating to the open pit include:

- Complete crown stabilisation related work; and
- Maintain and monitor the open pit so access to the UG is not impinged.

26.3 Underground Mining

The key recommendations relating to the underground project include:

- Continue to advance the main decline and commission CPS1 in 2024 to provide adequate dewatering to the lower half of the mine;
- Continual improvement around stoping practices in the breccia and monzonite zones focusing on quality control and faster stope turnover;
- Improved utilisation of mobile equipment via remote/autonomous trucking and loading over shift change;
- Conduct further studies to investigate underground bottlenecks and expansion/throughput opportunities. Additional underground material available earlier in the LoM would be processed before lower grade stockpiles, increasing net present value;
- Current LoM mill feed is a combination of open pit stockpiles and underground ore. Further studies should be conducted to determine requirements for sustainable underground only operations once surface stockpiles are depleted. Parameters including underground throughput, operating costs, labour requirements, infrastructure and capital requirements, and cut-off grade strategy should be further investigated;
- Approximately 4Mt of Inferred Resources are near current planned designs (to the 2100mRL). Minimal capital expenditure is required to complete infill drilling programs as most capital infrastructure is already in place. Conversion of Inferred Resources above the 2100mRL to Measured and/or Indicated has the potential to introduce higher grade material to the underground mine plan, displacing lower grade stockpile material from the processing plan, and increasing net present value; and

- Current designs extend to the 2100mRL however potential exists for extension of the decline for exploration programs beneath current designs.

26.4 Process Plant

The key recommendations relating to the process plant include:

- Complete the upgrade to the gravity gold circuit by the end of Q3 2022;
- Complete the controlled Potential Sulfidation Project;
- Evaluate the benefits of increasing processing rates to >4Mtpa from treating stockpiles or accelerating underground mining rates; and
- Continue future ore testing for recovery variability on underground drill core as it becomes available.

26.5 Environment and Permitting

The key recommendations relating to environment and permitting include:

- Complete permitting for the updated ECC increasing allowable milling rates to 4.3Mtpa;
- Complete permitting and construction of the underground mine water Arsenic treatment plant.

26.6 Corporate / ESG

The key recommendations relating to Corporate/ESG include:

- Complete the relocation of the OGPI office from Makati to a location and in the time frame as defined in the terms of the renewed FTAA;
- Complete amendments to company structure to allow the listing of OGPI on the Philippines stock market in the time frame specified in the renewed FTAA; and
- Complete the necessary commercial arrangements so as to enable the sale of doré to the Philippines Government as defined in the renewal terms of the FTAA.

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28 TECHNICAL GLOSSARY AND ABBREVIATIONS

The following general mining terms may be used in this report.

“AAS” atomic absorption spectroscopy

“ABC Refinery” Gold refining company located on east coast of Australia

“AEP” Annual Exceedance Probability

“AEPEP” Annual Environmental Protection and Enhancement Programmes

“Ag” silver

“AISC” All-in sustaining cost

"**AMC**" AMC Consultants Pty Ltd, a mining consultancy

“AMD” Acid Mine Drainage

“Amdel” an assay and metallurgical testing laboratory

“Analabs” Analabs Proprietary Limited, an assay laboratory

“AMMTEC” a metallurgical testing and consultancy firm

“ANCOLD” means the Australian National Committee on Large Dams Inc., which is an Australian based non-government, non-profit association of professional practitioners and corporations with a professional interest in dams. ANCOLD is a member of the International Commission on Large Dams (ICOLD) and publishes internationally recognised guidelines for the sustainable development and management of dams and water resources.

“**APMI**” Australasian Philippines Mining Incorporated

“**Arimco MC**” Arimco Mining Corporation

“ASX” Australian Securities Exchange

"**ATV**" Acoustic Televiewer

“ATP” Arsenic treatment plant

“Au” gold

“AU$” Australian dollar

“AuEq.” gold equivalent

“AusIMM” Australian Institute of Mining and Metallurgy is a professional body representing geologists

"Ausenco" a metallurgical testing and consultancy firm

"Barangay" is the smallest administrative division in the Philippines and is the native Filipino term fora village, district or ward.

"BD" Bulk density

"BFPP" Back Fill Paste Plant

"**BIR**" Bureau of Internal Revenue

"Block Model" is a computer based representation of a deposit in which geological zones are defined and filled with blocks which are assigned estimated values of grade and other attributes. The purposeof the block model is to associate grades with the volume model.

"bulk density" is the dry in situ tonnage factor used to convert volumes to tonnage.

"BSP" Bangko Sentral ng Pilipinas is the Philippines Central Bank

"CAMC" Climax-Arimco Mining Corporation

"CCO" Contractor Camp

"CDF" Community Development Fund which is part of the FTAA agreement

"CIM" the Canadian Institute of Mining, Metallurgy and Petroleum

"CIM Standards" are the CIM Definition Standards for Mineral Resources and Mineral Reserves adopted by the CIM Council on 27th December, 2010, for the reporting of Mineral Resource, Mineral Reserve and mining studies used in Canada. The Mineral Resource, Mineral Reserve, and Mining Study definitions are incorporated, by reference, into NI 43-101, and form the basis for the reporting of reserves and resources in this Technical Report. With triple listings on the TSX, ASX and NZX, OceanaGold also reports in accordance with the JORC Code and where necessary reconciles its reporting to ensure compliance with both the CIM Standards and the JORC Code.

"CIP" carbon in pulp

"Climax" Climax Mining Limited and, as the context requires, its related bodies corporate

"**CLRF**" Contingent Liabilities and Rehabilitation Fund

"CLRFSC" Contingent Liability and Rehabilitation Fund Steering Committee

"cm" centimetre(s)

"CMS" Cavity measuring system

"CPS" Controlled Potential Sulphidisation is a process to reduce recovery losses due to the oxidation of sulphide ore.

"CPS" Capital pump station

“CSP” Crown Strengthening/Stabilisation Project – Mining project to strengthen and stabilise the ground above the underground mine

“CRF” cemented rockfill placed above the underground mine

“CSR” corporate social responsibility

“Cu” copper

“cut-off grade” or CoG is the lowest grade value that is included in a Mineral Resource statement, being the lowest grade, or quality, of mineralised material that has reasonable prospects for eventual economic extraction.

“CWC” Credible Worst Case

“Cyprus” Cyprus Phillippines Corporation

“DCS” Distributed Control System is a platform for automated control and operation of industrial process

“DFS” Definitive Feasibility Study is an economic study that indicates a project is economically viable

“Delta” Delta Earthmoving, Inc

“DOE” Philippines Department of Energy

“DENR” is the Department for the Environment and Natural Resources. The DENR is the Philippines government agency primarily responsible for implementing the government’s environmental policy and for regulating the exploration, development, utilization and conservation of the Philippine’s natural resources.

“DH” drill hole

“diamond drilling” is a rotary drilling technique using diamond set or impregnated bits, to cut a solid, continuous core sample of the rock.

“Dicorp” Didipio Community Development Corporation is an organisation formed to mange the Didipio Camp and its facilities

“DWi” drop weight index is a measure of ore hardness

"**DWP**" Development and Utilisation Work Program

“E” East

“ECC” means an Environmental Compliance Certificate, issued by the DENR, certifying compliance with the EISS.

“EFO” Extra fine ore

“EGF” Environmental Guarantee Fund which is an amount paid to the Philippines government to guarantee funds are available for environmental clean ups.

"EGL" effective grinding length

"EIARC" Environmental Impact Assessment Review Committee

"**EIS**" Environmental Impact Study

"EISS" means the Environmental Impact Statement System, established under the Mining Act for classifying projects in terms of their potential impact on the environment. A project that is classified as environmentally critical or located in an environmentally critical area requires an ECC from the DENR, certifying that the operator will not cause a significant negative environmental impact and has compliedwith all of the requirements of the EISS.

"EMB" means the Philippine Environmental Management Bureau, established within the Department ofEnvironment and Natural Resources, as the Philippines national authority responsible for pollution prevention and control, and environmental impact assessment.

"EOM" end of month

"EOY" end of year

"EPEP" means the Environmental Program and Enhancement Program for the Didipio operation submitted under the conditions of the ECC

"**EPRMP**" Environmental Performance Report and Management Plan

"ERT" Emergency Response Team

"ESE" East South East

"ETF" means the Environmental Trust Fund established for the Didipio operation under the conditions of the ECC

"EXCO" means Executive Committee which is made up of a group managers who oversee OceanaGold's business affairs

"**FAR**" fresh air rise

"Fe" iron

"FEL" font end loader

"Fibrecrete" combination of concrete and carbon fibres which is sprayed onto wall

"FMR/DP" Final Mine Rehabilitation Plan / Decommissioning Plan

"**FMRDF**" Final Mine Rehabilitation and Decommissioning Fund

"FMRDP" means the Final Mine Rehabilitation/Decommissioning Plan which is reviewed bythe Mine Rehabilitation Fund Committee

"FOREX" foreign exchange

"FTAA" Financial or Technical Assistance Agreement

"FTD" Flow through drain

"g" gram(s)

"G&A" general and administration costs

"GCMP" A Ground Control Management Plan – a plan for management of underground mine openings

"**GHD**" GHD (Australia) Pty Ltd

"GRG" gravity recoverable gold

"g/t" grams per metric tonne

"GTA" graphite tube atomisation

"h" hour

("H") height

"H&S" Hellman and Schofield **"ha"** hectare(s)

"HDPE" high density polyethylene

"Hg" mercury

"HLUR" Housing and Land Use Regulatory Board

"HQ" is a reference to the ~ 96 mm diametre of drill rods used to recover diamond drill core

"HV" is High Voltage

"IBC" Intermediate Bulk Container used for transport of chemicals

"Implementing Rules and Regulations" means DENR Administrative Order No. 2010- 21, 28th June, 2010, issuing Revised Implementing Rules and Regulations of Republic Act No. 7942, Otherwise Known as the "Philippine Mining Act of 1995"

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

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

"IRR" internal rate of return

"IP" is an electrical geophysical exploration method

"**JK**" JK Tech Proprietary Limited

"**JORC Code**" means the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves which became effective 20th December, 2012 and mandatory from 1st December, 2013. The JORC Code is the accepted reporting standard for the ASX and the NZX.

"K" Potassium

"kg" kilogram(s)

"km" kilometre(s)

"km^2" square kilometre(s)

"koz" thousand troy ounces

"kPa" kilo pascals – a measure of force

"kt" thousand metric tonnes

"kV" kilovolts

"kW" Kilowatt

"kWh" kilowatt hour(s)

"kWh/t" kilowatt-hours per tonne

"lb" pound(s)

"L" length

"L" litre

"L/s" litre per second

"Level" a mining term to describe the location of a mine working

"**LHD"** Load Haul Dump loaders – underground mining equipment

"LHOS" Long hole open stoping is an underground mining method

"LBMA" Bullion Market Association

"LoM" or "LoMP" Life of Mine – Life of Mine Plan

"LRS" liquid resistance starter

"µm" micron or micrometre

"m" metre(s)

"M" million(s)

"MM" Measurement scale for earthquakes Mercalli Scale

"m^3" cubic metre(s)

"m^3/h" cubic metres per hour

"m^3/d" cubic metres per day

"m/s" metres per second

"m/day" metres per day

"m/month" metres per month

"m^3/s" cubic metres per second

"Ma" million years

"MDE" Maximum Design Earthquake

"MDT" Mine dewatering tank

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

"Mesh" a sieve hole size for sieves used in laboratories

"**Metso**" Metso Technology PTSI Pty Ltd

"MGB" means the Mines and Geosciences Bureau, established under the DENR to administer the Mining Act.

"Mineral Reserve" as defined under the CIM Standards is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined. The term "Mineral Reserve", when used in this Technical Report, is consistent with “Ore Reserve” as defined by the JORC Code.

“Mineral Resource” as defined under the CIM Standards is a concentration or occurrence of diamonds, natural solid inorganic material or natural solid fossilized organic material including base and precious metals, coal and industrial minerals in or on the Earth’s crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

“Mineralisation” means the concentration of minerals in a body of rock.

“Mining Act” means Republic Act No. 7942, also known as the Philippine Mining Act 1995, which governs the granting of rights to explore and mine for minerals in the Philippines.

“Minproc” A mining consultancy firm

"Ml” million litres

“Mlb” million pounds. The unit of measure for copper is pounds lb

“mm” millimetre(s)

“MMT” Multipartite Monitoring Team

“**MoA”** Memorandum of Agreement

“Moz” million troy ounces

"**MRF**" Mine Rehabilitation Fund

“MPa” million pascals

"**MRFC**" means Mine Rehabilitation Fund Committee established to administer the EPEP and FMRDP and comprising representatives of the DENR, local authorities, community representatives and a representative of OGPI

“mRL” metres above sea level. Note: for technical reasons all mRL coordinates described in this Technical Report have had 2000m added, ie: 2000m represents sea level.

“Mt” million metric tonnes

“MTF” Monitoring Trust Fund

“Mtpa” million tonnes per annum

“MW” megawatt(s)

"**MWT**" Mine Waste and Tailing Fees

“N” North

“NAPP” Negative acid producing potential

“NATA” National Association of Testing Authorities, the body which accredits laboratories and inspection bodies within Australia

“NE” Northeast

“NGCP” National Grid Corporation of Philippines

“NI 43-101” National Instrument 43-101 – Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators.

“NNE” North Northeast

“NPV” Net present value

“NQ” is a reference to the ~ 76 mm diameter drill rods used to recover diamond drill core.

“NSR” Net smelter return

“NUVELCO” Nueva Vizcaya Electric Cooperative

“ODBC” Internationally accepted data base standard for storing information in computer software

“OBE” Operating Basis Earthquake

“OceanaGold” means OceanaGold Corporation and/or any of its subsidiaries.

“OCEANAGOLD” or **“OGC” or OGL** means OceanaGold Corporation

“OGPEC” means OceanaGold (Philippines) Exploration Corporation (previously Arimco Mining Corporation, then Climax Arimco Mining Corporation)

“OGPI” means OceanaGold (Philippines) Inc, a wholly owned entity of OceanaGold Corporation, (previously Australasian Philippines Mining Inc)

“OHPL” Overhead Power Line

“Ordinary Kriging” is a grade estimation technique.

“OP” Open pit

“OREAS” certified gold and copper reference standards produced by Australian-based company Ore Research and Exploration and used internationally in the assay of samples.

“Orica” Orica Philippines Inc.

“oz” Troy ounce (31.103477 grams)

“Pb” Lead

“PCE” Pollution Control Equipment

“PDF” Provincial Development Fund

“PDMF” Partial Declaration of Mining Feasibility

“PDS” Project Development Study – a study into economic viability of a project

"PIMA" Portable Infrared Mineral Analyser

“PHP” Philippine Peso

“PLI” Point Load Index is a measure of rock strength

“PoF” Probability of a rockmass failing

“ppm” Parts per million

“PQ” is a diamond drill tube size equivalent to 85 mm inside diameter.

“Preliminary Feasibility Study” as defined under the CIM Standards is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on mining, processing, metallurgical, economic, marketing, legal, environmental, social and governmental considerations and the evaluation of any other relevant factors which are sufficient for a Qualified Person, acting reasonably, to determine if all or part of the Mineral Resource may be classified as a Mineral Reserve. The CIM Standards require the completion of a Preliminary Feasibility Study as the minimum prerequisite for theconversion of Mineral Resources to Mineral Reserves.

“Probable Mineral Reserve” as defined under the CIM Standards is the economically mineable part of an Indicated Mineral Resource and, in some circumstances, a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the timeof reporting, that economic extraction can be justified. The term “Probable Mineral Reserve”, when used in this Technical Report, is consistent with “Probable Ore Reserve” as defined by the JORC Code.

“Proven Mineral Reserve” as defined under the CIM Standards is the economically mineable part ofa Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified. The term “Proven Mineral Reserve”, when used in this Technical Report, is consistent with “Proved Ore Reserve” as defined by the JORC Code.

“PSE” Pollution Source Equipment

“Pull” a ventilation term for a ventilation system that sucks are into an opening

"PWT” Process water tank

"pXRF" portable X-ray fluorescence

"Q1" Quarter beginning 1 January and ending 31 March

"Q2" Quarter beginning 1 April and ending 30 June

"Q3" Quarter beginning 1 July and ending 30 September

"Q4" Quarter beginning 1 October and ending 31 December

"QA/QC" quality assurance / quality control

"QP" A qualified person as defined by the relevant reporting code or certification authority/body

"Qualified Person" or **"QP"** as defined under the CIM Standards means an individual who is an engineer or geoscientist with at least five years of experience in mineral exploration, mine development or operation or mineral project assessment, or any combination of these; has experience relevant to the subject matter of the mineral project and the Technical Report; and is a member or licensee in good standing of a professional association.

"QQ" Quantile-Quantile graph is used to measure repeatability of assays

"RAR" Return air rise

"RC" Reverse circulation

"RCF" Rehabilitation Cash Fund

"RCP" Reinforced concrete pipe

"RL" Relative level. Note: for technical reasons all mRL coordinates described in this Technical Reporthave had 2000m added, ie: 2000m represents sea level.

"ROM" Run of mine ore

"RMU" Ring Main Unit is a term for a method of distributing power

"RSCE" RSC Mining and Mineral Exploration is a geological consulting firm

"RQD" the Rock Quality Designation index of rock quality

"S" South

"SAG" Semi-autogenous grinding

"Sandvik" Sandvik Tamrock Philippines Inc

"Saprolite" Strongly weathered rock

"SCSR" Self-contained self-rescuer

"SDF" Social Development Fund with is part of the FTAA conditions

"SDMP" means the Social Development and Management Program prescribed by the Mining Act and its implementing rules and regulations and approved by the MGB.

“SE” Southeast

“SER” Slip energy recovery

“SG” Specific gravity

“SGS” SGS Philippines Inc. SGS is a global analytical laboratory company and provides analytical services to all of OceanaGold’s operating mines.

“SIBX” Sodium Isobutyl Xanthate is a reagent used in gold and copper recovery

“Sirovision” a measurement system that digitally captures images of rockfaces

“SLC” Sub-level cave is an underground mining method

“STDEV” Standard deviation

“STP” Sewage treatment plant

“t” Metric tonne (1,000 kilograms)

“TIN” Irregular triangulated network of point data

“t/m^3” Tonnes per cubic metre

“tpa” Tonnes per annum

“t/day” Tonnes per day

“Trafigura” Trafigura Pte Ltd a concentrate refining company

“TSF” Tailings storage facility

“TSP” The total suspended particulate

“TSS” Total suspended solids

“TSX” Toronto Stock Exchange

“**TWL”** Temperature/thermal work limit – a work standard for underground mines

“UCS” Uniaxial Compressive Strength

“UG” Underground

“US$” United States dollars

“UTM” Universal Transverse Mercator – an internationally recognised surveying grid

“VCRC” Victoria Consolidated Resources Corporation

"VHF" Very high frequency

"W" West

"(W)" Width

"Water Code" means Presidential Decree No. 1067, enacted in 1976, which regulates the taking ofwater from and discharges to rivers and waterways in the Philippines.

"WIRZ" Water Inflow Risk Zone is a volume of rock that contains substantial water and is identified as a risk to underground mining operations

"WGS84" An internationally recognised survey grid which is divided up into zones

"WMP" Water Management Plan documents how water is managed at the Didipio operation

"wmt" Wet metric tonne

"WRD" Waste rock dump

"WTP" Water treatment plant

"wt" Weight

"**XRF**" X-ray fluorescence

"Yr" Calendar year

"**Zn"** Zinc

"3D" Three-dimensional

"@" At

"%" Percent

"feet" Imperial unit of length

"°" Degrees

"°C" Degrees Celsius

"µm" Micron There are 1000 microns to the millimetre

Appendix A: Certificates of Qualified Persons

CERTIFICATE OF QUALIFIED PERSON

I, David Read Carr, MAusIMM (CP) do hereby certify that:

1. I am Chief Metallurgist of OceanaGold Corporation, Level 3, 99 Melbourne St, South Brisbane Qld 4101, Australia.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report for the Didipio Gold/Copper Operation, Luzon Island, Philippines" (Technical Report) with an effective date 31st December, 2021 (the Technical Report).
3. I graduated with a degree in Bachelor of Engineering in Metallurgical Engineering (Hons) from the University of South Australia in 1993.
4. I am a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy. I have worked as a metallurgist for a total of 29 years since my graduation from university. My relevant experience includes base metal flotation, flotation and leaching of gold ores, pressure oxidation of refractory sulphide ores, ultrafine grinding, process plant design, project evaluation and plant commissioning
5. I have read the definition of "qualified person" set out in National Instrument 43-101 (Nl 43- 101) and certify that by reason of my education, affiliation with a professional/technical association, (as defined in Nl 43-101) and past relevant work experience, I fulfill the requirements of a "qualified person" for the purposes of Nl 43-101.
6. I have visited the site on numerous occasions since 2012 with the most recent visit in September 2018.
7. I have been employed by OceanaGold Corporation or its subsidiaries since 2003.
8. I am responsible for the preparation of Sections 1.12, 1.16-1.18, 13, 17, 18, 19, 25.6-25.7, 26.4-26.6 of the Technical Report.
9. I am not independent of the issuer applying all the tests in section 1.5 of Nl 43-101 as I have been a full time employee of OceanaGold Corporation since 2003.
10. Prior to my employment with OceanaGold I had no prior involvement with the property that is the subject of the Technical Report.
11. I have read Nl 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for and have been prepared in compliance with that instrument and form.
12. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 30 March 2022

David Read Carr, MAusIMM (CP)

CERTIFICATE OF QUALIFIED PERSON

I, Phillip Jones, MAusIMM (CP) do hereby certify that:

1. I am Group Mining Engineer (Underground) of OceanaGold Corporation, Level 3, 99 Melbourne St, South Brisbane, QLD, 4101 Australia.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report for the Didipio Gold/Copper Operation, Luzon Island, Philippines" with an effective date 31 December, 2021 (the Technical Report).
3. I graduated with a Bachelor Of Mining Engineering (Hons) from The University of Queensland.
4. I am a Member and Chartered Professional of the Australian Institute of Mining and Metallurgy (Member Number: 209871) and have worked as a mining engineer for a total of 18 years since my graduation. My relevant experience for the purpose of this Technical Report is Mining Engineering.
5. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43- 101) and certify that by reason of my education, affiliation with a [professional/technical] association, (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements of a "qualified person" for the purposes of NI 43-101.
6. I last visited site in January 2020 with travel to site extremely difficulty in recent years due to the global COVID19 pandemic.
7. I have been employed by OceanaGold Corporation since 2019.
8. I am responsible for the preparation of Sections 1.1-1.6, 1.14-1.15, 1.20-1.24, 2-5, 15-16, 21-24, 25.4-25.5, 25.9,26.2 26.3 of the Technical Report.
9. I am not independent of the issuer applying all the tests in section 1.5 of NI 43-101 as I have been a full time employee of OceanaGold Corporation since 2019.
10. Prior to my employment with OceanaGold I had no prior involvement with the property that is the subject of the Technical Report.
11. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for and have been prepared in compliance with that instrument and form.
12. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 30 March 2022.

Phillip Jones, MAusIMM (CP), Membership 209871

CERTIFICATE OF QUALIFIED PERSON

I Jonathan Moore, MAusIMM(CP) do hereby certify that:

1. I am Chief Geologist of OceanaGold Corporation, Level 3, 99 Melbourne St, South Brisbane Qld 4101, Australia.
2. This certificate applies to the Technical Report titled titled ”NI 43-101 Technical Report for the Didipio Gold/Copper Operation, Luzon Island, Philippines” (Technical Report) dated March 31, 2022 (the Technical Report).
3. I graduated with a BSc (Hons) Geology degree from the University of Otago in 1985 and a Graduate Diploma (Physics) in 1993 also from the University of Otago.
4. I am a member and Chartered Professional (Geology) in good standing with the AusIMM. I have worked as a geologist in the mining industry for a total of 32 years since my graduation.
5. My relevant experience for the purpose of this Technical Report is: Geology
6. 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 of a "qualified person" for the purposes of NI 43-101.
7. Mr. Moore has visited the property on a number of occasions and last visited the property in December 2018. During the site visit, Mr. Moore inspected drill core, the underground mine as well as reviewed aspects of mine geology, resource estimation and reconciliation practices.
8. I have been employed by OceanaGold Corporation since [1996].
9. I am responsible for the preparation of sections 1.7 to 1.11, 1.13, 1.19, 1.22, 1.24.1, 6 to 12, 14, 20, 23, 25.1 to 25.3, 25.8, 26.1 and 26.5 of the Technical Report.
10. I am not independent of the issuer applying all the tests in section 1.5 of NI 43-101 [as I have been a full time employee of OceanaGold Corporation since 1996.
11. Prior to employment with OceanaGold in May 1996, I have had no involvement with the Didipio Project.
12. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for and have been prepared in compliance with that instrument and form.
13. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 30 March 2022

Jonathan Moore, MAusIMM(CP), Membership 227252

Appendix B: LoM Annual Cashflow Forecast

Annual Cashflow - Consensus Case (US$000's)													
Description	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**Total (US$000's)**
Market Prices													
Gold (US$/oz)	1800	1700	1650	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Copper ($/lb)	4.20	4.00	3.75	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	
Silver (US$/oz)	24	22	21	20	20	20	20	20	20	20	20	20	
Revenue													
Gross Gold Revenue	193,439	210,928	206,583	194,885	193,226	204,277	148,155	139,690	123,996	89,497	76,894	63,125	1,844,696
Gross Copper Revenue	115,457	106,717	103,484	95,822	103,888	97,830	94,441	90,372	71,243	73,054	61,531	52,151	1,065,989
Silver By-Product Credit	2,925	2,579	2,413	2,167	2,496	2,327	2,033	1,826	1,620	1,647	1,635	1,689	25,357
Total Revenue	**311,821**	**320,224**	**312,480**	**292,875**	**299,610**	**304,434**	**244,629**	**231,889**	**196,859**	**164,198**	**140,060**	**116,964**	**2,936,042**
Operating Costs													
Underground Mining	(56,071)	(57,177)	(55,369)	(51,053)	(48,189)	(46,743)	(47,517)	(46,080)	(44,709)	(43,836)	(41,636)	(36,597)	(574,978)
Processing	(21,420)	(20,665)	(20,898)	(21,204)	(21,229)	(20,857)	(20,781)	(20,888)	(21,972)	(20,563)	(17,319)	(17,461)	(245,258)
General and Administration	(33,157)	(33,986)	(32,298)	(31,732)	(30,504)	(29,621)	(28,975)	(27,900)	(25,728)	(24,307)	(19,390)	(17,416)	(335,013)
Direct Operating costs	**(110,649)**	**(111,828)**	**(108,564)**	**(103,989)**	**(99,922)**	**(97,221)**	**(97,273)**	**(94,868)**	**(92,408)**	**(88,706)**	**(78,345)**	**(71,475)**	**(1,155,249)**
Selling Costs	(19,711)	(19,642)	(19,983)	(19,752)	(20,870)	(20,183)	(18,592)	(17,819)	(14,739)	(14,346)	(11,698)	(10,207)	(207,542)
Royalties, production taxes, levies, government payments	(24,873)	(25,549)	(53,057)	(51,686)	(56,763)	(61,964)	(38,551)	(40,897)	(30,459)	(18,484)	(12,433)	(2,023)	(416,738)
EBITDA / Operating Cashflow	156,588	163,204	130,876	117,447	122,055	125,065	90,214	78,305	59,253	42,662	37,584	33,259	1,156,514
Income tax	(10,783)	(18,943)	4,984	(20,436)	(16,709)	(18,340)	(37,428)	(10,671)	(16,856)	(14,493)	(8,793)	(3,581)	(172,051)
Capital Expenditure	(26,371)	(32,902)	(23,743)	(13,893)	(11,495)	(7,429)	(3,407)	(4,272)	(4,384)	(2,894)	(4,851)	(1,198)	(136,840)
After-Tax Net Cash Flow	**119,434**	**111,359**	**112,117**	**83,119**	**93,851**	**99,296**	**49,380**	**63,361**	**38,013**	**25,274**	**23,940**	**28,480**	**847,623**
After-Tax NPV @ 5%													**709,041**

Annual Cashflow - Reserves Case (US$000's)													
Description	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**Total (US$000's)**
Market Prices													
Gold (US$/oz)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	
Copper ($/lb)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
Silver (US$/oz)	18	18	18	18	18	18	18	18	18	18	18	18	
Revenue													
Gross Gold Revenue	161,199	186,113	187,803	182,705	181,149	191,510	138,895	130,960	116,246	83,903	72,088	59,179	1,691,752
Gross Copper Revenue	82,469	80,038	82,787	82,133	89,047	83,854	80,949	77,461	61,065	62,618	52,741	44,700	879,863
Silver By-Product Credit	2,194	2,110	2,068	1,951	2,247	2,094	1,830	1,644	1,458	1,482	1,472	1,520	22,069
Total Revenue	**245,862**	**268,261**	**272,658**	**266,789**	**272,443**	**277,458**	**221,675**	**210,065**	**178,770**	**148,003**	**126,300**	**105,400**	**2,593,684**
Operating Costs													
Underground Mining	(56,071)	(57,177)	(55,369)	(51,053)	(48,189)	(46,743)	(47,517)	(46,080)	(44,709)	(43,836)	(41,636)	(36,597)	(574,978)
Processing	(21,420)	(20,665)	(20,898)	(21,204)	(21,229)	(20,857)	(20,781)	(20,888)	(21,972)	(20,563)	(17,319)	(17,461)	(245,258)
General and Administration	(33,157)	(33,986)	(32,298)	(31,732)	(30,504)	(29,621)	(28,975)	(27,900)	(25,728)	(24,307)	(19,390)	(17,416)	(335,013)
Direct Operating costs	**(110,649)**	**(111,828)**	**(108,564)**	**(103,989)**	**(99,922)**	**(97,221)**	**(97,273)**	**(94,868)**	**(92,408)**	**(88,706)**	**(78,345)**	**(71,475)**	**(1,155,249)**
Selling Costs	(19,711)	(19,642)	(19,983)	(19,752)	(20,870)	(20,183)	(18,592)	(17,819)	(14,739)	(14,346)	(11,698)	(10,207)	(207,542)
Royalties, production taxes, levies, government payments	(19,596)	(21,392)	(21,723)	(26,443)	(47,423)	(52,690)	(30,659)	(33,394)	(24,239)	(12,916)	(7,702)	2,946	(295,232)
EBITDA / Operating Cashflow	95,906	115,398	122,388	116,604	104,228	107,364	75,151	63,985	47,383	32,035	28,555	26,665	935,661
Income tax	(10,467)	(2,311)	(7,861)	(7,777)	5,332	(12,209)	(30,976)	(5,399)	(11,591)	(10,243)	(4,918)	2,431	(95,990)
Capital Expenditure	(26,371)	(32,902)	(23,743)	(13,893)	(11,495)	(7,429)	(3,407)	(4,272)	(4,384)	(2,894)	(4,851)	(1,198)	(136,840)
After-Tax Net Cash Flow	**59,068**	**80,185**	**90,784**	**94,934**	**98,064**	**87,725**	**40,769**	**54,313**	**31,408**	**18,898**	**18,786**	**27,897**	**702,831**
After-Tax NPV @ 5%													**579,173**