



GOLD FIELDS

Annexure to the
Mineral Resources and
Mineral Reserves Supplement
2019

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Supplementary information



The purpose of this annexure is to provide additional information on the regional geology for each of Gold Fields' four operating regions and to summarise the history for each of the assets for which we report Mineral Resources and Mineral Reserves. This information should be referenced in conjunction with the Mineral Resources and Mineral Reserves Supplement to the Integrated Annual Report (IAR) and is aimed at streamlining the Supplement itself to assist market analysts, shareholders, potential investors and all stakeholders to effectively review the Company information provided.



To be read in conjunction with the Gold Fields 2019 IAR. For abbreviations refer to p115; and for glossary of terms refer to p116 of this Mineral Resources and Mineral Reserves Supplement



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Americas region

Regional geology

The Cerro Corona copper-gold porphyry is one of 14 known tertiary-aged porphyry Cu-Au-Mo deposits and 19 epithermal Au-Ag deposits located in the Cajamarca metallogenic province (CMP) of northern Peru. There are two well-mineralised districts within the CMP – firstly, the Yanacocha district in the south, which is host to what was once the largest producing gold mine in South America. The second district is the Hualgayoc mining district in the north, which is one of the oldest mining districts in Peru and is best known for its historic silver production and, more recently, its base metal production.

The well-known Hualgayoc district has been an important silver producing area since Inca times, with more than 50Moz of silver and significant amounts of lead, zinc and copper produced from vein and manto-type deposits since the Spanish conquest in the 16th century. The Hualgayoc mining town was established in 1771. The regional structure is characterised by large open folds of Cretaceous-aged sedimentary units, predominately limestones, with axial planes striking approximately 315° and steep southwest dips. Faulting is generally restricted to normal and oblique slip faults with offsets of a few metres to tens of metres.

The Salares Norte deposit is located in Chile in the Western Cordillera, next to the limit with the Puna province. The topography and surrounding geology are typical of the Puna environment, which is characterised by closed basins discharging surface water into salt flats (salares in Spanish), an elevated plateau with elevations above 3,600m above medial sea level (amsl) and widespread Upper Tertiary and Quaternary volcanism. The arid climate and consequent low erosion has preserved much of the original volcanic land forms.

Salares Norte is near the southern end of South America's Central Volcanic Zone (CVZ), a long belt of Quaternary volcanoes extending from 16°S in southern Peru to 27°S in the Ojos del Salado/Tres Cruces volcanic complex located along the Chile-Argentina border.

The deposit lies at the northernmost end of the Maricunga metallogenic belt as it was originally defined, extending from 26°S to 28°S. The Maricunga is a large belt, more than 200km long and 35km wide, characterised by Late Oligocene- Early Miocene and Middle Miocene magmatism with associated epithermal (less common) and gold-rich porphyry style (predominant) deposits.

The immediate district surrounding Salares Norte (within a radius of about 30km) is dominated by the presence of upper tertiary (Neogene) volcanic and pyroclastic rocks ranging in age from Late Oligocene-Early Miocene to Quaternary. This relatively young, post-Incaic deformation volcanic cover has translated into a relatively smooth topography characterised by the absence of north-south trending basement block bounding faults which characterise the Maricunga Belt to the south.



Americas region continued

Cerro Corona – Brief history



In 1979, exploration identified porphyry-style mineralisation in the Cerro Corona area. During the period 1992 to 1993, sampling by the Gubbins Group identified gold mineralisation in the leached cap of the Cerro Corona deposit. Copper-gold porphyry mineralisation was discovered through the drilling of nine diamond core holes and completion of an exploration adit into the mineralised zone.

From 1994 to 1996, Cerro Corona, then held by Barrick, drilled 140 reverse circulation (RC) drill holes totalling 9,476m and 118 diamond core holes totalling 35,254m. A draft feasibility study (FS) was completed by Kilborn. From 1997 to 1998, RGC Limited drilled six diamond core holes totalling 2,760m and a preliminary FS was completed by Fluor.

In 2001, Minproc completed a number of FS, which ultimately indicated a Mineral Reserve of ~95Mt. In 2003, Gold Fields, through a subsidiary, signed a definitive agreement with Sociedad Minera Corona S.A. for the purchase of the Cerro Corona deposit and adjoining mining concessions.

The Environmental Impact Assessment (EIA) was approved in December 2005 and the purchase transaction for the Cerro Corona project was completed in January 2006. Mine construction commenced in May 2006. Building of the Las Gordas tailings dam and quarrying for the relevant construction material commenced in 2007. The mine has been in production since 2008 and utilises open pit mining and sulphide flotation to produce an auriferous copper concentrate via a flotation circuit.

Gold Fields Corona (BVI) Limited, a wholly owned subsidiary of Gold Fields, increased its economic interest in Gold Fields La Cima (GFLC) from the original 80% to 98.6% in 2012, and to 99.53% in 2013.

In 2018, the 2030 life-of-mine (LoM) extension was announced based on a pre-feasibility study (PFS), which was further supported by an FS in 2019.

Salares Norte – Brief history



Gold Fields discovered the Salares Norte deposit in 2011 through a systematic greenfields exploration programme. This programme focused on the northern end of the Maricunga metallogenic belt beyond the extent of the known Miocene precious metal deposits. Gold Fields selected the district based on a combination of conceptual models and metallogenic criteria. The identification of favourable spectral targets, surface geochemical anomalies and geophysics, followed by RC and diamond drilling (DD), all contributed to the discovery. Gold Fields continued drilling the deposit and in 2013 published a maiden Mineral Resource for the Brecha Principal deposit. Gold Fields published updated Mineral Resources in 2015, 2016 and 2017 based on additional infill and exploration drilling. The most recent Resource model was completed in May 2018 and is used for the current Mineral Resource declaration. A definitive feasibility study (DFS) was completed in December 2018 and supports the declaration of the maiden Mineral Reserve.

The DFS was based on developing Salares Norte as an open pit mine with crushing, milling, leaching and metal extraction, using both Merrill-Crowe and Carbon in Pulp (CIP) circuits at an average 2Mtpa plant throughput, following the approval of the Environmental Impact Assessment (EIA) on 18 December 2019. With the completion of the funding strategy the final notice to proceed (FNTP) was approved by the Board in February 2020.

Australia region

Regional geology

The Norseman-Wiluna Archaean Greenstone Belt hosts three of our operations in Australia and is part of the Yilgarn Craton, a 2.6 Giga annum (Ga) granite-greenstone terrain, which is well endowed with gold and nickel mineralisation.

Deposits are hosted within a diverse range of rocks, including basalts and dolerites, fine to coarse-grained sedimentary rocks, and felsic to intermediate intrusions. Host rocks are commonly metamorphosed to greenschist or lower amphibolite facies. Gold mineralisation is typically structurally controlled, occurring within a network of shear zones proximal to major regional faults. The most important gold mineralisation styles are shear hosted quartz-carbonate bearing breccia lodes and associated quartz vein arrays, together with finely disseminated gold associated with zones of strong hydrothermal alteration. Alteration comprises silica or albite-rich zones, associated with ankerite, sericite, biotite or amphibole, together with pyrite, pyrrhotite or arsenopyrite as sulphide-bearing phases.

Gold Fields holds a 50% interest in the Gruyere project and its associated exploration tenements lie within the Yamarna and Dorothy Hills Greenstone Belts, the eastern most known greenstone belts of the Archaean Yilgarn Craton. The greenstone belts of the Yilgarn Craton are the dominant host for gold mineralisation and mined production in Australia.

The Gruyere deposit is an Archaean orogenic gold deposit and is located on a flexure point of the regional-scale Dorothy Hills Shear Zone within the Dorothy Hills Greenstone Belt, where the shear zone changes from a northerly direction to a north-northwest direction. Gold mineralisation is hosted within the steep easterly dipping Gruyere porphyry, a medium-grained quartz monzonite porphyry that has intruded the country rocks, elongated in the direction of the shear zone.



Australia region continued

Agnew – Brief history



The Paddy Lawlers' prospecting party was responsible for the discovery of gold at Lamehorse Soak in 1894, approximately 10km south of Agnew. The Great Eastern and Donegal leases were pegged in the same year, and mining commenced. The discovery and subsequent mining of the Waroonga, Glasgow Lass, New Holland and Cinderella areas all commenced before 1899. East Murchison United commenced the mining of nine underground levels at Main Lode in 1935 and the mine was operational until 1948.

In 1976, Western Mining Corporation (WMC) purchased the Waroonga leases and in 1984 Forsyth NL purchased the Great Eastern leases and modern open pit mining commenced at both Waroonga (450 South) and Lawlers in the mid-1980s. Additional discoveries at Redeemer (1985), Cox-Crusader (1987) and Genesis (1990) ensured that both the Emu and Lawlers mills operated at capacity, while additional open pit discoveries at New Holland (1991) and Fairyland (1997) were made before underground mining commenced at New Holland in 1998.

The Lawlers operation was purchased by Plutonic Resources from Forsyth in 1992 and was subsequently acquired by Homestake in 1998. During 2001, Barrick merged with Homestake and Gold Fields acquired Agnew from WMC. The Kim South lode at Waroonga was discovered in 2002, as was Songvang OP, with production commencing in 2002 and 2004 respectively. Gold Fields concluded the acquisition of the neighbouring Lawlers mine from Barrick in October 2013.

The ongoing commitment to brownfields exploration at Agnew has seen several new deposits opened up, including the Waroonga North Lower and Kath Lower extensions at Waroonga underground, and Redeemer Zone 2 and extensional growth of the Sheba South lodes at the New Holland underground.

Granny Smith – Brief history



The Goanna and Granny Smith deposits were discovered in 1979 by CSR Limited. In 1988, Placer Pacific acquired CSR's 60% interest, with the remaining 40% held by Delta Gold NL.

In 1989, mining commenced in the Granny Smith pit and continued concurrent with the development of the Goanna pit, the Windich pit and nearby satellite pits. In 1992, the Keringal and Sunrise deposits were discovered. The Wallaby deposit was discovered in 1998.

Barrick acquired 100% of Placer Dome shares in 2006. The Wallaby open pit was mined from October 2001 until December 2006 and produced 13.6Mt at 3.44g/t gold for 1.5Moz of gold. Underground mining at Wallaby commenced in December 2005 and, to date, 15.6Mt at 5.71g/t for 2.9Moz has been produced.

Gold Fields acquired 100% of the Granny Smith gold mine Q4 2013 as part of the purchase of the Yilgarn South operations.

At Wallaby underground, exploration drilling in 2019 has expanded the Mineral Resources footprint of the Zone 135 lodes and has framed significant mineralised zones down to Zone 150.

Australia region continued

St Ives – Brief history



Gold was discovered at the Kambalda Red Hill camp in 1897 and, in the following 10 years, other gold-bearing locations, such as Victory, were discovered. In 1981, the Victory-Defiance complex (Leviathan area) was discovered.

Gold production commenced at St Ives using a 0.5Mtpa treatment plant (later expanded to 1.2Mtpa). In 1988, a new 3.1Mtpa carbon-in-leach (CIL) facility was constructed at St Ives. During 2001, a 2Mtpa heap leach facility was commissioned during the period when Gold Fields acquired St Ives. In 2004, the 4.7Mtpa Lefroy mill was constructed and fully commissioned in early 2005.

From 2007 to 2012, a number of economic deposits were discovered and mined. These include Cave Rocks (2007), Belleisle (2007), Hamlet (2009), Athena (2010) and Invincible (2012).

Production from the Neptune palaeochannel open pit commenced in 2013 and will continue through 2019.

The ongoing exploration strategy delivered the Invincible camp in 2013, which remains the mainstay of mine production. First production from Invincible started in Q1 2015. In 2017, development commenced into the Invincible underground deposit with full production reached in 2018. Development of the access decline to the Invincible South underground deposit commenced in 2018, with level development to commence in 2019.

The Invincible camp continues to grow and remains a key focus area for exploration and resource extension drilling. Work continues at Invincible Underground, Invincible South, Invincible Deeps and Invincible South Extensions to assess the full potential of this major underground camp and to maintain momentum on defining resource extensions and converting Mineral Resources to Mineral Reserves in the LoM plan.

Gruyere – Brief history



Gold Road discovered the mineralisation at Gruyere in H2 2013 with interface rotary air blast drilling. A total of 87,066m has been drilled from 470 drill holes on the project (357 RC holes for 41,264m, 73 holes with RC pre-collars for 14,694m and 16,506m diamond core tail, plus 40 full DD holes for 14,603m) were drilled as part of the FS.

A further six DD holes were completed in 2017 to test the down-dip extension below the Gruyere Resource pit and potentially convert unclassified material to Inferred inventory.

The Gruyere project is 50% owned by Gold Fields after forming a joint venture (JV) with Gold Road Resources in November 2016. The JV, comprising more than 200,000ha of miscellaneous, exploration and mining tenements on both the Dorothy Hills Shear Zone (DHSZ) and Yamarna Shear Zone (YSZ), includes, in addition to Gruyere, declared Mineral Resources and Mineral Reserves for Attila and Alaric. In 2018, additional declared Mineral Resources include the Central Bore, Montagne, Orleans and Argos on the YSZ and YAM14 on the DHSZ.

The Gruyere project was successfully completed and commissioned in 2019, with first gold delivered in June. Commercial levels of production were achieved at the end of September 2019, with ramp-up to name plate capacity in the December 2019 quarter.

Australia region continued

Far Southeast – Regional geology



The Mankayan district is underlain by a basement of pre-middle Miocene volcanic and intrusive rocks overlain by an extensive cover sequence of Pleistocene dacitic tuffs and breccias, the eruption of which was accompanied by the intrusion of diorite and dacite stocks and domes. Major north-trending strike-slip faults of the Philippine Fault system dominate the structure of the district and have exerted fundamental controls on igneous activity and mineralisation. The district-scale mineralisation is characterised by intermediate sulphidation veins and fault-controlled high-sulphidation enargite-uzonite deposits that have been mined for precious and base metals principally by the Victoria and Lepanto mines. A number of copper-gold porphyry prospects also exist, which principally include the Far Southeast (FSE) porphyry deposit itself.

Far Southeast – Brief history



For Gold Fields to obtain a further 20% interest in the Far Southeast (FSE) project, a Financial or Technical Assistance Agreement (FTAA) will be required from the Philippine government. This is dependent on obtaining the free, prior and informed consent (FPIC) of the local Kankana-ey Indigenous People. In mid-2013, the Kankana-ey Indigenous People voted in favour of the project and a Memorandum of Agreement was signed with the Council of Elders in February 2015. The agreement, together with supporting documentation, is currently being considered by the National Commission on Indigenous Peoples (NCIP) before issuance of a formal certification precondition, which will complete the FPIC process.

In June 2014, Lepanto Consolidated Mining Company (LCMC) and Far Southeast Gold Resources Inc. (FSGRI) jointly applied for the renewal of Mineral Production Sharing Agreement 001 (MPSA 001), which is the mineral tenement jointly held by the two companies in which most of the FSE deposit occurs. The initial 25-year term of MPSA 001 was due to expire in March 2015.

In February 2015, LCMC and FSGRI commenced arbitration proceedings against the Philippine government regarding whether FPIC is also required for the renewal of the MPSA. In November 2015, the arbitration panel issued an award that FPIC may not be imposed as a requirement for the renewal of MPSA 001 and that the MPSA should be renewed under the same terms and conditions.

In December 2015, the Republic of the Philippines filed a petition to vacate the arbitral award with the court – a decision which the court rendered in May 2016. After the court denied a motion for consideration, LCMC and FSGRI subsequently filed a petition for review with the Court of Appeals in July 2016.

In May 2018, the Court of Appeals ruled in favour of the renewal of MPSA 001 without need for FPIC. In response, the government filed a motion for reconsideration (MR), which was denied by the Court of Appeals on 14 January 2019. The government then filed a petition for review in the Supreme Court on 12 March 2019. LCMC and FSGRI filed their comment to the petition on 10 June 2019. The proceedings are likely to continue during 2020. Also, in 2019, pursuant to a Supreme Court decision that the NCIP's jurisdiction is limited only to disputes between members of the same indigenous group, the NCIP dismissed legal proceedings filed by indigenous clans against LCMC and FSGRI on the grounds of lack of jurisdiction.

Closure Orders on 12 mines by former anti-mining Environment Secretary were reviewed and largely reversed in 2018 and only three Closure Orders were upheld for proven environmental violations. This indicates that administrative regulations and processes are working in the country.

The current view and perspective on the Philippines is that matters in the country have not deteriorated relative to 2018 and there were some positive updates in 2019 as outlined above.

South Africa region

Regional geology

South Deep is located in the West Rand Goldfield on the northwest rim of the Witwatersrand Basin. This basin comprises a 6,000m-thick sequence of predominantly clastic sedimentary rocks, the upper part of which, the Central Rand Group, is characterised by the occurrence of auriferous and uraniferous quartz-pebble conglomerates (reefs) that are sporadically interspersed between finer grained quartzitic units. All major reef units are developed above unconformity surfaces. The angle of unconformity is typically greatest near the basin margin and decreases toward more distal areas. The most fundamental control to the gold distribution remains the association with quartz-pebble conglomerates on intra-basinal unconformities.

The Witwatersrand Basin reefs are considered to represent extensive fluvial deposits into a yoked basin, some 350km long in an east-northeast direction and 200km wide in a north-northwest direction. The reefs are continuous as a consequence of the regional nature of the erosional surfaces. Preferential reef development within channel systems and sedimentary features, such as facies variations and channel frequency, assist in mapping out local gold distributions. Refer to the asset fundamentals table above for information on local geology and mineralisation style.

South Deep – Brief history



In 1990, Western Areas Gold Mining Company Limited (WA) transferred land and mineral rights to South Deep Exploration Company Limited. WA and South Deep Exploration Company Limited merged in 1995. In the same year, the sinking of Twin Shaft and access development from South Shaft commenced.

In 1999, the Placer Dome/WA (PDWA) JV was formed and in 2000 the mine was renamed the South Deep gold mine. The new South Deep gold plant was commissioned and the South Shaft plant decommissioned in 2002. The sinking of the main shaft was completed, also in 2002, and in 2004 the Twin Shaft system was commissioned.

During late 2006 and early 2007 Barrick Gold Corporation acquired a majority interest in Placer Dome Inc. Gold Fields acquired Barricks' 50% JV interest in the PDWA JV and in 2007 Gold Fields acquired all remaining WA shares and consequently owns 100% of South Deep gold mine. Between 2008 and 2009, all conventional mining was stopped and low-profile mechanised destress mining was initiated.

In 2010, a new order mining right granted with the addition of the contiguous area known as Uncle Harry's. Following this, in 2011 Newsshelf 899 Proprietary Limited (Newsshelf) was established holding a 100% interest in South Deep gold mine. Newsshelf is a 90% subsidiary of Gold Fields and the remaining 10% is held by outside shareholders as part of the black economic empowerment (BEE) transaction.

In 2017, the high-profile destress method successfully implemented and the rebase plan was initiated. In 2018, major restructuring was initiated in support of a new operating model designed to improve operational efficiency, reduce operating costs and leverage cash flow. The restructuring plan was embedded in 2019, which incorporated a reduced workforce and mobile equipment levels aligned to overall mining activity that increased focus on the core productivity process and supported a recalibration of the cost base. The anticipated levels of production have been achieved quarter-on-quarter during 2019.



West Africa region

Regional geology

The Damang and Tarkwa ore bodies are located within the Tarkwaian System, which is an important gold mineralised stratigraphic component of the Ashanti Belt in south-western Ghana. The Ashanti Belt is a northeast striking, broadly synclinal structure made up of lower proterozoic sediments and volcanics underlain by the metavolcanics and metasediments of the Birimian System. The Tarkwaian unconformity overlies the Birimian and is characterised by lower-intensity metamorphism and the predominance of coarse-grained, immature sedimentary units.

Asanko deposits are located in the Asankrangwa Belt hosted within the Kumasi Basin sediment. The belt is located east of the Ashanti Belt which hosts the Tarkwa and Damang mines. The geology of Asankrangwa comprises strongly deformed Birimian metasediments, with minor granitic intrusions and mafic igneous rocks. The lithological units are cut by deep northwest dipping primary and sedimentary structures. It is this geological and structural architecture that has been important in the localisation of gold mineralisation. Gold mineralisation is linked to at least two separate deformation events and fluid emplacement, with certain similarities to the gold deposits of the Ashanti Greenstone Belts.



West Africa region continued

Damang – Brief history



Several small mining companies operated the Abontiakoon concession near Tarkwa town, leading to the sinking of eight vertical shafts and the excavation of numerous open pits. In 1882, operations at the underground Abosso mine exploited banket conglomerates to a depth of 850m. In 1920, Adjah Bippo and Cinnamon Bippo underground mines to the north were incorporated into the Abosso mine holdings. Abosso mine ceased operation in 1956 with recorded production of 2.7Moz, at an average gold grade of 9.8g/t.

In 1989, Ranger Exploration (Ranger) began an investigation to retreat tailings from the Abosso mine. Following a drilling programme and subsequent FS from 1993 to 1996, mining a mineralised quartz vein system extending to a depth of 200m was shown to be viable. Gold production started in November 1997. In 2001, Gold Fields and Repadre signed an agreement to purchase Ranger's 90% interest in Damang. IAMGold and Repadre merged to give IAMGold an 18.9% interest in Damang, with Gold Fields retaining a 71.1% interest. Gold Fields acquired the indirect 18.9% IAMGold interest in Damang, increasing its holding to 90% with the remaining 10% held by the Ghanaian government.

The Damang Expansion project commenced in 2004 to assess the economic viability of the main pit cut-back and identify additional sources of ore from areas around the main pit. Following further drilling and a successful FS, the Damang pit cut-back and waste stripping commenced in July 2005. Additional Mineral Resources from Rex, Tomento North, Tomento East, Tomento West and Huni were added after completion of the regional prospectivity study in 2006.

At the end of 2016, the investment into Damang to extend the LoM to 2025 commenced, and the mine is scheduled to achieve full ore production in 2020. The Damang Reinvestment project targets further cut-backs in the main pit to access the primary higher-grade ore body at the bottom of the current Damang pit. The Development Agreement reached between the government of Ghana and Gold Fields supported the project.

The Damang Reinvestment project, which was initiated at the beginning of 2017 as the best option to secure future cash flow at the mine up to 2025, continued to deliver positive results in 2019. Mining volumes focused on waste stripping to open up the target higher grade ore zones for mining continued to track on schedule during 2019.

Tarkwa – Brief history



Sinking of the Abontiakoon vertical shaft was completed in 1935 and a central mill with a capacity of 30ktpm was constructed in the following four years. Several small mining companies operated the Abontiakoon concession, but in 1960 all workings were abandoned and allowed to flood. In 1961, production restarted under the State Gold Mining Corporation and in 1963 the Tarkwa mines were renamed Tarkwa Goldfields Limited. The Apinto shaft was sunk in the mid-seventies.

Gold Fields Ghana (GFG) signed a management contract with the Ghanaian government to operate the mine in 1993 and in 1996 completed an FS on an open pit/heap leach operation. In 1998, the initial Tarkwa Phase 1 development was completed for an open pit operation, mining 14.5Mtpa (including 4.7Mtpa of heap leach feed ore). In 1999, the Tarkwa Phase 2 expansion was completed to increase the mining rate to 20.7Mtpa and heap leach feed ore production to 7.2Mtpa. All underground operations and the associated processing plant ceased production in this year.

In 2000, GFG acquired the northern area of Teberebie and mining production was increased to 36Mtpa.

Tarkwa implemented owner mining in July 2004 and commissioned a CIL plant with a name plate capacity of 4.2Mtpa in October 2004. The expanded CIL plant was commissioned in January 2009 and a design throughput of 12.3Mtpa was achieved in September 2009. Conversion to owner maintenance was completed in 2010.

In 2011, GFG acquired the 18.9% IAMGold interest in Tarkwa and now holds 90%, with the remaining 10% held by the Ghanaian government. At the end of 2013, all heap leach operations ceased.

The CIL plant capacity was increased to 13.5Mtpa late in 2014 and further enhancements to increase the capacity to 15.5Mtpa are being considered.

Tarkwa reverted to a contractor mining model in 2018 after a comprehensive trade-off analysis indicated cash flow and all-in costs (AIC) benefits.

A notable highlight in 2019 was the growth in the Resources and Reserves base, mainly due to exploration successfully defining the significant Akontansi Underlap palaeoplacer extension.

West Africa region continued

Asanko – Brief history



Gold rushes occurred in the area in 1898 to 1901 and again in the 1930s. Most of the concessions, however, have no record of the work undertaken on the properties for this period. Interest in the area was renewed in the early 1990s, mainly because of the successful exploration work carried out on the adjacent concession where the Nkran deposit is located. European settlers worked the deposits exploiting adits and drives that extend 80m into the hill on the site of old native workings. Around the Esaase deposit area, artisanal mining in Bonte Area was active associated with the Ashanti Kingdom.

In 1966, drilling was conducted on the Bonte River valley alluvial sediments to determine alluvial gold potential. However, no detailed records are available. During the 1980s, limited exploration work was undertaken with minor attention paid to the alluvial gold potential. In 1990, Bonte mining lease in the Esaase area was granted to AAGM and later transferred to BGM.

From 1990 to 1995, exploration focused on known prospects at Nkran deposit (formerly known as Jabokassie). A regional soil geochemical survey carried out identified numerous anomalies around Nkran. Early RC drilling phase (details not available) yielded encouraging results over wide zone of bedrock mineralisation, extending along strike for 600m. The broad, low-lying Nkran had relief of only about 40m with oxidation extending to depths of 40m. In 1995, additional DD holes, RC, and RC with diamond tail drilling was completed. Mineral Resources (Measured, Indicated and Inferred classes) were estimated and reported. An FS was completed, and a mining lease was granted.

Alluvial mining continued around the Esaase concession from 1990 to 2002 recovering approximately 200,000oz of alluvial gold and 300,000oz downstream on the Jeni River concession.

In 1996, Resolute acquired the concessions in the Esaase area and reviewed and expanded project scope. Further RC and DD hole drilling over 74,168m² was conducted to increase Mineral Resources to a depth of 150m at Nkran and to further assess the known mineralisation at nearby Adubiaso. In July 1996, a revised mine development plan was completed, with decision to proceed into production at a rate of 1.4Mtpa. Initial mining commenced at Nkran in early 1997, and further exploration drilling continued. The first gold was poured in May 1997.

In 2001, the Nkran pit closed due to low gold price, having produced 590,743oz gold at an average grade of 2.35g/t. Through 2002 extensive exploration work was undertaken.

Between 2006 to 2013, Keegan further consolidated concessions and completed extensive exploration work including geophysics (airborne VTEM – 2,266 line-km), soil geochemistry (>4,000 samples) and exploration drilling. Drilling included 112 diamond core (DD holes) over 25,190m, 667 RC holes over 106,854m and 321 RC with RCD holes over 100,102m.

In 2011, PMI carried out a 5km² of Induced Potential (IP) ground geophysical survey. PMI also completed a VTEM electromagnetic (EM) and magnetic survey centred over the Nkran pit.

During the period 2013 to 2018, Asanko Gold continued extensive exploration to update the Mineral Resources. 2018 included 43,383m of re-logging and 4,992m infill RC drilling. From 2015 to 2016, Nkran mine dewatered and was re-opened by Asanko Gold as a deeper opencast operation, and underwent refurbishment and expansion. Nkran pit operation restarted in 2016.

During 2018, Gold Fields acquired a 50% stake in Asanko Gold's 90% interest in Asanko. Production from the Esaase pit began in December 2018. In 2019, a PFS was completed, supporting a new LoM plan and maiden Mineral Resources and Reserves reported by Gold Fields. Studies to assess additional opportunities and business improvement options to further optimise the LoM plan and the financial metrics will continue in 2020.



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