Mineral Resources and Ore Reserves

Introduction

The Mineral Resource and Ore Reserves of a mining company are key assets of the business.

The Ore Reserve and Mineral Resource estimates in this report were prepared by Competent Persons in accordance with the requirements of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 edition (the JORC Code). The exception was the Jabal Sayid mine, where the estimates were prepared by Qualified Persons in accordance with the CIM 2014 Definition Standards for Mineral Resources and Mineral Reserves. There are no material differences between CIM 2014 and the JORC Code 2012.

The JORC Code represents current global industry best practice for the reporting Ore Reserves and Mineral Resources.

The reporting of Ore Reserve and Mineral Resource estimates by **Ma'aden** complies with the principles of transparency, materiality and competence in the JORC Code for the estimation, classification, reporting, review and presentation of this report.

The Mineral Resources and Ore Reserves terminology used in this report follows the definitions in the JORC Code. Additional terms are defined in the Glossary of this section of the annual report.

Reporting

The Mineral Resources and Ore Reserves estimates are reported for the projects at an effective date of 31 December 2020 after depletion for mine production and adjustments for changes in commodity process, technical factors and economic factors. Summary data for year end 2019 and 2018 are shown for comparison. Metric units are used throughout this report except for use of troy ounces following common industry practice.

Mineral Resources are reported inclusive of the Mineral Resources within the Ore Reserves. All estimates are reported on a dry tonnes basis.

Mineral Resource and Ore Reserve estimates are reported by commodity, project, development stage and licence. All estimates are reported as the total for each project. **Ma'aden**'s ownership interest is listed for each project.

Ma'aden's Mineral Resource and Ore Reserve estimates for phosphate, bauxite, kaolin, magnesite, gold and copper are reported at 31 December 2020, 2019 and 2018.

Differences in Mineral Resources and Ore Reserves for gold, phosphate and metallurgical bauxite from 31 December 2019 to 31 December 2020 are presented as a waterfall chart quantifying and classifying the changes.

Governance

Ma'aden implemented a system of internal and external reviews to provide assurance that Ore Reserve and Mineral Resource estimates are reported in accordance with the JORC Code and global mining industry practice.

The principles governing the application of the JORC Code are transparency, materiality and competence. Transparency requires that the reader of a report is provided with sufficient information, in a clear and unambiguous form. Materiality requires public reporting of all relevant information, which investors would reasonably require in the reporting of Mineral Resources or Ore Reserves. Competence requires that the public report of Mineral Resources and Ore Reserves is prepared and certified by suitably qualified and experienced persons, 'Competent Persons'. Mineral Resources and Ore Reserves reported according to the JORC Code must accurately reflect the information and supporting documentation prepared by a Competent Person.

The reported Ore Reserves and Mineral Resources estimated were prepared by or under the supervision of Competent Persons as defined in the JORC Code.

All Competent Persons are required to have a minimum of five years relevant experience in the type of mineralisation and in the estimation which they are doing. Each must be a member of a recognised professional body whose members are bound by an enforceable professional code of ethics. Most estimates were prepared by independent Competent Persons, who are not employees of Ma'aden. The estimates which were prepared by Competent Persons who were Ma'aden employees were reviewed and countersigned by independent, external Competent Persons to confirm that the estimates comply with the requirements of the JORC Code. All Competent Persons consented to the inclusion of the estimates in this report of in the form and context in which it appears. The names of the Competent Persons, their membership of a Recognised Professional Organisation and their employer are listed in the relevant section of this report.

Ma'aden has formally appointed a Resources and Reserves Committee, which is comprised of experienced and qualified Competent Persons from within **Ma'aden**. The Committee is responsible for reviewing all annual Ore Reserve and Mineral Resource estimates to provide assurance that Ore Reserve and Mineral Resource were estimated and reported in accordance with JORC Code. The Committee's membership, authorities and accountabilities are mandated in a policy and procedures document signed by the Chief Executive Officer. The Committee reports to the Chief Executive Officer. The **Ma'aden** Board approved the publication of the Mineral Resource and Ore Reserve estimates in this report.

Commodity prices

These Mineral Resource and Ore Reserve estimates are based on long term commodity price forecasts prepared annually by **Ma'aden**'s Business Units.

Commodity Prices for December 2020 Resources and Reserves

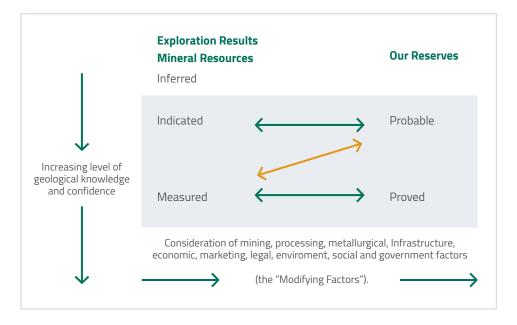
Mineral Commodity	Mineral Resource	Ore Reserve
Gold	\$1550/oz	\$1300/oz
Silver	\$20/oz	\$17/oz
Copper	\$7550/t	\$6300/t
Zinc	\$2650/t	\$2200/t

oz - troy ounce; t - metric tonne

Commodity prices for phosphate, metallurgical bauxite, kaolin and magnesite are not reported as these commodities are either processed within **Ma'aden**'s vertically integrated businesses or sold at multiple quality and chemical specifications.

Classification

There is an inherent degree of uncertainty in the estimation of Mineral Resources and Ore Reserves when compared with the material when it is ultimately mined and processed. This uncertainty is reflected in the Mineral Resource and Ore Reserve classifications of the IORC Code.



General relationship between Exploration Results, Mineral Resources and Ore Reserves (from the JORC Code 2012)

There is an inherent degree of uncertainty in the estimation of Mineral Resources and Ore Reserves when compared with the material when it is mined and processed. Extrapolation of operational performance from small-scale laboratory tests or pilot plants to full-scale production may not prove to be exact in practice and this may affect the Ore Reserves. Changes in assumptions for overburden removal, process plant recoveries and other operational factors may influence the tonnage and grade of an ore reserve and adversely affect the economic viability of a project. Volumes, grades and recoveries of Ore Reserves which are mined and processed may not be the same as currently anticipated.

According to the JORC Code, a Mineral Resource must have reasonable prospects for eventual economic extraction. An Ore Reserve must be economically mineable. The Competent Person must consider that there is a reasonable expectation that all or part of the Mineral Resources will eventually become Ore Reserves, but there is no guarantee that this will occur subject to technical and economic scoping, prefeasibility and feasibility studies and future economic conditions.

The tonnage and grade of the Mineral Resources and Ore Reserves are reported according to the classification system in the JORC Code. The classification reflects the judgement of the Competent Person's confidence in the estimate subject to the understanding of the geology, geological continuity, grade variability, and the quantity, distribution, quality and confidence in the geoscientific data and information used to produce the estimates.

Mineral Resources and Ore Reserves are subject to change from depletion from mining, additional drilling, improved understanding of the mineralised deposits, medium term variations in commodities prices, mine production costs, mineral processing costs and mining, infrastructure, legal, environmental, social and governmental factors. The changes to the previous annual estimates for gold, phosphate and metallurgical bauxite are shown in this report in table and graphical form. The Reserve Life stated in the Ore Reserves table is the scheduled extraction period in years in the Life of Mine Plan for the project.

The reported Ore Reserve tonnes and grades is the estimated metal or product as mined and at the point of delivery to the processing plant, which follows common international practice. The Ore Reserve table shows the mining and processing methods for each ore reserve, the forecast metallurgical recovery and the forecast recoverable metal or mineral product.

The Mineral Resources and Ore Reserves tonnage and grades are stated to one decimal place. The Mineral Resources and Ore Reserves estimates are more precise than shown in the tables in this report, and minor apparent discrepancies may result if the tabulated figures are summed.

Licences

Exploration licences confer the right to explore and evaluate only while mining licences give the right to mine and process the material within the licence. Mineral Resource and Ore Reserve estimates are reported within licence applications where **Ma'aden** has a reasonable expectation that the licence applications will be renewed or granted. However, the decision to grant or renew is at the discretion of the relevant government authority.

The licence status of each mine is shown in the Mineral Resources and Ore Reserves tables.

Where a Mining Licence application was submitted to the relevant regulatory authorities by **Ma'aden** or a **Ma'aden** Affiliate company and the company has a reasonable expectation that the Mining Licence will be granted at a future date, then the relevant Mineral Resources and Ore Reserves are reported.

Definitions

JORC Code

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 edition (JORC Code), is an internationally recognised professional code of practice which sets minimum standards for the public reporting of Exploration Results, Mineral Resources and Ore Reserves. The key definitions from the JORC Code, which are used in this report, are given below.

The JORC Code provides a system for the classification and reporting of Mineral Resources and Ore reserves according to the levels of confidence in geological knowledge and technical and economic considerations as shown in the JORC Code 2012.

Competent Person

A Competent Person is a minerals industry professional who is a Member or Fellow of the Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a Recognized Professional Organization, as included in a list available on the JORC and Australian Securities Exchange websites. These organisations have enforceable disciplinary processes including the powers to suspend or expel a member. A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.

Exploration Results

Exploration Results include data and information generated by mineral exploration programmes which might be of use to investors, but which do not form part of a declaration of Minerals Resources or Ore Reserves. The reporting of such information is common in the early stages of exploration when the quantity of data available is generally not sufficient to allow any reasonable estimates of Mineral Resources.

Exploration Target

An Exploration Target is a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade (or quality) relates to mineralisation for which there has been insufficient exploration to estimate a Mineral Resource. Any such information must be expressed so that it cannot be misrepresented or misconstrued as an estimate of a Mineral Resource or Ore Reserve. There has been insufficient exploration to estimate a Mineral Resource and that it is uncertain if further exploration will result in the estimation of a Mineral Resource.

Mineral Resource

A Mineral Resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided in order of increasing geological confidence into Inferred, Indicated and Measured categories.

Inferred Mineral Resource

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated from limited geological evidence and sampling. Geological evidence is sufficient to imply, but not verify, geological and grade continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. An Inferred Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that most of an Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.

Indicated Mineral Resource

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade/quality continuity between points where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.

Measured Mineral Resource

A measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade/quality continuity between points where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.

Modifying Factors

Modifying Factors are considerations used to convert Mineral Resources to Ore Reserves. These include, but are not restricted to mining, processing,

metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

Ore Reserve

An Ore Reserve is the economically mineable part of a Measured or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level, which Include the application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The key underlying assumptions and outcomes of the prefeasibility study or feasibility study must be disclosed at the time of reporting of a new or materially changed Ore Reserve. Ore Reserves are sub-divided in order of increasing confidence into Probable and Proved classifications.

Probable Ore Reserve

A Probable Ore Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the modifying factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve. A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit.

Proved Ore Reserve

A Proved Ore Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors. A Proved Ore Reserve represents the highest confidence category of an Ore Reserve estimate. The style of mineralisation or other factors could mean that Proved Ore Reserves are not achievable in some deposits.

Scoping Study

A Scoping Study is an order of magnitude technical and economic study of the potential viability of Mineral Resources. It includes appropriate assessment of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can reasonably be justified.

Pre-Feasibility Study

A Pre-Feasibility Study is a comprehensive study of a range of options for the technical and economic viability of a mineral project, which has advanced to a stage where a preferred method, the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors, which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study.

Feasibility Study

A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project, which includes appropriately detailed assessments of the applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis which are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.

Annual Change Waterfall Graphs

The definitions in the waterfall graphs showing the changes from December 2018 to December 2019 are listed below.

Reserve Life

Reserve life is the remaining years of mining and processing according to the life of mine plan in the Ore Reserve report.

Grade

Grade is the estimate of the quantity, percentage or quality of a metal or mineral contained within a mineral deposit.

Cutoff grade

Cutoff grade is the grade above or below which the Mineral Resource or Ore Reserve is economic.

Mining Depletion

Mining depletion is the reduction in the Ore Reserve or Mineral Resource due to annual mine production estimated from mine survey and production reconciliation.

New Data

New data are new data from drilling, sampling, chemical analysis, geotechnical, metallurgical or technical studies.

Cost Factors

Cost factors are the operating, capital, processing and transport costs used to estimate the economics of extraction of the Mineral Resource and economic mineability of the Ore Reserve.

Estimation methodology

Estimation methodology is method which is used by the Competent Person to estimate the tonnes, grade, quality or confidence level of the estimates to classify the Mineral Resource or Ore Reserve.

Life of Mine Plan

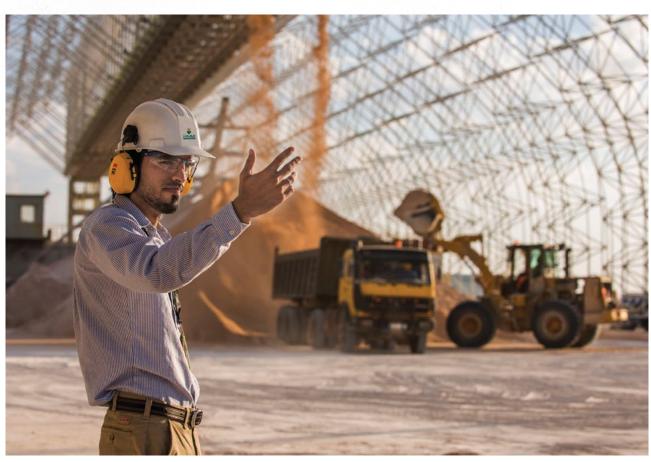
The Life of Mine Plan is the approved long term plan for the design, development, ore extraction and processing of a mine in an Ore Reserve report by a Competent Person.

Revenue Factors

Revenue factors are changes in the sale prices of the mineral commodity and foreign currency exchange rates used to convert the international market price to the local currency .

Stockpiles

Stockpile changes are annual changes in the tonnage and grade or classification of the Mineral Resource or Ore Reserve classification of ore in temporary storage after mining but before processing.



Ma'aden Phosphate Plant - Al Jalamid

Glossary of Abbreviations

Al₂O₃ Aluminium oxide

Au Gold

Au eq Equivalent grade of gold grade for gold and base metal mineralisation

CEng Chartered Engineer of the Institute of Materials, Mining and Metallurgy

CF Column flotation of phosphate ore

CGeol Chartered Geologist of the Geological Society of London

CIL Carbon in leach extraction of gold ore

CIP Carbon in pulp extraction of gold ore

CPGeo Chartered Professional (Geology) Australasian Institute of Mining and Metallurgy

CPMin Chartered Professional (Mining) of the Australasian Institute of Mining and Metallurgy

Cu Copper

DEV Mine development project

DS Direct shipping ore

EFG European Federation of Geologists

EL Exploration licence

EurGeol European Geologist member of the European Federation of Geologists

Expl Exploration

FAUSIMM Fellow of the Australasian Institute of Mining and Metallurgy

FGS Fellow of the Geological Society of London

FGS (CGeol) Fellow of the Geological Society of London and Chartered Geologist

FS Feasibility study

g/t Grammes per tonne

HL Heap leach processing of gold ore

lb Pound (453.592 grammes)

kt Thousand tonnes

LPZ Al Jalamid lower phosphate zone

% Ma'aden Ma'aden share of ownership

MAusIMM Member of the Australasian Institute of Mining and Metallurgy

MBCC Ma'aden Barrick Copper Company

MF Mechanical flotation of gold, copper, zinc and phosphate ores

MGBM Ma'aden Gold and Base Metals Company

MIGI Member of the Institute of Geologists of Ireland

MIMMM Member of the Institute of Materials, Mining and Metallurgy

MgO Magnesium oxide

ML Mining licence

MLA Mining licence application

Moz Million troy ounces

Mt Million metric tonnes

OP Open pit mine

oz Troy ounce (31.104 grammes)

P₂**O**₅ Phosphorus pentoxide

PFS Prefeasibility study

PH Phosphate horizons 1, 2, 3 and 4 at Al Khabra mine

POX Pressure oxidation processing of gold ore

SAR Saudi Riyals

SC Screening to separate a fine and coarse ore fraction

SiO, Silicon dioxide

SME Registered Member of the Society for Mining, Metallurgy and Exploration

TAA Total available alumina (Al2O3)

t Metric tonnes

UG Underground mine

UPZ Al Jalamid upper phosphate zone

Zn Zinc

Ore Reserves at 31 December 2020

C	Project Description		2020 Ore Reserves										
Commodity			Proved		Probable				Proved 4	- Probabl	e		
Phosphate	% Ma'aden	Stage	Mine	Mt	%P ₂ O ₆	% MgO	Mt	% P ₂ O ₆	% MgO	Mt	% P ₂ O ₆	% MgO	Mt P ₂ O ₅
Al Jalamid ML	70%	Mine	OP	224.4	19.4	3.5	67.1	18.3	5.5	291.5	19.1	4.0	55.8
				Mt	% P ₂ O ₅	% SiO ₂	Mt	% P ₂ O ₅	% SiO ₂	Mt	% P ₂ O ₅	% SiO ₂	Mt P ₂ O ₅
Al Khabra ML	60%	Mine	OP	290.0	16.8	9.7	96.1	15.7	10.3	386.1	16.5	9.9	63.8
Umm Wu'al B6 ML	60%	PFS	OP	0	0	0	284.5	16.0	2.3	284.5	16.0	2.3	45.4
Umm Wu'al B4-5 ML	100%	PFS	OP	189.3	15.8	2.6	144.5	15.4	3.0	333.8	15.6	2.8	52.1
Umm Wu'al B10-11 ML	100%	PFS	OP	33.6	17.8	9.9	48.5	16.2	10.5	82.1	16.9	10.3	13.8
Total				737	17.4		641	16.1		1378	16.8		230.9
Industrial Bauxite	% Ma'aden	Stage	Mine	Mt	% Al ₂ O ₃	% SiO ₂	Mt	% Al ₂ O ₃	% SiO ₂	Mt	% Al ₂ O ₃	% SiO ₂	Mt bauxite
Az Zabirah ML	100%	Mine	OP	3.1	53.2	14.9	3.5	53.9	14.6	6.6	53.6	14.7	6.6
Kaolin	% Ma'aden	Stage	Mine	Mt	% Al ₂ O ₃	% SiO ₂	Mt	% Al ₂ O ₃	% SiO ₂	Mt	% Al ₂ O ₃	% SiO ₂	Mt kaolin
Az Zabirah ML	100%	Mine	OP	0.7	32.7	40.3	1.6	35.1	40.5	2.3	34.2	40.4	2.3
Magnesite	% Ma'aden	Stage	Mine	Mt	% MgO	% SiO ₂	Mt	% MgO	% SiO ₂	Mt	% MgO	% SiO ₂	Mt MgO
Al Ghazalah ML	100%	Mine	OP	0.5	46.4	0.6	2.5	43.3	2.5	3.0	43.8	2.2	1.3
Metallurgical Bauxite	% Ma'aden	Stage	Mine	Mt	%TAA	% SiO ₂	Mt	%TAA	% SiO ₂	Mt	%TAA	% SiO ₂	Mt bauxite
Al Ba'itha	70%	Mine	OP	60.5	50.0	7.7	122.8	47.3	10.0	183.4	48.2	9.3	183.4
Gold	% Ma'aden	Stage	Mine	Mt	g/t Au	% Zn	Mt	g/t Au	% Zn	Mt	g/t Au	% Zn	Moz Au
Ad Duwayhi ML	100%	Mine	OP	2.4	3.3		18.9	1.4		21.3	1.7		1.12
Bulghah ML	100%	Mine	OP				40.7	8.0		40.7	8.0		1.05
Sukhaybarat ML	100%	Mine	OP				17.1	1.1		17.1	1.1		0.61
As Suq ML	100%	Mine	OP				6.6	1.3		6.6	1.3		0.28
Mansourah ML	100%	Dev	OP	12.4	2.5		15.3	2.6		27.7	2.5		2.25
Massarah ML	100%	Dev	OP	3.1	2.1		14.2	2.0		17.3	2.0		1.11
Ar Rjum Waseemah ML	100%	PFS	OP	13.3	1.6		21.0	1.6		34.3	1.6		1.73
Ar Rjum Umm Naam + Ghazal ML	100%	PFS	OP	14.2	1.3		11.9	1.5		26.1	1.4		1.13
Al Amar ML	100%	Mine	UG				1.2	4.3	3.9	1.2	4.3	3.9	0.16
	% Ma'aden	Stage	Mine	Mt	g/t Au	% Cu	Mt	g/t Au	% Cu	Mt	g/t Au	% Cu	Moz Au
Mahd Ad Dhahab ML	100%	Mine	UG	0.22	8.5	0.7	0.24	6.7	0.6	0.46	7.5	0.6	0.11
Total				45.6	1.88		147.1	1.44		192.7	1.54		9.55
Copper	% Ma'aden	Stage	Mine	Mt	% Cu	g/t Au	Mt	% Cu	g/t Au	Mt	% Cu	g/t Au	Mt Cu
Jabal Sayid ML	50%	Mine	UG	10.2	2.4	0.2	14.5	2.2	0.3	24.6	2.3	0.2	0.56

2020 - 2019		2020 Mine Plan				2019 Ore Reserves			2018 Ore Reserves			
Annual Reserve Changes		Recoverable Product Reserve Life			Proved + Probable			Proved + Probable				
Mt ore	Mt P ₂ O ₅	% Recovery	Mt P ₂ O ₅	Years	Mt	% P ₂ O ₆	% MgO	Mt P ₂ O ₅	Mt	% P ₂ O ₆	% MgO	Mt P ₂ O ₅
39.9	6.4	69%	38.2	25	251.6	19.6	3.5	49.4	265.0	19.8	3.5	52.5
	Mt P ₂ O ₅		Mt P ₂ O ₅		Mt	% P ₂ O ₅	% SiO ₂	Mt P ₂ O ₅	Mt	% P ₂ O ₅	% SiO ₂	Mt P ₂ O ₅
-8.4	-1.4	68%	43.4	25	394.5	16.5	9.8	65.1	409.3	16.4	12.4	67.1
0	0	70%	31.8	20	284.5	16.0	2.3	45.4	284.5	16.0	2.3	45.4
0	0	62%	32.3	30	333.8	15.6	2.8	52.1	333.8	15.6	2.8	52.1
0	0	55%	7.6	26	82.1	16.9	10.3	13.8	82.1	16.9	10.3	13.8
31.6	5.1	66%	153.3		1346	16.8		225.9	1375	16.8		230.9
Mt ore	Mt bauxite	% Recovery	Mt bauxite	Years	Mt	% Al ₂ O ₃	% SiO ₂	Mt bauxite	Mt	% Al ₂ O ₃	% SiO ₂	Mt bauxite
-0.4	-0.4	100%	6.6	17	7.0	53.6	14.7	7.0	7.3	53.6	14.8	7.3
Mt ore	Mt kaolin	% Recovery	Mt kaolin	Years	Mt	% Al ₂ O3	% SiO ₂	Mt kaolin	Mt	% Al ₂ O ₃	% SiO ₂	Mt kaolin
-0.1	-0.1	100%	2.3	17	2.4	34.3	40.5	2.4	2.5	34.2	40.4	2.5
Mt ore	Mt MgO	% Recovery	Mt MgO	Years	Mt	% MgO	% SiO ₂	Mt MgO	Mt	% MgO	% SiO ₂	Mt MgO
0.1	0.3	100%	1.3	37	2.9	43.4	2.3	1.0	3.1	43.5	2.2	1.3
Mt ore	Mt bauxite	% Recovery	Mt bauxite	Years	Mt	%TAA	% SiO ₂	Mt bauxite	Mt	%TAA	% SiO ₂	Mt bauxite
-4.4	-4.4	100%	183.4	37	187.8	48.2	9.2	187.8	192.2	48.2	9.2	192.2
Mt ore	Moz Au	% Recovery	Moz Au	Years	Mt	g/t Au	% Zn	Moz Au	Mt	g/t Au	% Zn	Moz Au
6.0	0.06	95%	1.07	6	15.3	2.2		1.08	19.2	2.4		1.47
-11.7	-0.41	53%	0.57	20	52.4	0.9		1.46	56.8	0.9		1.58
-2.9	-0.08	67%	0.41	22	20.0	1.1		0.69	20.4	1.1		0.71
1.3	-0.01	56%	0.16	6	5.3	1.7		0.30	5.7	1.0		0.18
0	0	88%	1.98	11	27.7	2.5		2.25	27.7	2.5		2.25
0	0	88%	0.97	11	17.2	2.0		1.1	17.2	2.0		1.10
34.3	1.73	98%	1.69	10								
26.1	1.13	98%	1.11	10								
-0.3	-0.03	89%	0.14	5	1.5	3.8	4.0	0.2	2.8	3.3	2.5	0.3
	Moz Au	Recovery %	Moz Au	Years	Mt	g/t Au	% Cu	Moz Au	Mt	g/t Au	% Cu	Moz Au
-0.3	-0.02	96%	0.10	3	0.8	5.4	0.3	0.13	1.0	5.0	0.8	0.16
52.5	2.37	86%	8.2		140	1.6		7.2	151	1.6		7.8
Mt ore	Mt Cu		Mt Cu	Years	Mt	% Cu	g/t Au	Mt Cu	Mt	% Cu	g/t Au	Mt Cu
-0.6	-0.02	92%	0.51	9	25.2	2.3	0.2	0.58	27.1	2.4	0.2	2.4

Mineral Resources at 31 December 2020

	2020 Mineral Resources											
Commodity	Project De	Project Description			Measured			Indicated				Inferred
Phosphate Al Jalamid ML Al Jalamid EL Al Khabra ML Umm Wu'al B6 ML Umm Wu'al B4-5 ML Umm Wu'al B10-11 ML	% Ma'aden 70% 70% % Ma'aden 60% 100%	Stage Mine Mine Stage Mine PFS PFS	Mine OP OP Mine OP OP OP OP	Mt 291.1 Mt 300.2 177.1 29.3	 %P₂O₅ 19.2 %P₂O₅ 16.7 16.9 20.4 	% MgO 3.8 % SiO2 9.9 2.2 8.0	Mt 72.8 Mt 107.2 473.0 150.4 40.1	 % P₂O₅ 19.2 % P₂O₅ 15.5 16.7 16.8 19.3 	% MgO 4.8 % SiO ₂ 10.1 2.2 2.6 8.7	Mt 9.1 703.0 Mt 6.5 96.1 264.4	% P ₂ O ₅ 17.3 18.4 % P ₂ O ₅ 17.6	% MgO 5.5 6.1 % SiO ₂ 18.2 3.6 9.3
Umm Wu'al EL	100%	PFS	OP		17.0		211	100		242.7	16.9	-
Total				798	17.8		844	16.9		1322	18.2	
Industrial Bauxite Az Zabirah ML Az Zabirah Central MLA Az Zabirah North EL	% Ma'aden 100% 100% 100%	Stage Mine Mine Mine	Mine OP OP OP	Mt 7	% Al ₂ O ₃ 50.8	% SiO2 18.0	Mt 17 22	% Al ₂ O ₃ 51.5 51.1	% SiO₂ 18.5 17.5	Mt 6 21 46	% Al ₂ O ₃ 52.6 50.4 50.5	% SiO ₂ 18.6 16.1 14.7
Total				7	50.8	18.0	39	51.3	17.9	73	50.7	16.7
Kaolin Az Zabirah ML Az Zabirah Central MLA Az Zabirah North EL	% Ma'aden 100% 100% 100%	Stage Mine Mine Mine	Mine OP OP OP	Mt 7	% Al ₂ O ₃ 36.1	% SiO2 41.0	Mt 16 17	% Al ₂ O ₃ 36.8 36.6	% SiO₂41.539.7	Mt 8 9 19	% Al ₂ O ₃ 38.4 35.7 35.3	% SiO ₂ 41.0 40.6 40.6
Total				7	36.1	41.0	33	36.7	40.6	36	35.9	40.6
Magnesite	% Ma'aden	Stage	Mine	Mt	% MgO	% SiO2	Mt	% MgO	% SiO ₂	Mt	% MgO	% SiO ₂
Al Ghazalah ML	100%	Mine	OP	0.7	46.2	0.7	3.4	43.2	2.6	2.0	44.2	1.6
Metallurgical Bauxite Al Ba'itha ML Az Zabirah ML Az Zabirah Central MLA Az Zabirah North EL	% Ma'aden 75% 75% 100% 100%	Stage Mine Mine Mine Mine	Mine OP OP OP OP	Mt 68 12	%TAA 49.8 48.6	% SiO2 7.9 10.9	Mt 138 17 11	%TAA 49.6 46.6 46.9	% SiO ₂ 8.6 12.2 10.9	Mt 28 11 31 13	%TAA 50.8 46.3 46.5 46.8	% 5iO ₂ 9.4 12.3 9.4 9.7
Total				80	49.6	8.3	166	49.1	9.1	83	47.9	9.8
Gold Ad Duwayhi ML Bulghah ML Sukhaybarat ML As Suq ML Mansourah ML Massarah ML Ar Rjum (Waseemah) ML Ar Rjum (Umm Naam + Ghazal) ML Bir Tawilah EL Jabal Ghadarah EL Al Amar ML	% Ma'aden 100% 100% 100% 100% 100% 100% 100%	Stage Mine Mine Mine Dev Dev PFS PFS Expl Expl Mine	Mine OP OP OP OP OP OP OP UG	Mt 2.2 14.8 4.3 14.0 15.0	g/t Au 4.3 2.3 1.7 1.6 1.3	% Zn	Mt 17.6 46.0 19.1 7.5 30.3 38.1 31.7 18.5 45.0 2.0 2.9	g/t Au 1.5 0.9 1.3 1.4 1.9 1.6 1.6 1.4 0.9 1.2 4.7	% Zn 4.4	Mt 8.9 15.8 1.6 2.5 4.7 4.5 2.0 0.6 5.0 3.7 0.5	g/t Au 1.7 0.9 1.2 1.4 2.2 0.9 1.2 1.3 0.8 0.9 5.2	% Zn 4.9
Mahd Ad Dhahah Mi	% Ma'aden	Stage	Mine	Mt	g/t Au	% Cu	Mt	g/t Au	% Cu	Mt	g/t Au	% Cu
Mahd Ad Dhahab ML	100%	Mine	UG	1.60	10.8	0.81	1.00	9.8	0.7	0.30	10.2	0.7
Total	0/ NASIS dos-	Ctaga	Mina	51.9	2.1	g/+ N	259.6	1.4	cz /+ N	50.2	1.3	σ/t Δι·
Copper	% Ma'aden	Stage	Mine	Mt	% Cu	g/t Au	Mt	% Cu	g/t Au	Mt	% Cu	g/t Au
Jabal Sayid ML	50%	PFS	OP	9.2	2.7	0.21	19.7	2.4	0.35	4.6	1.5	0.4

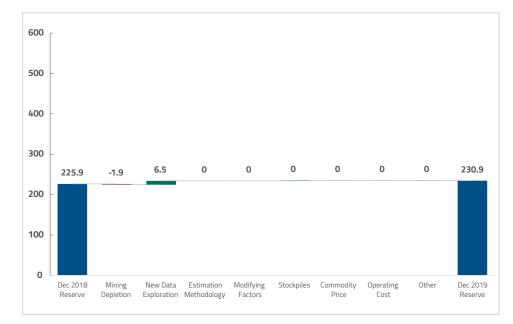
				2020 - 2	019 Change		2019 Min	eral Reso	urces		2018 Min	eral Reso	urces
Me	easured + I	ndicated	+ Inferred	Annual Res	ource Changes	N	/leasured + I	ndicated -	+ Inferred	Me	asured + I	ndicated +	Inferred
Mt 373.0 703.0 Mt 413.9 473.0 423.6 333.8 242.7	% P ₂ O ₅ 19.1 18.4 % P ₂ O ₅ 16.4 16.7 16.7 18.7	% MgO 4.0 6.1 % SiO ₂ 10.0 2.2 2.7 9.1	Mt P ₂ O ₅ 71.3 129.1 Mt P ₂ O ₅ 67.9 78.9 70.9 62.4 41.0	Mt 2.9 0 Mt -9.3 0 0 0	Mt P ₂ O ₅ -0.6 0 Mt P ₂ O ₅ -1.6 0 0 0 0 0 0	Mt 370 703 Mt 423 473 424 334 243	% P ₂ O ₅ 19.4 18.4 % P ₂ O ₅ 16.4 16.7 16.7 18.7 16.9	% MgO 4.0 6.1 % SiO ₂ 10.0 2.2 2.7 9.1	Mt P ₂ O ₅ 72.0 129.1 Mt P ₂ O ₅ 69.5 79.0 70.9 62.4 41.0	Mt 432 417 Mt 425 473 424 334 243	% P ₂ O ₅ 19.1 16.1 % P ₂ O ₅ 16.1 16.7 16.7 18.7 16.9	% MgO 4.2 4.4 % SiO ₂ 12.7 2.2 2.7 9.1	Mt P ₂ O ₅ 82.5 67.1 Mt P ₂ O ₅ 68.4 79.0 70.9 62.4 41.0
2963	17.6		521.6	-6.5	-2.2	2969	17.6		523.8	2748	17.2		471.3
Mt 30.0 42.7 46.0	% Al ₂ O ₃ 51.6 50.7 50.5	% SiO ₂ 18.4 16.8 14.7	Mt bauxite 30 43 46	Mt -0.6 0	Mt bauxite -0.6 0	Mt 30.3 43.0 46.0	% Al ₂ O ₃ 51.6 50.7 50.5	% SiO ₂ 18.4 16.8 14.7	Mt bauxite 30.3 43.0 119.3	Mt 30 29 20	% Al₂O₃ 51.6 49.7 50.4	% SiO ₂ 18.4 16.1 16.8	Mt bauxite 30.0 29 20
118.7	50.9	17.3	118.7	-0.6	-0.6	119.3	50.9	17.3	119.3	79	27.6	17.1	79
Mt 31 25 19	% Al ₂ O ₃ 37.1 36.3 35.3	% SiO ₂ 41.3 40.0 40.6	Mt kaolin 31 25 19	Mt 0 0 0	Mt kaolin 0 0 0	Mt 31 25 19	% Al ₂ O ₃ 37.1 36.3 35.3	% SiO ₂ 41.3 40.0 40.6	Mt kaolin 31 25 19	Mt 31 17 21	% Al ₂ O ₃ 37.1 36.3 35.1	% SiO ₂ 41.3 40.8 40.4	Mt kaolin 31 17 21
76	36.3	40.6	76	0	0	76	36.3	40.6	76	69	36.3	40.9	69
Mt	% MgO	% SiO ₂	Mt MgO	Mt	Mt MgO	Mt	% MgO	% SiO ₂	Mt MgO	Mt	% MgO	% SiO ₂	Mt MgO
6.1	43.9	2.1	2.7	0.1	0.1	5.9	43.7	3.8	2.6	6.1	43.8	3.0	2.7
Mt 233 40 42 13	%TAA 49.8 47.1 46.6 46.8	% SiO ₂ 8.5 11.8 9.7 9.7	Mt bauxite 233 40 42 13	Mt -4.7 0 0	Mt bauxite -4.7 0 0 0	Mt 238 40 42 13	%TAA 49.8 47.1 46.5 46.8	% SiO ₂ 8.4 11.8 9.7 9.3	Mt bauxite 238.2 40.0 42.0 13.0	Mt 243 40 37 31	%TAA 49.8 57.4 47.2 44.9	% SiO ₂ 8.4 11.8 9.4 9.3	Mt bauxite 243 40 37 31
328	48.9	9.0	328	-4.7	-4.7	333	48.9	9.8	333.2	351	49.9	9.0	351
Mt 28.7 61.8 20.8 10.0 49.8 46.9 47.6 34.0	g/t Au 1.8 0.9 1.3 1.4 2.0 1.5 1.6	% Zn	Moz Au 1.68 1.76 0.84 0.44 3.26 2.30 2.43 1.50	Mt 4.9 -19.9 -7.2 0.7 6.1 3.5 0	Moz Au 0.06 -0.68 -0.18 0.006 0.14 0.31 0	Mt 23.8 81.7 28.0 9.3 43.7 43.4 47.6 34.0	g/t Au 2.1 0.9 1.1 1.4 2.2 1.4 1.6	% Zn	Moz Au 1.62 2.44 1.01 0.43 3.12 1.99 2.43 1.50	Mt 27.0 84.8 28.0 8.7 46.8 43.7 43.7 28.5	g/t Au 2.1 0.9 1.1 1.5 2.1 1.6 1.6	% Zn	Moz Au 1.82 2.51 1.01 0.42 3.21 2.23 2.18 1.38
49.0 5.7 3.4 Mt 3.0	0.9 1.0 4.8 g/t Au 10.4	4.5 % Cu 0.76	1.35 0.18 0.52 Moz Au 0.98	0 0.3 0.32 Mt 0.7	0 0.01 0.10 Moz Au 0.35	49.0 5.4 3.0 Mt 2.3	0.9 1.0 4.4 g/t Au 8.4	5.4 % Cu 0.7	1.35 0.17 0.42 Moz Au 0.63	41.0 5.4 1.0 Mt 2.6	0.9 1.0 4.9 g/t Au 8.2	0.5 <mark>% Cu</mark> 0.5	1.14 0.17 0.16 Moz Au 0.7
360.7	1.5		17.23	-19	-0.03	371.4	1.4	-	17.13	361	1.5	-	14.0
Mt	% Cu	g/t Au	Mt Cu	Mt	Mt Cu	Mt	% Cu	g/t Au	Mt Cu	Mt	% Cu	g/t Au	Mt Cu
33.5	2.1	0.3	0.71	-0.2	-0.02	33.7	2.2	0.4	0.7	6.2	1.7	0.5	0.11

Ore Reserve Changes from

31 December 2019 to 31 December 2020

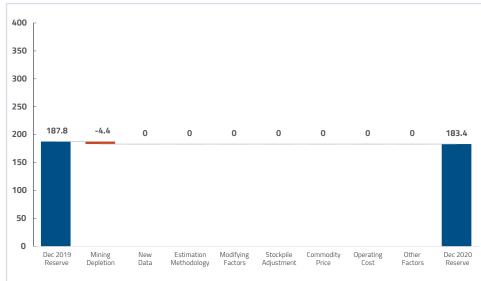
Phosphate

Contained P₂O₅ million tonnes



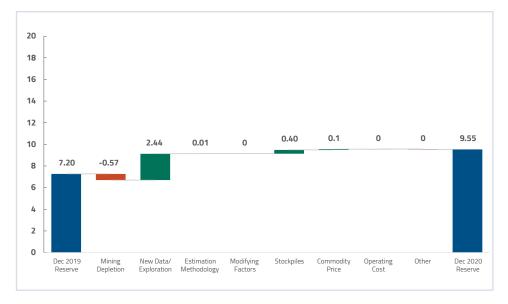
Metallurgical Bauxite

Contained bauxite million tonnes



Gold

Contained gold million troy ounces

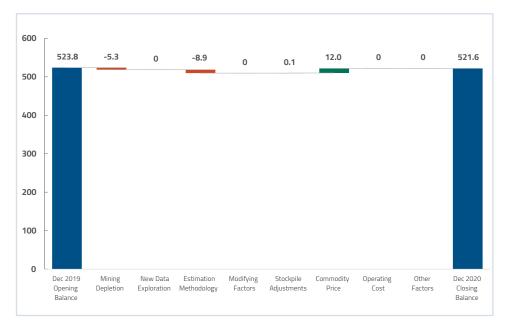


Mineral Resource Changes from

31 December 2019 to 31 December 2020

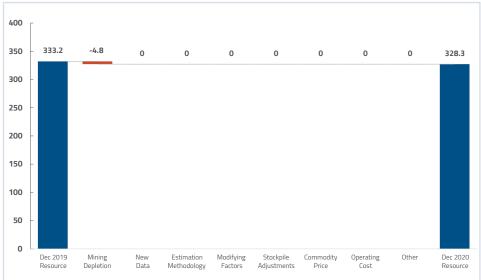
Phosphate

Contained P₂O₅ million tonnes



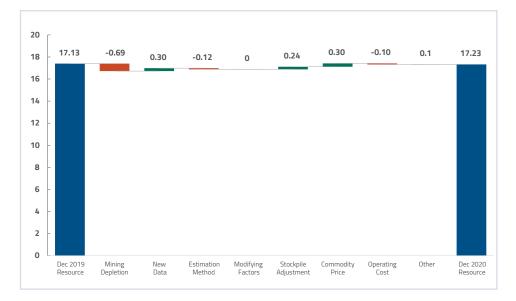
Metallurgical Bauxite

Contained bauxite million tonnes



Gold

Contained gold million troy ounces



Competent Persons for Ore Reserves at 31 December 2020

Phosphate	ohate Estimate Date Competent Pe		Recognised Professional Organisation	RPO membership	Employer
Al Jalamid ML	31 Dec 2020	Filip Orezechowski	MIMMM CEng	459557	SRK
Al Khabra ML	31 Dec 2020	Helge Ziehe	MAusIMM	316648	Sofeco
Umm Wu'al B6 ML	01 May 2014	Helge Ziehe	MAusIMM	316648	Sofreco
Umm Wu'al UMW 4 & 5 ML	05 Oct 2017	Thierry Rousseau	EFG (EurGeol)	1031	Technip
Umm Wu'al UMW 10 & 11 ML	31 Dec 2016	John Knight	FGS (CGeol), EFG (EurGeol), MIMMM	15040, 336, 29722	Sofreco
Kaolin					
Az Zabirah ML	31 Dec 2020	Filip Orzechowski	MIMMM CEng	459557	SRK
Industrial Bauxite					
Az Zabirah ML	31 Dec 2020	Filip Orzechowski	MIMMM CEng	459557	SRK
Magnesite					
Al Ghazalah ML	31 Dec 2020	Filip Orzechowski	MIMMM CEng	459557	SRK
Metallurgical Bauxit	e				
Al Ba'itha ML	31 Dec 2020	Scott McEwing	FAusIMM (CP Min)	111809	SRK
Gold					
Ad Duwayhi ML	31 Dec 2020	John Miles	MIMMM CEng	50277	SRK
Al Amar ML	31 Dec 2020	John Miles	MIMMM CEng	50277	SRK
As Suq ML	31 Dec 2020	John Miles	MIMMM CEng	50277	SRK
Bulghah ML	31 Dec 2020	John Miles	MIMMM CEng	50277	SRK
Sukhaybarat ML	31 Dec 2020	John Miles	MIMMM CEng	50277	SRK
Mahd Ad Dhahab ML	31 Dec 2020	Colin Davies	CEng MIMMM.	621198	Wardell Armstrong
Mansourah ML	01 May 2017	Klaus Thomas Shrimpf	FAusIMM	112612	Amec Foster Wheeler
Massarah ML	01 May 2017	Klaus Thomas Shrimpf	FAusIMM	112613	Amec Foster Wheeler
Ar Rjum (Waseemah) ML	01 Mar 2020	Igor Bojanic	FAusIMM		RPM Global
Ar Rjum (Umm Naam + Ghazal) ML	01 Mar 2020	Igor Bojanic	FAusIMM		RPM Global
Copper					
Jabal Sayid ML	31 Dec 2020	Brendan Cope	FAusIMM	112629	Ma'aden Barrick Copper Company

Competent Persons for Mineral Resources at 31 December 2020

Phosphate	Estimate Date	Competent Person	Recognised Professional Organisation	RPO membership	Employer
Al Jalamid ML	31 Dec 2020	Dr. Tim Lucks	MAusIMM CP(Geo)	304968	SRK
Al Khabra ML	31 Dec 2020	Mohamed Mahmoud Ali	MAusIMM CP(Geo)	316089	Ma'aden
		Daniel Mariton	EFG, EurGeol	2013-2494, 1159	Sofreco
Umm Wu'al B6 ML	30 Jun 2014	Daniel Mariton	EFG, EurGeol	2013-2494, 1159	Sofreco
Umm Wu'al UMW 4 & 5 ML	31 Dec 2015	Daniel Mariton	EFG, EurGeol	2013-2494, 1159	Sofreco
Umm Wu'al UMW 10 & 11 ML	31 Dec 2015	Daniel Mariton	EFG, EurGeol	2013-2494, 1159	Sofreco
Umm Wu'al EL	10 Jun 2018	Daniel Mariton	EFG, EurGeol	2013-2494,1159	Sofreco
Al Jalamid EL	31 Dec 2019	Dr. Tim Lucks	MAusIMM CP(Geo)	304968	SRK
Kaolin					
Az Zabirah ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Az Zabirah Central EL	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Az Zabirah North EL	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Industrial Bauxite					
Az Zabirah ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Az Zabirah Central MLA	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Az Zabirah North EL	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Magnesite					
Al Ghazalah ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Metallurgical Bauxite					
Al Ba'itha ML	31 Dec 2020	Rodney Brown	MAusIMM	110384	SRK
Az Zabirah ML	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Az Zabirah Central MLA	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Az Zabirah North EL	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Gold					
Ad Duwayhi ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Al Amar ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
As Suq ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Bulghah ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Sukhaybarat ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Mahd Ad Dhahab ML	31 Dec 2020	Alan Clarke	CGeol FGS	1014124	Wardell Armstrong
Mansourah ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Massarah ML	31 Dec 2020	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Ar Rjum (Waseemah) ML	31 Jan 2019	Paul Payne	FAusIMM	105622	RPM Global
Ar Rjum (Umm Naam) ML	31 Jan 2019	Paul Payne	FAusIMM	105622	RPM Global
Bir Tawilah EL	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Jabal Ghadarah EL	31 Dec 2019	Mark Campodonic	MAusIMM CP(Geo)	225925	SRK
Copper					
Jabal Sayid ML	31 Dec 2020	Christopher Hobbs	FAusIMM		