1 June 2020

Emmerson Plc ("Emmerson" or the "Company")
Feasibility Study Confirms Low Capex, High Margin Potash Mine
with Outstanding Economic Metrics

Emmerson Plc, the Moroccan focused potash development company, is pleased to release a summary of the results of its recently completed Feasibility Study ("FS") for the Company's 100% owned Khemisset Potash Project located in northern Morocco ("Khemisset" or "the Project").

Highlights

- Post **Tax NPV$_8$ of US$1.4 billion**[1] **and IRR of 38.5%** over an initial 19 year mine life
- Total **pre-production capital cost** (potash only) **US$387 million** including contingency
  - Represents a **reduction of US$19 million or 4.7%** from Scoping Study
  - **Bottom decile capital intensity** per tonne of product produced, **less than half of global peer average capital intensity**
- Additional capital cost of US$24 million (incl. contingency) for a salt plant designed to produce de-icing specification salt for sale into the east coast US de-icing salt market
- **Peak production** of approximately:
  - **810,000 tonnes per annum of K$_{60}$ MOP**
  - 1,000,000 tonnes per annum of de-icing salt
- Average steady state production of:
  - 735,000 tonnes per annum of K$_{60}$ MOP
  - 1,000,000 tonnes per annum of de-icing salt
- **Improved metallurgical recoveries** based on detailed metallurgical test work programme results
  - Weighted average LOM recovery 85.2% up from 83.6% in Scoping Study
- **Bottom quartile projected all-in-sustaining delivered cost** to all Emmerson's target markets including Brazil, NW Europe, Morocco, South Africa
- **Top quartile projected cash margins** according to analysis conducted by Argus FMB
  - Average, steady state post-tax **cash margins of 47.1%**
  - Average, steady state, **EBITDA margins of 61.5%**
- Robust cashflow generation at a broad range of potash price assumptions
  - Average **steady state EBITDA of US$307 million per annum**[2]
  - **Less than 2.6yr capital payback**[2]
- **Initial mine life of 19 years** with significant potential to increase from existing JORC compliant mineral resources
  - **Current mine plan includes only 43% of the total mineral resource estimate** of 537 million tonnes with an average grade of 9.24% K_2O
- Design and estimates completed by independent engineers according to AusIMM guidelines
- Emmerson cash position, as of 31 April 2020, of £1.2 million
  - Fully funded to deliver key permitting workstreams including Environmental and Social Impact Assessment

[1] Nominal NPV$_8$, 3.0% escalation applied to both operating costs and revenues
[2] Using industry expert Argus FMB price forecasts

Hayden Locke, CEO of Emmerson, commented:

"The Feasibility Study has confirmed the findings from the Scoping Study, which showed that Khemisset has the potential to be a world class, low capital cost, high margin potash mine, which is a very rare asset in the global fertiliser industry. The strong agricultural investment thematic remains firmly in place driven by ever increasing global population and shrinking arable land, which necessitates the need for fertiliser and, in particular, potash.

"We are particularly pleased that the total pre-production capital cost has come down by approximately US$19 million from the Scoping Study, which is unusual when moving to higher levels of engineering, and is a testament to the focus of our engineering team on delivering fit for purpose, disciplined designs for the Project.

"As expected, the forecast all-in-sustaining cash costs, delivered to customer, place this project in the bottom quartile of all potash projects to Emmerson's target markets. When we include the offsetting salt by-product credits, as is the typical convention in the mining industry, Khemisset becomes one of the lowest cost producers to these markets. This is a powerful competitive position and that will continue to attract interest from numerous potential strategic partners.

"It follows that the economics of this project would be highly compelling, and with an IRR of nearly 39% and a post-tax NPV_8 of US$1.4 billion, this is clearly an extremely robust project in normal potash market conditions, generating average revenue of over US$480 million and EBITDA of over US$300m for the life of the mine. It is outstanding that, in a downside market price scenario, assuming a potash price of around US$225/tonne, this project will still generate a very robust average life of mine post-tax free cash flow of nearly US$90 million per annum and an IRR of nearly 15%. This is more than enough to pay the interest and principal on a significant amount of debt and ensure that we, as equity investors in Emmerson, make a solid downside case return on our capital. It is one of the very few potash projects globally that would achieve these metrics in the downside price scenario.

"I would like to thank our project engineering team, and in particular the team from Golder and Barr, who have undertaken an extremely rigorous engineering and de-risking programme and have delivered a thorough assessment of the project and a clear plan for its future development.

"The objectives for Emmerson for the rest of 2020 are to move the Project through the various permitting requirements, including an Environmental and Social Impact Assessment which incorporates a formal stakeholder engagement programme, while concurrently moving forward our financing discussions for the next phase of development at Khemisset."

Key Assumptions and Results from Study

The key assumption underpinning the Feasibility Study is an average annual extraction rate of approximately 6 million tonnes of ROM ore with an average grade (undiluted) over the life of mine of 9.12% K_2O. The Feasibility Study is based on 43% of the JORC compliant Mineral Resource Estimate of 537Mt at an average grade of 9.24% K_2O, delivering an initial mine life of 19 years. Significant potential remains to increase the mine life by including additional resources, notably in the south west of the project area, and through further exploration work.

Processing assumes a hot leaching and crystallisation process to extract and purify the KCl in the ore into saleable grade K_{60} MOP. Over the life of mine, the process plant delivers an average of approximately 735,000 metric tonnes per annum of K60 product and 1 million metric tonnes of de-icing salt for sale.

The Feasibility Study assumes all MOP and salt product is exported through the Port of Casablanca, using trucks from mine site, to be sold in Emmerson's target markets in the Atlantic corridor.

Capital cost estimates include a contingency of 16% and capital and operating cost estimates have an accuracy of ±20-25%. Key assumptions and results are outlined in **Table 1** below:

Parameter	**Value**
Initial Operating Life	19 years
Annual ROM Extraction Rate	6Mtpa
Average Life of Mine Grade to Mill	8.6% K_2O
Average Metallurgical Recovery (LOM)	85.2%
Average Annual MOP Production Rate	~735,000 metric tonnes
Average Annual Salt Production Rate	1 million metric tonnes
Average Flat Real MOP Price CFR Brazil	US$412/tonne
Average Flat Real Salt Price CFR East Coast US	US$60/tonne
Capital Cost (including US$45.5m contingency)	US$387 million
Total Cash Cost FOB Port of Casablanca	US$125.3/tonne
All-in-Sustaining Cash FOB Port of Casablanca	US$158.0/tonne
Average Steady State EBITDA	US$307 million
Average Steady State EBTDA Margin	61.5%
Average Steady State Annual Post-Tax Cash Flow	US$235 million
Average Steady State Post Tax Cash Margin	47.1%
Post Tax NPV8 (nominal)	US$1.4 billion
Post Tax IRR (nominal)	38.5%
Post-tax Payback Period	2.6yrs

Table 1: Key Assumptions and Results

Economic Sensitivity Analysis

Economic sensitivity analyses of Khemisset shows it to be a financially robust project that delivers strong NPVs and healthy cashflows through a range of potash prices. A summary of NPVs at a variety of potash prices and discount rates can be seen in **Table 2** below.

NPV - US$ millions		Flat Real MOP Price - US$/tonne				
		288 (-30%)	350 (-15%)	412 (Base)	473 (15%)	536 (30%)
Discount Rate	4%	1,151.0	1,719.6	2,288.3	2,857.0	3,425.7
	6%	855.5	1,316.0	1,776.5	2,237.0	2,697.5
	8%	634.9	1,012.9	1,390.9	1,768.9	2,146.9
	10%	468.1	782.4	1,096.7	1,410.9	1,725.2

Table 2: NPV Sensitivity to Potash Price and Discount Rate

Strong cashflow generation at a variety of low potash prices is fundamental to the ability to finance the Project. Khemisset delivers strong, post-tax, cashflows which Management believes will be capable of delivering the requisite finance to complete the construction and ramp up of the mine. A summary of the EBITDA, post-tax cashflow and IRR at a variety of potash prices can been seen in **Table 3**, **Table 4** and **Table 5** below.

EBITDA – US$ millions	Flat Real MOP Price - US$/tonne					
	227 (-45%)	288 (-30%)	350 (-15%)	412 (Base)	474 (15%)	536 (30%)
	130.4	189.3	248.3	307.2	366.1	425.0

Table 3: EBITDA Sensitivity to Potash Price

Post Tax FCF – US$ millions	Flat Real MOP Price - US$/tonne					
	227 (-45%)	288 (-30%)	350 (-15%)	412 (Base)	474 (15%)	536 (30%)
	87.5	136.8	186.0	235.2	284.5	333.7

Table 4: Post-Tax Free Cash Flow Sensitivity to Potash Price

IRR	Flat Real MOP Price - US$/tonne					
	227 (-45%)	288 (-30%)	350 (-15%)	412 (Base)	474 (15%)	536 (30%)
	14.7%	23.3%	31.1%	38.5%	45.5%	52.3%

Table 5: IRR Sensitivity to Potash Price

Key Financial Assumptions for DCF Model
Industry Expert Argus FMB Price Forecasts over Life of Mine (approx. average US$412/tonne real flat)

Key Financial Assumptions for DCF Model
Nominal Discount Rate of 8%
Costs and revenues escalated at 3.0% per annum over life of mine (average UK inflation since 1998)
5 Yr Corporate Tax Holiday
20.0% Corporate Tax Rate on Exported Product
Two years pre-production, ramp-up 50% in year 1

Table 6: Key Assumptions Used in Financial Model

Summary of Capital and Operating Costs contained in the Study

Capital and operating costs were estimated from first principles in line with the Australian Institute of Mines and Metallurgy ("AusIMM") guidelines for a Feasibility Study and have been estimated with an accuracy of ±20-25%.

The total pre-production capital cost for the potash mine and salt plant together is US$411 million, which includes a US$45 million (16%) contingency. Pre-production capital cost, even when including the salt plant, places Khemisset in the lowest decile for capital intensity among its global potash development peers. A summary of pre-production capital costs can be seen in **Table 7** below.

Summary of Capital Costs (Potash and Salt)

Capital Cost Item	US$M
Mining	89.6
Processing Plant	146.6
Surface Infrastructure	17.9
Tailings Storage	30.5
Total Direct	**284.6**
EPCM	32.8
Indirects	47.9
Contingency (16%)	45.5
Total Pre-Production Capital Cost	**410.9**
Capital Intensity (US$/tonne product)	507.4

Table 7: Summary of Pre-Production Capital Costs

Operating costs have been estimated using key inputs including equipment lists and mechanical performance, power consumption, Moroccan electricity and gas rates, Moroccan and expatriate labour rates. All costs have been built from first principles to provide a deterministic estimate of operating costs over the life of the mine. A summary of steady state operating costs can be seen in **Table 8** below.

Summary of Operating Costs in First Year of Full Production (Potash Only)

Operating Cost Item	US$/t ROM	US$/t MOP
Mining (incl. Contract Mining)	7.8	60.2
Processing	5.5	42.7
Other Site Operating Costs	0.7	5.6
Administration	0.4	2.8
Total Cash Cost to Mine Gate	**14.4**	**111.2**
Trucking to Port of Casablanca and Port Charges	2.0	14.1
Sustaining Capital	4.2	32.7
All-in-Sustaining Cash Cost (FOB Casablanca)	**20.6**	**158.0**
Freight to Brazil	1.4	10.0
All-in-Sustaining Cash Cost to Brazil	**22.0**	**168.0**

Table 8: Summary of Operating Costs in First Year of Full Production

Comparison to Peers

The Feasibility Study estimates that the capital intensity of the Khemisset Project, per tonne of product produced, will be less than half of the global peer average capital intensity for potash mines. Khemisset remains in the bottom three projects globally in terms of both capital intensity and absolute pre-production capital cost. A comparison to other potash projects is shown in **Figure 1** below.

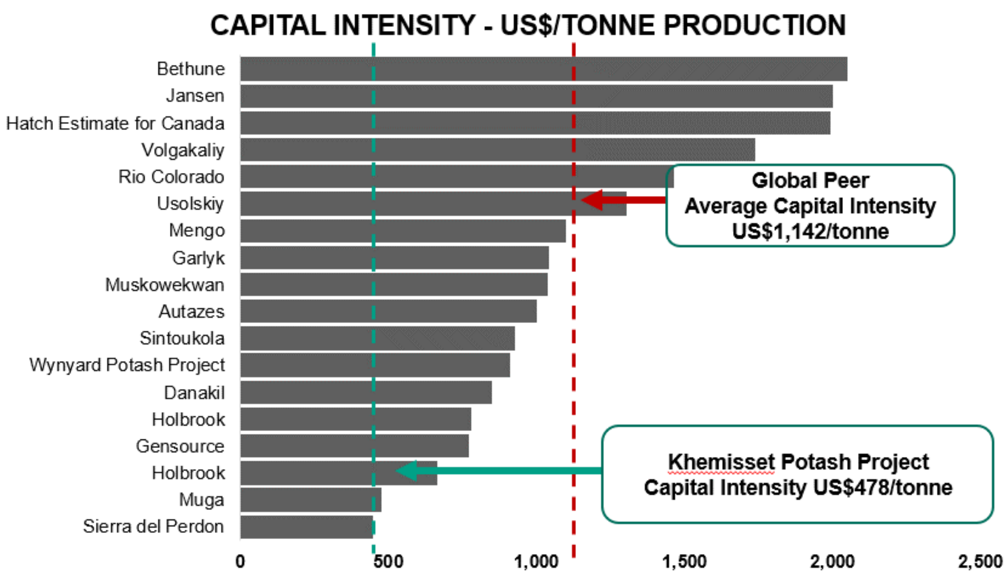

Figure 1. Pre-Production Capital Intensity for Potash Projects Globally

Despite Khemisset having higher operating costs to mine gate, relative to low-cost Russian and Canadian peers, it is still forecast to be in the bottom quartile in terms of delivered cost to all of its target markets due to its favourable location, within 200km of a port (with the potential for this to reduce to 100km upon the opening of the planned port of Kenitra Atlantique), and its proximity to its end markets. When salt by-product credits are included, as is the convention in the mining industry, Khemisset is projected to be among the bottom two or three projects globally on an all-in-sustaining delivered cost to Brazil basis.

Independent market consultants, Argus FMB, provided analysis highlighting Emmerson's projected competitive position which can be seen below in **Figure 2.**

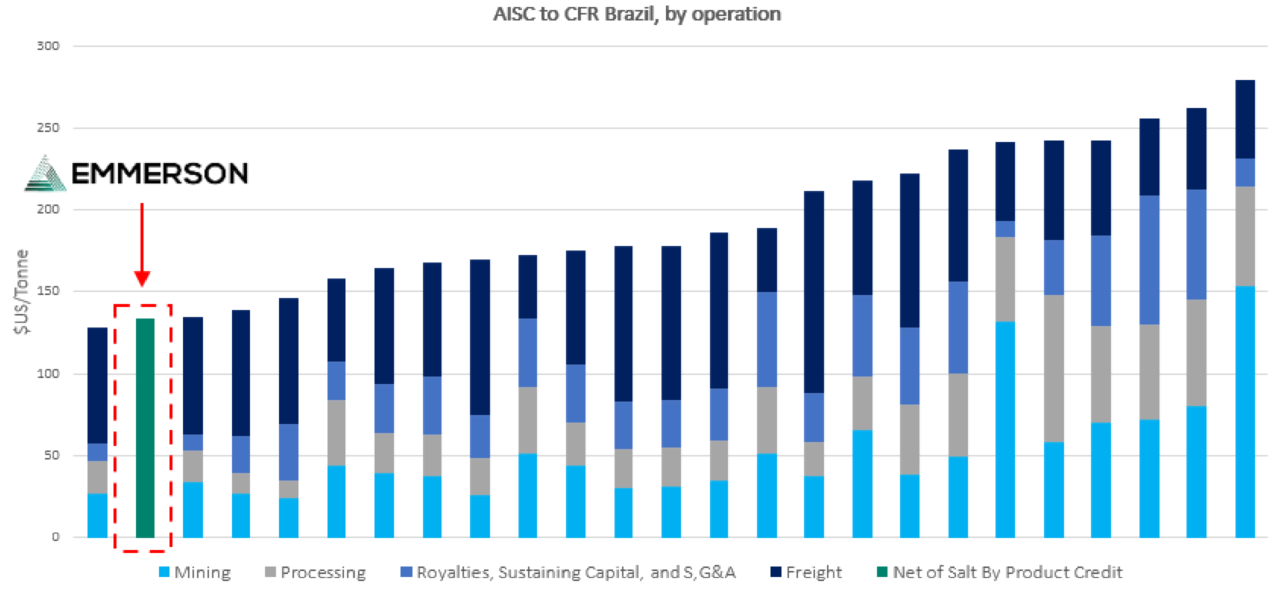

Figure 2: Industry All-in-Sustaining Delivered Cost Curve to CFR Brazil

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Notes to Editors

Emmerson's primary focus is on developing the Khemisset Potash Project located in Northern Morocco. The Project has a large JORC Resource Estimate (2012) of 537Mt @ 9.24% K_2O and significant exploration potential with an accelerated development pathway targeting a low capex, high margin mine. Khemisset is perfectly located to capitalise on the expected growth of African fertiliser consumption whilst also being located on the doorstep of European markets. This unique positioning means the Project will receive a premium netback price compared to existing potash producers. The need to feed the world's rapidly increasing population is driving demand for potash and Emmerson is well placed to benefit from the opportunities this presents.

The information contained within this announcement is deemed by the Company to constitute inside information as stipulated under the Market Abuse Regulations (EU) No. 596/2014.

Feasibility Study Overview

The Feasibility Study was managed by global, independent, mining and engineering consultants, Golder Associates ("Golder"), with input on the processing design from Global Potash Solutions and Barr Associates. Designs and estimates have been prepared in line with guidelines provided by the Australasian Institute of Mining and Metallurgy ("AusIMM") for the preparation of feasibility studies.

Khemisset is 100% owned by Emmerson and is estimated to produce approximately 6 million tonnes per annum (Mtpa) of run-of-mine ("ROM") ore to deliver on average, over an initial mine life of 19 years, around 735,000 tonnes of K_{60} Muriate-of-Potash ("MOP") per annum. The mine is proposed to be accessed via twin declines from the surface which will enable ore to be extracted using a conventional room and pillar mining methodology using continuous miners. Ore will be processed via hot leaching, cold crystallisation to produce the generic K_{60} MOP product which is standard in the industry.

In line with the AusIMM guidelines, this Feasibility Study has an estimation accuracy of ±20-25% and provides a multi-disciplinary assessment of all technical characteristics of the project including geology, mining, processing, and infrastructure as well as presenting a detailed mine design, mine plan, capital and operating cost estimates, and cash flow analysis.

Golder relied upon inputs from various experts in the technical fields comprising the Feasibility Study including:

Discipline	Company	Role / Specialism
Project Management	Golder	Principal Resource Geologist
Geology	Moroccan Salts Ltd / Golder	Consultant Geologists / Resource Geologist
Geotechnical	Golder	Principal Geotechnical Engineer
Hydrogeology	Golder	Principal Hydrogeologist
Mine Design	Golder	Principal Mining Engineer
Mine Access	Golder	Project Engineer
Mineral Processing	Global Potash Solutions / Barr	Chemical Engineer Mechanical Engineer
Mine Waste Disposal	Golder	Principal Tailings Engineer
Project Infrastructure	DeltaBEC	Civil Engineer
Environmental & Social	Golder	N/A
Cost Estimation	Golder	N/A
Economic Analysis	Golder	Principal Mining Engineer

What is Potash

Potash is the name given to potassium-based fertilisers used in agricultural production. Fertiliser is fundamental in global food security objectives - improvement in agricultural production yield, which will be required to feed a global population that is forecast to grow by 2.2bn by 2050, from an ever-shrinking arable land per capita,

Potassium is an important mineral required for human health. Since potassium is not stored in the body, it is necessary to continually replace this nutrient on a regular basis with potassium-rich foods.

Potassium is also essential for plant health and there must be an adequate supply in the soil to maintain good growth. When the potassium supply is limited, plants may suffer from reduced yields, poor quality, utilise water less efficiently, and are more susceptible to pest and disease damage.

In many parts of the world, agricultural soils are gradually becoming depleted of potassium through intensive agriculture. After many years of intensive cropping and repeated nutrient removal during harvest, many fields now require regular inputs of potash to maintain their productivity. High yielding crops remove large amounts of potassium in the harvested portion of the crop. For example, harvesting 9 tonnes an acre of alfalfa will remove nearly 200kg per acre of K_2O. Similarly, a potato yield of 20 tonnes an acre removes 250kg K_2O.

The removal of potassium and other minerals from the soil – effectively mining the nutrients – requires consistent reapplication in the form of fertiliser to ensure ongoing yields are maintained or improved. Potassium (K) is one of the three key macro nutrients required for efficient agricultural production, along with Nitrogen (N) and Phosphorus (P), and potash is the most important potassium-based fertiliser.

Geology

The Khemisset Basin is a sedimentary basin of Triassic age, initiated by the opening of the mid-Atlantic ridge. The sedimentary sequence of the basin is characterised by early continental red bed deposits including iron-rich sandstones. Continued subsidence and extensional faulting in the late Triassic and early Jurassic resulted in the deposition of clay and extensive evaporite sequences, characteristic of a closed marine basin and thought to exceed 1,000m in thickness in some areas. The evaporitic sequence is primarily comprised of halite, gypsum and locally, sylvite and carnallite.

Following ongoing subsidence of the basin during the Lower and Middle Jurassic, the Khemisset basin was characterised by a continental slope leading into a shallow marine environment with the deposition of carbonate banks and the formation of a carbonate platform with associated dolostone and dolomitic limestone deposits. Around this time Western Morocco also experienced the deposition of extrusive basalts. Subsidence in the Moroccan continental margin continued into the Middle Cretaceous, until a period of uplift in the Late Cretaceous leading to salt diapirism; the intrusion of salt into surrounding host rock to form domes. As the rate of subsidence slowed, the basin became erosive leading to the deposition of a thick Tertiary sedimentary sequence of marls and conglomerates.

The evaporite sequence is equivalent to the Lower Salt Formation observed within the Khemisset basin and represents a regional target for potash exploration. Sylvite and carnallite mineralisation is also known to exist in other regional basins including Doukkala, Berrechid, Essaouira, and Boufekrane in Northern Morocco.

The Khemisset basin has been the subject of exploration since the 1950s, initially by the Bureau de Recherches et de Participation Minieres (BRPM) in collaboration with Mines Domaniales des Potasse d'Alsace (MDPA). Exploration continued in the 1960s by BRPM with input from the United National Development Programme

(UNDP). Exploration methods to-date have included surface geophysical surveys, 2D seismic surveys and borehole drilling.

Three previous drilling campaigns have been performed in the Khemisset Basin targeting potash; two historical exploration campaigns and one recent verification programme. The first, carried out by the association Bureau de Recherches et de Participations Minieres (BRPM) and Mines Domaniales des Potasses d'Alsace (MDPA) between 1955 and 1958, consisted of 9 drillholes, totalling 7,518 drilled metres. The second, was performed by BRPM between 1962 and 1969 and included 124 new drillholes. The drilled metres in both historical campaigns totalled 85,315 m.

Moroccan Salts Limited, a 100% owned subsidiary of Emmerson, completed a three-hole verification drilling programme, for a total of 1,543 m. In 2019, Emmerson completed a second drilling campaign, drilling 9 infill drill holes totalling 6,485m, which provided new geological data in the area of the Oued Beht basin, the target of initial mining operations in the FS.

Mineral Resource Estimate

The Mineral Resource Estimate ("MRE") was completed by independent consultants Golder at the request of Emmerson and includes data sets from all historical and recently completed drilling (**refer RNS dated 02 September 2019**) and other field work at Khemisset. The updated MRE (**refer RNS dated 28 October 2019**) used as the basis for the FS is:

	Million Tonnes (potash ore)	K_2O (%)
Indicated Category	375.2	9.36
Inferred Category	161.8	8.96
Total (Indicated & Inferred)	**536.9**	**9.24**

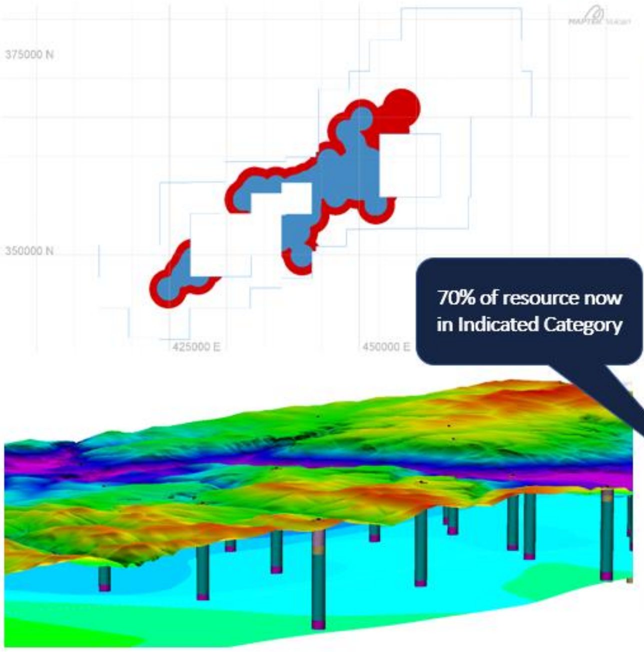
Table 9: Mineral Resource Estimate

A maiden MRE for the Project was completed in May 2018 and was based on historical exploration conducted across the Khemisset basin between 1955 and 1969, comprising approximately 86,500m of drilling, and three a confirmatory drill holes comprising 1,543m conducted by Emmerson in 2016.

A Scoping Study was completed by Golder in 2018 and a new exploration campaign by Emmerson in 2019 comprising 9 infill drill holes totalling 6,485m, which provided new geological data in the area of the Oued Beht basin, the target of initial mining operations in the FS.

A summary of the MRE used for the Feasibility Study, and a comparison to the maiden MRE used for the Scoping Study, can be seen in **Figure 3** below:

72% increase in resource tonnes with approximately 70% in the Indicated category



Maiden Mineral Resource Estimate (May 2018)		
	Million Tonnes (potash seam)	K_2O (%)
Indicated Category	0.0	n/a
Inferred Category	311.0	10.20
Total (Indicated & Inferred)	311.0	10.20

Updated Mineral Resource Estimate (October 2019)		
	Million Tonnes (potash seam)	K_2O (%)
Indicated Category	375.2	9.36
Inferred Category	161.8	8.96
Total (Indicated & Inferred)	536.9	9.24

Figure 3: Khemisset Project JORC Compliant Mineral Resource Estimate

This information has been supplemented by 2D seismic surveying and interpretation commissioned by Emmerson in 2018, providing an increased level of geological understanding across the deposit. The new information has allowed Golder to further validate the historical dataset and 2018 interpretations to update the geological model which informs the updated MRE.

As part of the Feasibility Study, Golder conducted a site visit in February 2019 during the early stages of the drilling campaign, affording the opportunity to check the local geology through examination of drill cores, the core shed, wider logging and sample preparation facilities, and interacting with Emmerson's staff. It also enabled Golder to confirm drilling, sampling, and Quality Assurance/Quality Control ("QA/QC") best practice procedures were being implemented by Emmerson.

Geotechnical

Following on from the work completed in the Scoping Study, the Feasibility Study benefits from a range of geotechnical test work programmes which were carried out using the core from the drilling programme completed in September 2019.

Nine boreholes have been geotechnically logged to classify the rock mass in terms of Bieniawski's RMR_{89} rating, Barton's Q rating and the Geological Strength Index (GSI). In addition, Emmerson undertook Borehole Televiewing (BHTV) on drill holes KMSL5, KMSL6, KMSL7, KMSL8, KMSL11 and KMSL12. The logs were provided to Golder with an accompanying spreadsheet containing all structural picks. Furthermore, Emmerson undertook a series of geotechnical testing programmes on core samples with French laboratory ARMINES including:

- Uniaxial Compressive Strength
- Triaxial Compressive Strength
- Tensile Strength
- Elastic Properties including Elastic Modulus and Poisson's Ratio

- Creep Testing
- Joint Shear Strength
- Brittleness.

Golder used all available geological and geotechnical data to run simulations of the geotechnical responses for the underground mine and to determine various mine design parameters satisfying specific Factor of Safety ("FOS") criteria and benchmarked against a range of potash mines from around the world. From these parameters, a likely range of theoretical maximum extraction ratios for room and pillar mining are determined at various operating depths for the mine.

The overall extraction ratios in **Table 10** below were calculated based on panels with the following parameters and assumptions:

- Pillar stress is based on the tributary area method and an overburden unit weight of 0.0222 MN/m^3;
- Room width is 6.0 m;
- A very conservative FoS of 2.50 has been used for pillars in low-extraction panels, analogous with deep German potash mines;
- Ultimate pillar strength is estimated by the exponential trendline matching Uhlenbecker's carnallite test. All resulting W:H ratios range from 4.5 to 6.9. These W:H ratios are greater than those of the pillars used for the most common empirical pillar strength formulae and it would therefore be inappropriate to apply;
- The minimum panel pillar width for a square pillar is calculated for several depths and mining heights;
- Cross-cuts proposed to be excavated at angles of no more than 60° from the longitudinal direction of the panel;
- Panel extraction ratios are based on rhomboidal pillars with a minimum width matching the square pillar dimension to ensure a similarly confined core;
- The true minimum width of pillars is used in combination with Uhlenbecker's carnallite graph, *i.e.* $W = W_{eff}$. Uhlenbecker's graphs are based on laboratory test samples and it would therefore be incorrect to apply them to elongated pillars;
- The number of entries in the longitudinal direction of a panel is selected to keep the panel width between 245 – 270 m;
- The minimum barrier width should exceed a W:H ratio of 16:1[3]. These barrier pillars will be useful for ventilation control and air blast risk mitigation;
- Panels shall not be longer than 2,000 m;
- The reserve is equally spread between the mining depths 600, 700, 800, 900 and 1,000 m; and
- The mining height is 1.5, 2.0, 2.5, 3.0 and 3.5 m in 10%, 20%, 40%, 20% and 10% of the reserve respectively.

[3] Hebblewhite, B.K. (1977) Underground potash mine design based on rock mechanics principles and measurements. Ph.D. Thesis University of Newcastle Upon Tyne.

Depth (m)	Mining height (m)	Minimum Pillar Width (m)	W:H Ratio	Panel Extraction Ratio	Barrier pillar width (m)	Overall Extraction Ratio
600	1.5	8.7	5.8	64%	24	47%
	2.0	10.6	5.3	58%	32	
	2.5	12.4	5.0	54%	40	
	3.0	14.1	4.7	50%	48	
	3.5	15.8	4.5	47%	56	
700	1.5	9.2	6.1	62%	24	45%
	2.0	11.3	5.7	56%	32	
	2.5	13.3	5.3	52%	40	
	3.0	15.2	5.1	48%	48	
	3.5	17.0	4.9	45%	56	
800	1.5	9.6	6.4	61%	24	44%
	2.0	11.9	6.0	55%	32	
	2.5	14.0	5.6	50%	40	
	3.0	16.1	5.4	46%	48	
	3.5	18.1	5.2	43%	56	
900	1.5	10.0	6.7	60%	24	43%
	2.0	12.4	6.2	54%	32	
	2.5	14.7	5.9	49%	40	
	3.0	16.9	5.6	45%	48	
	3.5	19.1	5.5	42%	56	
1,000	1.5	10.4	6.9	59%	24	42%
	2.0	12.9	6.5	53%	32	
	2.5	15.3	6.1	48%	40	
	3.0	17.7	5.9	44%	48	
	3.5	20.0	5.7	40%	56	

Table 10: Panel metrics for 6.0 m wide rooms

Rock Support

From the geotechnical and geological database and modelling completed, Golder also built up the various ground support assumptions for the ongoing safe operation of the underground mine. Ground support densities range from no bolting or spot bolting in areas with favourable roof conditions to Class 4 bolting in areas of higher geotechnical stress or areas of potential for immediate failure following excavation.

The majority of permanent mine openings, such as infrastructure galleries, have a minimum of Class 2 support density, which provides a significant margin of safety in these key operational areas. In addition, it is proposed these areas are monitored in real time and through the implementation of a Ground Control Management Plan (GCMP) and if geotechnical weakness is detected, then higher support densities of Class 3 and Class 4 may be applied. A summary of the various support classes can be seen in **Figure 4** below.

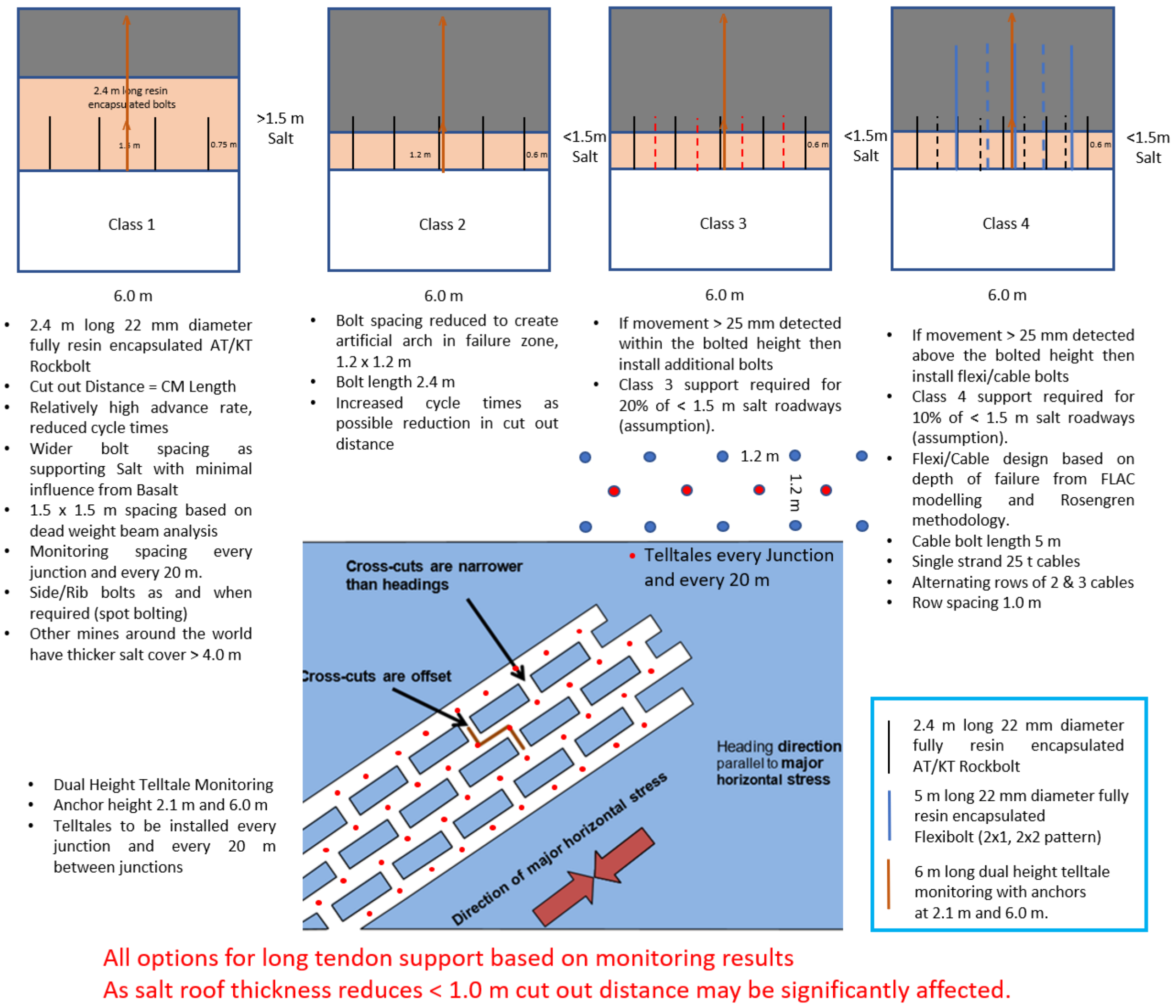


Figure 4: Ground support classes.

Geohydrology

One of the key benefits associated with the Khemisset Project is the lack of fresh water aquifer in the targeted potash basin. Water increases technical complexity and risk for underground mines and this is especially true for potash mines. There are several significant aquifers in the Sebou Basin, as shown in **Figure 5** below, but none are mapped within the Project area. The closest aquifer is the Fes-Meknes system located to the north and northeast of the Project and covering an area of 3,500 km^2 comprising Jurassic age dolomites and limestones. The aquifer provides water for irrigation and potable supply for the cities of Meknes and Fez and other smaller centres.

Importantly, of the 136 drill holes completed at Khemisset there was no evidence of any major aquifer unit in the Project area. The Nappe de la region Khemisset is mapped in the project area but is not identified as a major aquifer. The nature of the mapped aquifer requires confirmation but is anticipated to be associated with Quaternary strata.

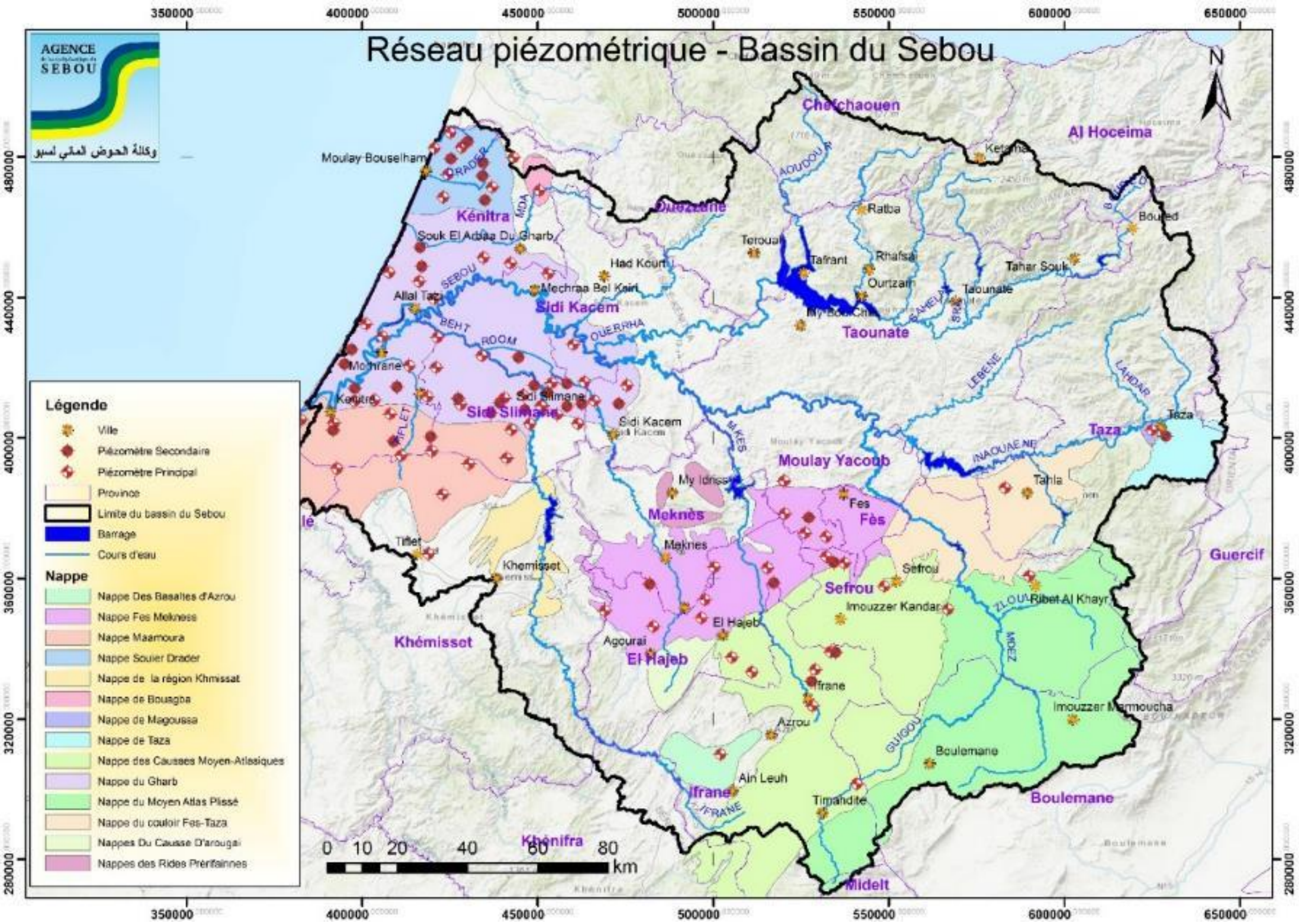


Figure 5: Overview of Aquifers in Northern Morocco

During the 2019 exploration drilling campaign, hydraulic tests were undertaken in KMSL11 and KMSL12 to provide preliminary indication of hydraulic conductivity of the Basalt Formation. Falling head tests were conducted in open hole sections after raising the drill string. The test displacements were analysed by Golder. Due to uncertainties in static levels and interval length, a range of hydraulic conductivity values are calculated:

- KMSL11 12th July 2019; 3 x 10^{-7} to 1 x 10^{-8} m/s
- KMSL12 1st August 2019; 1 x 10^{-8} to 5 x 10^{-9} m/s

The mine will be developed in the Lower Salt Formation, which will not provide a source of groundwater inflow. Any groundwater inflow to the underground operation will be from the overlying Basalt Formation, where exposed. The current hydrogeological conceptualisation and assessment from recent and historical drilling logs considers the basalt unit at depth to be compartmentalised and isolated from surface recharge. Consequently, groundwater inflows would be controlled by the water that can be released from storage in the basalt (although rare) and would reduce as the sequence is drained.

In conclusion, the hydrogeological conditions for the Project area have been assessed based on available information. No major aquifers were identified with groundwater inflows to the underground development anticipated to be limited. Any inflows to the underground are likely to be from the overlying Basalt Formation, however, studies to date identified limited groundwater occurrence (4 out of 145 drill holes), principally on the basin margins. Groundwater inflow estimates to the underground development, based on the currently hydrogeological conceptualisation, are considered negligible and manageable with mobile pumping units.

The formations that will be encountered during decline construction, with except of Quaternary and Miocene strata, are likely to be broadly dry with very limited quantities of groundwater, although follow-up work on the influence of faults and dissolution features is recommended. Limited groundwater inflow is anticipated to the portal excavation. Provision for pumping of water during portal excavation and decline development should be included as a risk mitigation measure.

Mining

For the Feasibility Study mine design, the following basic design assumptions have been made:

- There is no overlying aquifer and no water occurs in the potash seam;
- No flammable gas occurs in the potash seam;
- Geotechnical design can be based upon general geotechnical parameters derived from existing potash operations;
- The salt beam (Lower Salt Formation) between the potash horizon and overlying Basalt Unit is contiguous with the basalt and can be supported through appropriate room sizing with systematic roof bolting in main roadway developments only;
- The potash horizon floor elevation is relatively planar and does not compromise the mine design in terms of access and mineral recoveries;
- No major faulting occurs across the deposit area;
- Panel room orientation is not affected by in-situ stress fields;
- Selective mining of sylvite is not proposed;
- Backfill is not proposed nor required in Morocco;
- The production target is approximately 6.0 Mtpa ROM which will allow for a 19-year life of mine.

The Company has elected to use contract mining for both production and development. This has been selected for a variety of reasons, but primarily to lower the execution and operational risk associated with a first-time mining operation. This removes some capital cost burden from Emmerson, but also results in increase operating cost associated with mining over the life of the mine.

Mine Access

A detailed trade off study was conducted on potential mine access options taking in account both method and location of the potential mine access. Both shaft (skip hoisting) and decline access (conveyor transport) are considered viable for the Khemisset deposit.

The trade-off study concluded that, with respect to cost, timelines and execution risk access via dual decline with conveyor transport provides the optimum solution for Khemisset. This is principally due to the absence of an overlying aquifer and with most of the development being in salt, which will allow for a high rate of development using a continuous miner (CM), thus reducing both cost and technical risk compared to shaft construction. Twin access declines will be driven and will act as the ventilation intake and return airways. The intake roadway will be used for equipment access and the return roadway will be used for the transport conveyor.

The location of the decline, which can been seen in **Figure 6** below, has been moved from the Scoping Study (**refer RNS 20 April 2020**) and provides a shorter decline length while still accessing the best part of the ore body in terms of grade and thickness, which enhances economics.

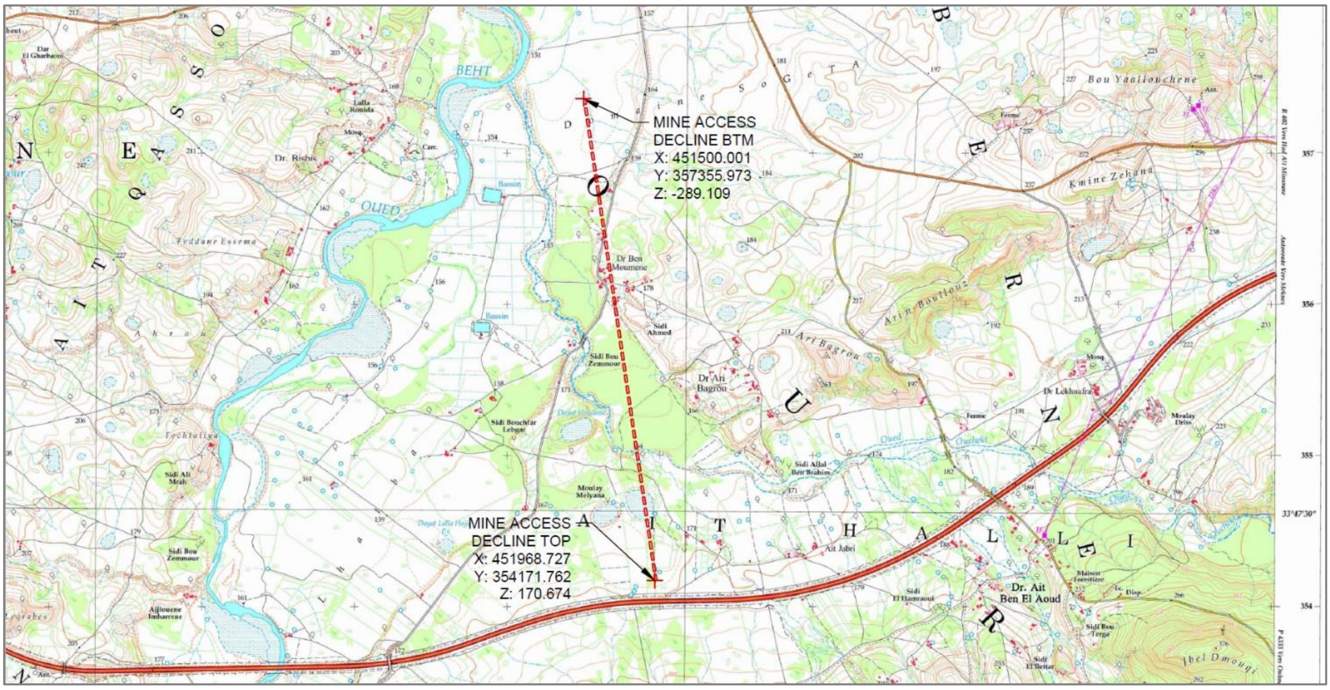


Figure 6: Decline Plan View Location

Decline Design

The decline will be driven through three key lithologies: minor clay formation (~10m thick); primary massive salt horizon (~320m thick); and an overlying basalt unit (~60m thick). **Figure 7** below shows a long section of the proposed mine access decline as it passes through the different strata and a plan view showing the co-ordinates of the twin decline and connecting cross cuts.

Excavation of both declines will be undertaken concurrently with a proposed cross-sectional area of approximately 28m^2, which will allow sufficient airflow to ventilate the underground mine when in full operation. The current proposed decline design comprises:

- A portal constructed at the surface with the excavations supported with shotcrete, mesh and soil nailing as required. A buried steel or concrete liner will protect the entrance to the portal;
- Zone 1: through the soft soil/rock will be lined with shotcrete and mesh, with excavation carried out using conventional tunnelling techniques;
- Zone 2: through the salt horizon, will be supported with patterned bolts;
- Zone 3: through the basalt will be excavated using CMs and supported with patterned bolts and mesh. Minimal water inflows are expected within the basalt strata; and
- Zone 4: will be driven laterally with the CMs and supported in a similar manner to Zone 2.

The declines will be driven at a gradient of around 1:7 with a length of approximately 3,200m and will reach the potash horizon at a depth of approximately 450m below surface.

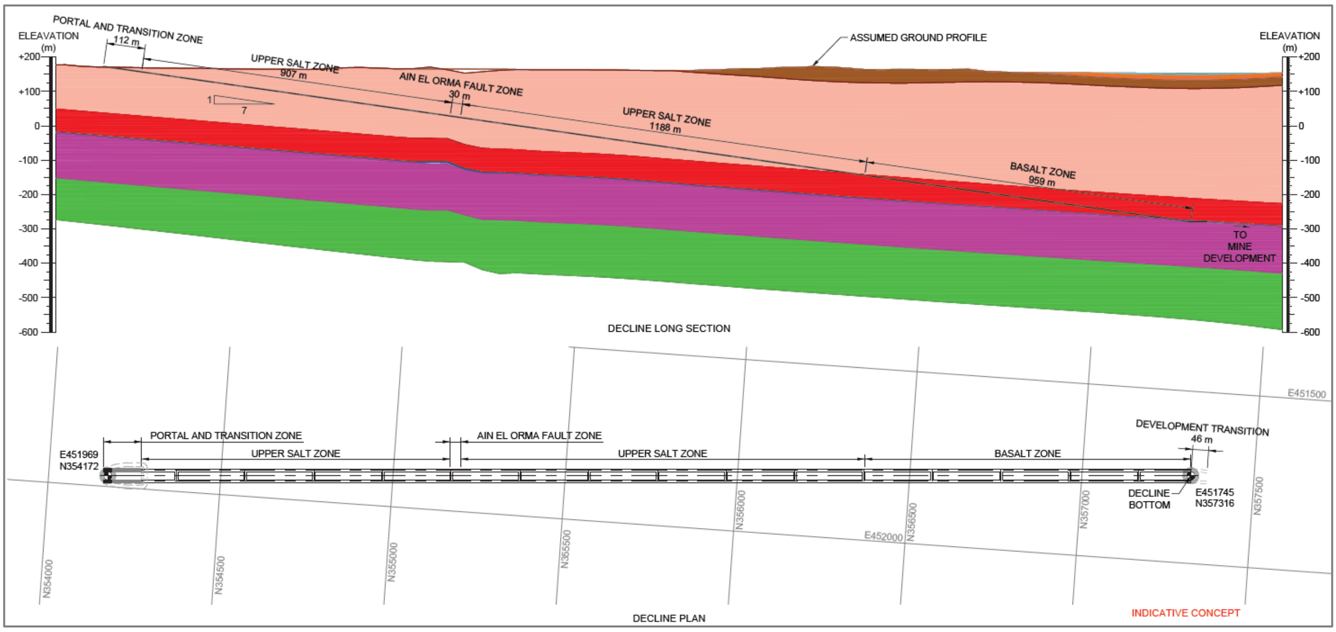


Figure 7: Decline Long Section with Lithology

At surface, a portal will be established to provide a stable entry way to the mine through the near surface lithologies and minimise the volume of surface water and runoff entering the decline. The proposed portal structure is comprised of a series of precast concrete box sections placed in an open cut, excavated to the level where the upper salt strata is assumed to be self-standing (10m below surface), and then backfilled to restore the original ground surface level. Drainage channels and pumping will be used to catch and remove any water running down the floor of the decline. Mechanical excavation can begin as soon as the upper salt horizon is reached. The portal box section structure will terminate when there is sufficient excavation roof cover in the upper salt to create the tunnel opening; with the information available, this is expected at a depth of approximately 16m below surface. A decline cross section is shown in **Figure 8** below.

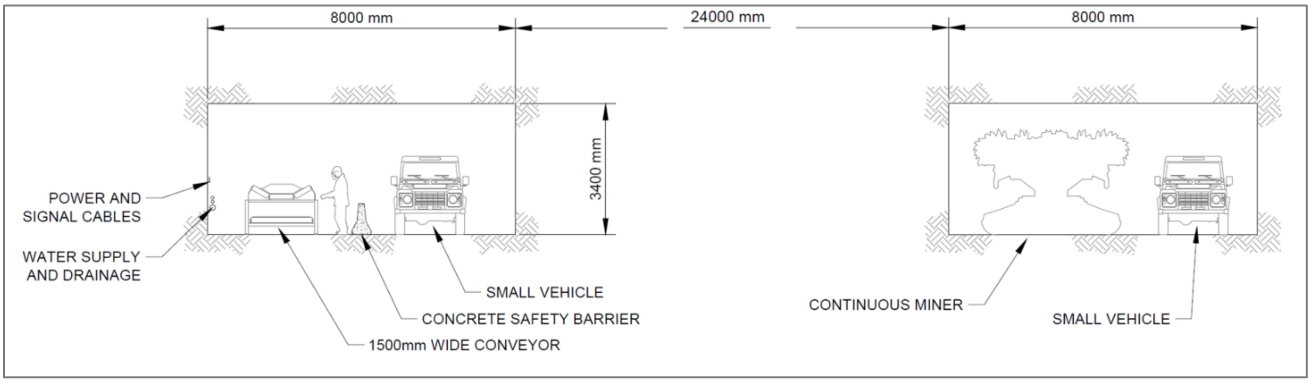


Figure 8: Decline Section

A barrier pillar separates the two parallel declines by a distance of 24m. This is separation distance is equivalent to three tunnel spans, chosen to minimise the length of connecting cross cuts whilst maintaining sufficient separation to isolate one tunnel from the other in the case of an emergency.

Cross cuts are spaced every 200m along the decline, a distance selected to provide an efficient tramming distance for shuttle cars between continuous miners and the load-out conveyor during construction. This also allows the machines to operate with a 200m power cable attached as a typical machine tether length.

A different support class has been designated for use when tunnelling through each major stratum, the details of which are shown in Table 1 below. They have been selected to maintain stability in those strata for the life of mine, based on empirical methods, apparent rock quality and experience.

Upper Salt	8m x 3.5m for both main roadway and cross cuts	2.4m fully encapsulated 22mm AT/KT bolts at 1.5m spacing with 100% mesh roof
Basalt	8m x 3.5m for both main roadway and cross cuts	2.4m fully encapsulated 22mm AT/KT bolts at 1.2m spacing with 100% mesh roof
Ain Horma Fault	8m x 3.5m for both main roadway and cross cuts	Basalt zone support plus the addition of w steel straps installed perpendicular to tunnel direction at 2.4m intervals. W steel straps secured by 4m long fully encapsulated 23mm FRS bolts.

Table 11: Decline Support Classes

Mine Ventilation

The basis for the ventilation system design and thus estimation of the required airflow, considers the following factors:

- The number of personnel in mine and, in particular, the numbers working under auxiliary ventilation systems;
- The number of production machines and their operating parameters;
- The number and installed capacity of vehicles with combustion engines;
- The host rock temperature;
- The gas content of the mineral horizon and types of gas present;
- Dust control requirements;
- Local and best practice health, safety and environment (HSE) and mine legislation aspects;
- Local ambient temperatures that range from 5°C to over 40°C, with an annual average of 20°C;

The following air ratios are typical in the potash mining industry for fresh air calculations:

- Air flow requirement:
  - Diesel engines 0.06 m^3/s per utilised diesel kW
  - Employee 2.0 m^3/min
- Air velocity in extraction areas and drifts:

- Minimum air velocity of 0.25 m/s
- Maximum air velocity in mains roadways of 6.0 m/s

- Geothermal Gradient
  - This has been estimated using the surface mean annual temperature, which is shown in **Figure 9**, plus 1°C per 40m depth.
  - For Khemisset, this equates to 17.6°C plus depth, equalling 37.6°C at -800m depth. At the maximum depth planned of 1,000m, virgin rock temperature is estimated at 42.6°C.

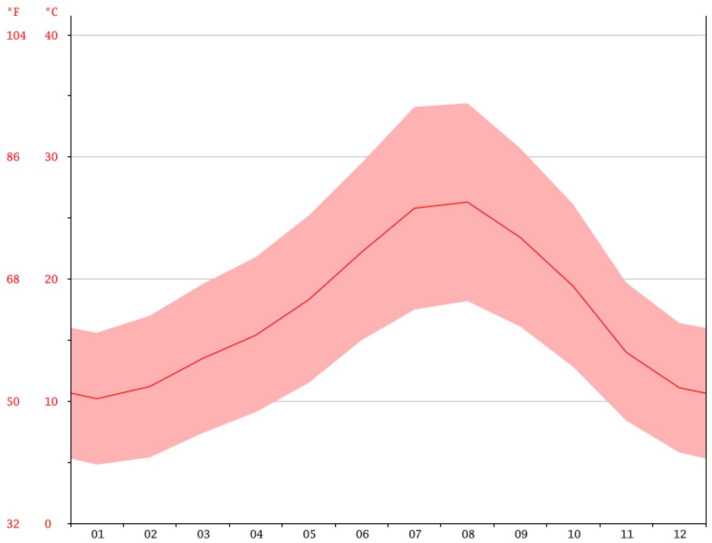


Figure 9: Khemisset Average Annual Temperatures

(Data source: https://en.climate-data.org)

- Air cooling has been included in the Study costs.
- Water cooling is also required to supply coolant water to the continuous miners, @ 40 l/min at <15ºC per miner.

An estimate of the ventilating air requirements is 170 m^3/s for a 6.0 Mtpa operation. This volume meets the requirement of the installed (utilised) diesel fleet and panel air requirements of 10 m^3/s.

Mining Methods

There are three principal mining methods available for extraction of underground potash ore:

1. Solution Mining

Solution mining employs the injection of a brine solution into underground potash bearing seams. The brine solution selectively dissolves the potash-bearing minerals from the seam and the pregnant brine is then recovered to the surface for processing. The method is suited to thicker orebodies and requires continuous contact between potash minerals for them to go into solution.

2. Conventional Room and Pillar Mining

Room and Pillar mining is more commonly implemented for the extraction of flat lying deposits of deposit thicknesses typically ranging from 1.5 m up to 10 m. Rooms and pillars are normally arranged in regular patterns, whereby appropriately sized pillars (depending on the rock mass characteristics of roof and floor strata) are left behind to support the roof as mining progresses.

The principal advantage of Room and Pillar is that it is less capital intensive than longwall mining, readily adaptable to mechanised mining equipment and has a high number of faces available for production which results in high productivity and a relatively low cost per tonne of material extracted.

Room and Pillar can be undertaken using two principal production methods; drilling and blasting, and continuous miners.

Continuous mining machines are electrically powered vehicles. They cut ore from a vertical face using a horizontally oriented rotating drum or borer equipped with picks or bits. This type of machine is capable of high production rates under conditions where the ore body thickness varies.

In some cases, when the geomechanical and hydrogeological conditions are favourable, it is possible to increase the extraction ratio by recovering part of the pillar material. This decreases the pillar resistance and therefore has the potential to increase subsidence at surface under failure conditions.

3. Longwall Mining

Longwall mining uses typical coal mining techniques where a long production face can achieve very high production rates and high recoveries. The roof as required to cave behind the advancing longwall face. This is a highly capital-intensive method of mining and generally employed in minerals with a consistent thickness and extent.

Golder completed a rigorous trade-off study of the various mining methods available to the project taking into account capital and operating cost, operability in the context of Khemisset, as well as safety and risk mitigation. Room and Pillar by Continuous Mining has been recommended for the Khemisset deposit because:

- It retains a high level of flexibility when potash thickness varies;
- Upfront capital cost is typically lower than other methods;
- It provides multiple working faces;
- It is well adapted to mechanisation using continuous miners;
- It has a high production rate;
- It has no cyclic delays in comparison with drill and blast;
- It has significantly lower ventilation requirements.

Mine Layout and Design

Twin declines will provide the entry to the mine with personnel and machinery using a service decline and extracted material transported via conveyor in the production decline. A pillar of support is provided for between and below the declines, which only enter the mined areas towards the base of the decline.

Mine infrastructure including substations, workshops, facilities for the repair and maintenance of equipment, storage of underground supplies and pump stations will be located within close proximity to the termination of the declines.

The main roadways connect the declines with all the areas in the mine and constitute the main developments, which are the mining arterials used for ventilation, services, transport conveyors and general haulage. For the main infrastructure areas, four main headings will be driven to provide additional flexibility with respect to panel production. Haulage of extracted material will be carried out continuously by conveyors (main conveyors), which connect directly to the production panels and to faces via shuttle cars. Shuttle cars will empty ROM ore into feedbreakers controlling the flow of ore onto the panel conveyors, which will then feed the main conveyor system taking product via the decline to the surface ROM storage.

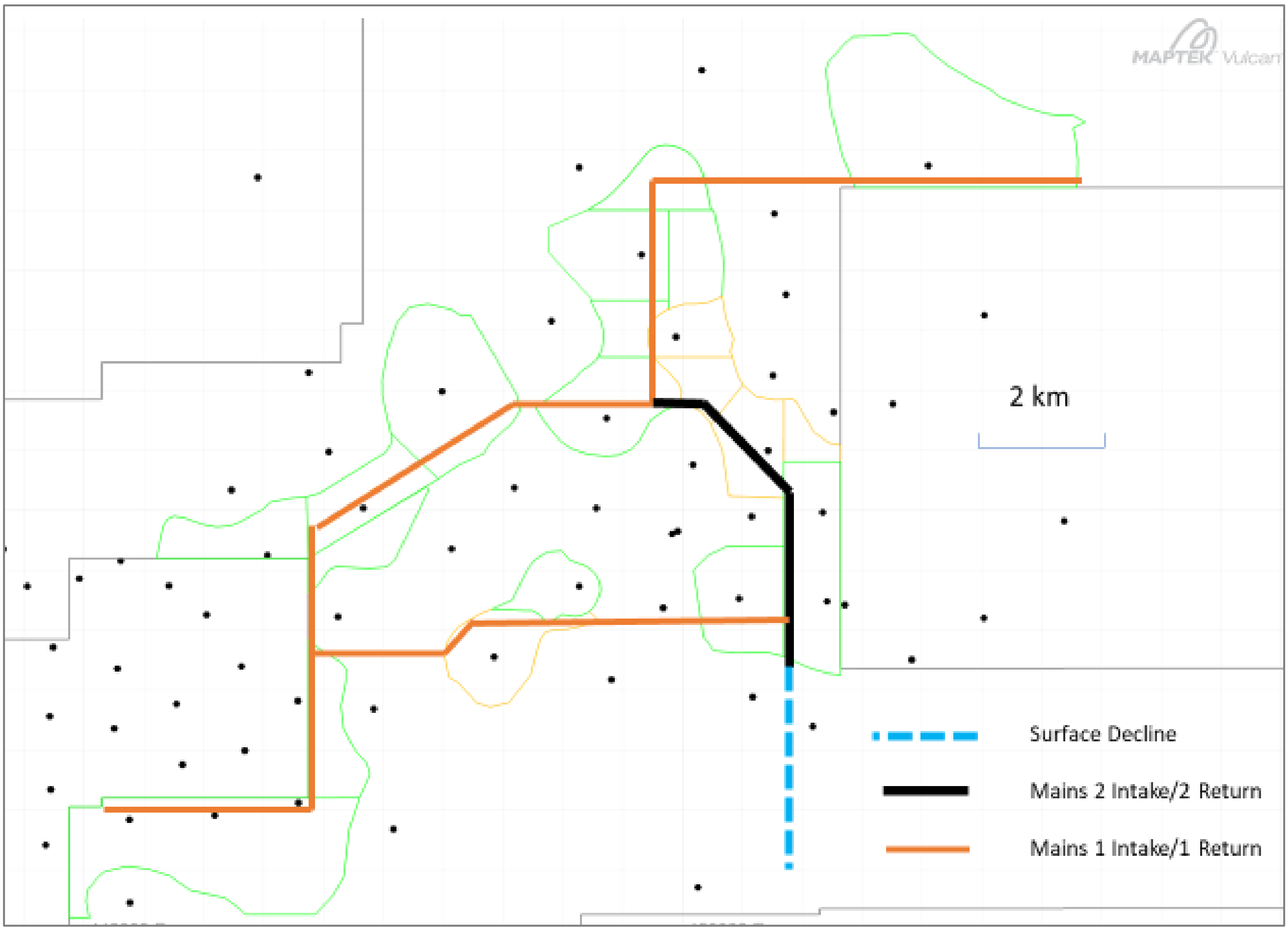


Figure 101: Khemisset Underground Layout showing Mains Roadways and Declines

The mine layout, which can be seen in **Figure 10** above, comprises the following elements:

- Twin decline drift accessing the orebody;
- The North Main, running north-south, providing access to three additional main regional roadways (South West Main, North West Main and North East Main).

The preparation works for production can be divided into the following components:

- Main access roadways, comprising four heading mains with room widths of 6.0m and height of 3.4m. Pillars between drifts will be 20m width. Pillar length will be 71m between pillar centres;
- Pillar FOS is 2.6 to 3.8, dependent upon potash mineralisation type;

- Mains barrier pillars on either side of the main roadway ensure the long-term stability of the roadway. Barrier pillar width (mains to panel) will be 100m;
- Surface exploration drillhole barrier pillars are sized with a 50m radius;

Resource blocks are sub-divided into mining panels with inter-panel barrier pillars between each adjacent panel. Each panel will be sub-divided into mining rooms. Panel room design will comprise 3 headings, with a 6m room width and with 10-20m pillars (depth and thickness dependent) with the central heading equipped with the panel conveyor.

Two additional headings will be developed on the sides to form a 5-heading panel room. Crosscuts will be driven at 60° in an offset chevron pattern, interconnecting the headings on a spacing dependent upon depth and potash thickness.

The continuous miner will place swap after each cut to allow roof bolting and service extensions.

Panel rooms will be developed side by side to form panels approximately 250m wide, separated from the adjacent panel by an inter-panel barrier pillar with a width equivalent to 16 times the average seam height. Panel length is up to 2,000 metres.

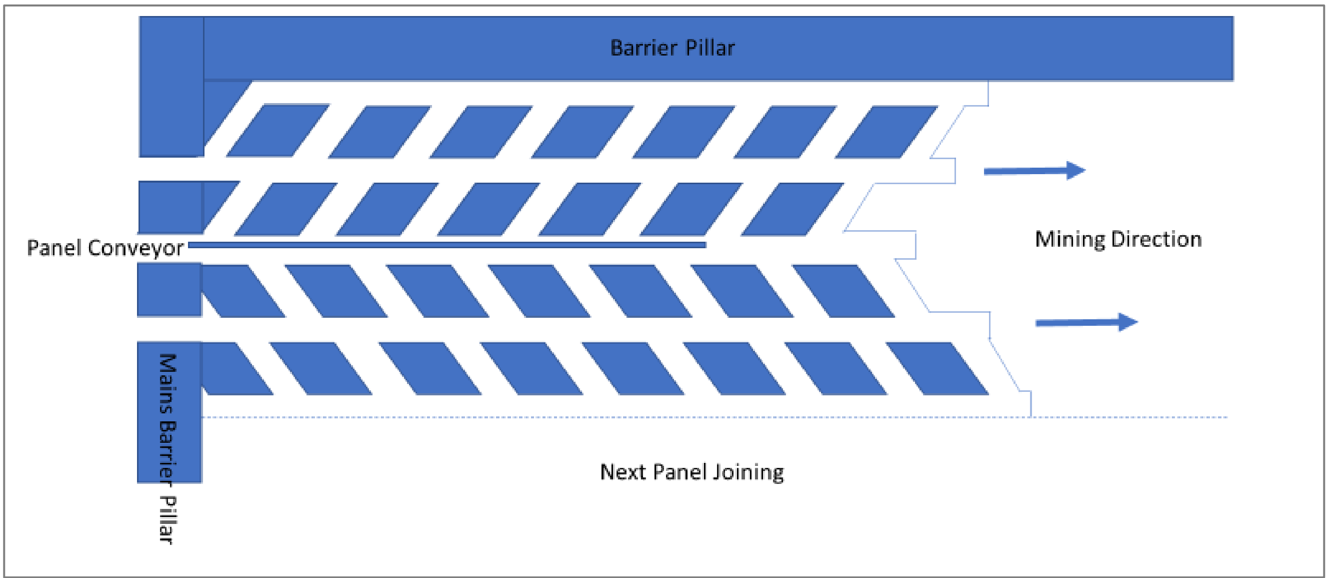


Figure 11: Panel Layout

Each panel room will be an independent production zone accessed via three entry roadways (panel gateroads). The central gateroad is equipped with the transport conveyor along its length. Two further gateroads provide the ventilation intake and return air routes. The room pillars will be slotted to increase mineral recoveries. Slot spacing will be varied to suit ground conditions and potash mineralogy. For this study, pillar length is dependent upon depth and seam thickness. This could potentially be reduced in areas of high sylvite mineralisation and increased in areas of high carnallite mineralisation.

Depth (m)	Room Width (m)	Pillar Width (m)
600	6.0	8.7-15.8
700	6.0	9.2-17.0
800	6.0	9.6-18.1

Depth (m)	Room Width (m)	Pillar Width (m)
900	6.0	10.0-19.1
1,000	6.0	10.4-20.0

Table 12: Panel Production Room and Pillar Sizing

The above dimensions may also be adjusted during production according to potash mineralisation type and geotechnical conditions underground based on the factors in **Table 12**.

Production will utilise continuous miners that excavate the potash and load shuttle cars feeding a feeder breaker for conveyor transport to surface. At Khemisset, potash development and production will utilise the following system:

- Continuous miner;
- Shuttle cars;
- Bolter;
- Feeder breaker;
- Gateroad and mains conveyors;
- Decline conveyor to surface.

Equipment Selection and Productivity

The mining machines quantities and models proposed for the underground operations are described below:

- Continuous miners: are used for ore extraction and/or mains development. Due to the minimum mining height of 1.5m, low-profile continuous miners will be used. The main roadway height will be fixed at 3.4m to suit the upper height limit of the bolter miners in order to cut the roadway in a single pass. Proposed:
    - Komatsu 12CM28, 1.0-3.4 m cutting height, 640 kW

- Shuttle cars: Ore transport from the continuous miners to the feed breaker will be carried out by shuttle cars with a capacity of 14 t. Proposed:
    - Joy 10SC32AB, 14 tonnes capacity, 1.6 m minimum working height

- Panel haulage system: ore transport in the panel gateroads will be carried out by a conveyor in order to improve productivity and reduce manpower. Proposed:
    - Chain conveyor/breaker: Sandvik TC790 52 66, and Joy UFB-33
    - Scooptram (LHD): Diesel GHH LF-6.3 9 12
    - Panel belt conveyor; 800 mm, 1,500 m wheelbase: Sandvik CV-03A & 03B 12 15 or similar
    - Chain conveyor with feeder/breaker: Joy BF14B
    - Main belt conveyor; 1,200 mm, 1,500-2,000 m wheelbase

- Roof bolt twin boom installation rig: Principally for roof bolting in panel production drifts only if the inspected roof represents a danger due to unstable sections. Proposed:
    - Joy 3120-AD roofbolter

The number of main belt conveyors have been estimated only for the ramp-up period, which are included in the pre-production capital cost estimates. During the mine life, this amount will be increased and is accounted for in mine development and sustaining capital costs of the mine.

Continuous miner productivity has been estimated using manufacturer cycle time parameters, modified according to panel layout and shuttle car productivities.

Table 13 below shows a continuous miner productivity based upon:

- A generalised advance cycle, 8m advance with 2 cuts per advance to achieve a room width of 6m;
- An average move distance between adjacent production faces, 90m;
- Assumes multiple faces are available per panel conveyor extension;
- Continuous miner cycle times were based upon data provided by Komatsu.

CM Productivity	Unit					
Potash Thickness	m	1.7	2.0	2.5	3.0	3.5
Room Width	m	6.0	6.0	6.0	6.0	6.0
Production Rate	**tpa**	**576,686**	**706,391**	**777,605**	**833,633**	**878,865**

Table 13: Continuous Miner Productivity

Processing

The processing circuit has been designed by Barr Associates working closely with Global Potash Solutions and the Saskatchewan Research Council.

There are generally considered to be two methods available for the processing of potash ores. The first is flotation, which is widely used, especially in Canada. The second, which is the preferred method for Khemisset, is decomposition followed by hot leaching and crystallisation. It is also widely used, especially for carnallite rich ores, and is very well understood from a capital and operating cost perspective.

In the Khemisset deposit the main potash bearing minerals are majority Sylvite, Carnallite and minority Rinneite. Processing of Sylvite and Carnallite containing potash ores is well-known and proven technology.

To begin the determination of the key process parameters, an options study was completed for the processing plant. This options study focused on processing alternatives largely dependent on ore type, considering work completed during the scoping study and new metallurgical test work completed since the scoping study. During the options study, Barr completed process modelling analysis to compare four main options for the "go-forward" scenario as follows.

1) Mineralogical Assumptions – Ability for the plant to process the three ore types separately or blended
2) Brine Management – Options related to the fate of the decomposition brine leaving the plant including evaporation ponds and/or brine disposal

3) NaCl Handling – Options on whether to allow for production of a compacted NaCl by-product or to allow all NaCl to leave the process as tailings

4) Magnetic Separation – Options on whether to pursue magnetic separation to separate iron bearing rinneite ore from non-iron bearing carnallite, sylvite, and halite.

The go-forward processing case for the Khemisset project following the options study, therefore, consists of seven major process steps.

1) Two-stage ore crushing to 0.4 mm
    a. Size requirement driven by rinneite decomposition
    b. Potential to treat sylvite and carnallite through simpler processes
2) Decomposition of rinneite and carnallite to solid KCl (mixed with NaCl), with rejection of a high-Mg, high-Fe brine
3) Hot leaching of KCl from KCl/NaCl solids
4) Crystallisation and de-brining of purified KCl product
5) Drying, compaction, and sizing of KCl product
6) Drying, compaction, and sizing of NaCl byproduct
7) Slurry transport of remaining NaCl tailings to storage

Based on the results of the options study, the chosen flowsheet was designed for processing a mixed ore feed stream. The target deposit at Khemisset contains three types of potash species – sylvite (KCl), carnallite ($KMgCl_2 \cdot (H_2O)_6$), and rinneite ($K_3Na\ [FeCl_6]$) – in mixture with halite (NaCl). During the options study, it was concluded that the dissemination profile of ore types could not be determined for the deposit with a high degree of certainty. This does not allow the assumption, with any certainty, that the mine product could be segregated by ore type for feed to the plant. Therefore, it is assumed that the ore will be mixed with varying concentrations of the three primary potash mineral types.

To account for the mixed ore feed, all mixed ore must be crushed through both stages of crushing to a size of 0.4 mm and all ore must be processed through a mixed ore decomposition. The first stage of crushing is open circuit crushing to bring the ore to 12-15 mm before reporting to a second stage of closed circuit crushing to reach the 0.4 mm size requirement. Testing conducted by the Saskatchewan Research Council (SRC) determined the 0.4 mm size requirement for efficient rinneite decomposition. When no Rinneite is present, only the first stage crush is required.

In the decomposition circuit, the mixed crushed ore is combined with recycled brine and fresh water to decompose the solid ore into KCl and NaCl, removing the Mg- and Fe-bearing species into the brine before further processing steps. In the decomposition stage, the following three reactions occur.

Sylvite: $KCl\ (s) \leftrightarrow KCl\ (a)$

Carnallite: $KMgCl_2(H_2O)_6\ (s) \rightarrow 6H_2O\ (l) + KCl\ (s) + MgCl_2\ (a)$

Rinneite: $K_3Na\ [FeCl_6]\ (s) \rightarrow 3KCl\ (s) + NaCl\ (a) + FeCl_2\ (a)$

It should be noted, that not all KCl reports to the solid phase, resulting in some losses, and that most NaCl reports to the solid phase, resulting in the need for subsequent hot leaching of KCl from NaCl.

Residence time of the ore in the decomposition step is 1.5 to 2.0 hours. This allows the carnallite and rinneite ample time to decompose into solid sylvite. The result is a slurry containing a solid intermediate product consisting of a mixture of sylvite and halite.

After decomposition, the slurry is dewatered and washed through a combination of hydrocyclones and centrifuges to separate the sylvite/halite from the brine and wash the majority of the remaining Mg and Fe impurities from the solids. This dewatering and wash circuit is crucial in keeping Mg and especially Fe from reporting to the leaching and crystallisation circuits downstream. Wherever Fe is present in significant concentration, the brine will be acidic and alloy construction will be required.

The Mg- and Fe-containing brine is partially recycled to the decomposition circuit, while the remainder is pumped to the brine storage pond for eventual disposal. Due to the presence of both Mg and Fe in the decomposition circuit disposal brine, the brine is not suitable for further evaporation and reclaim. Therefore, the decomposition brine will be disposed of via deep well injection.

Metallurgical Test Work

To characterise the equilibrium behaviour of the ore through the decomposition stages, work was completed by the Saskatchewan Research Council in conjunction with Global Potash Solutions (Don Larmour), an independent process engineer, with more than 39 years of experience in potash processing.

The results from this work detail the equilibrium chemistry of incremental $FeCl_2$ addition to a brine saturated with KCl and NaCl without $MgCl_2$ present, as well as one saturated in $MgCl_2$, NaCl, and KCl. These results identify the residual KCl levels bleeding from the decomposition circuits for Rinneite in high Mg and no Mg brines.

Brine just prior to the transition point is needed to decompose the solid phase Rinneite while preventing $FeCl_2$ precipitation. According to how much solid phase Rinneite is present, enough water must be added to decompose all the Rinneite (liberating it and precipitating KCl). The produced brine is subsequently bled from the circuit carrying the associated liquid phase KCl content with it to disposal.

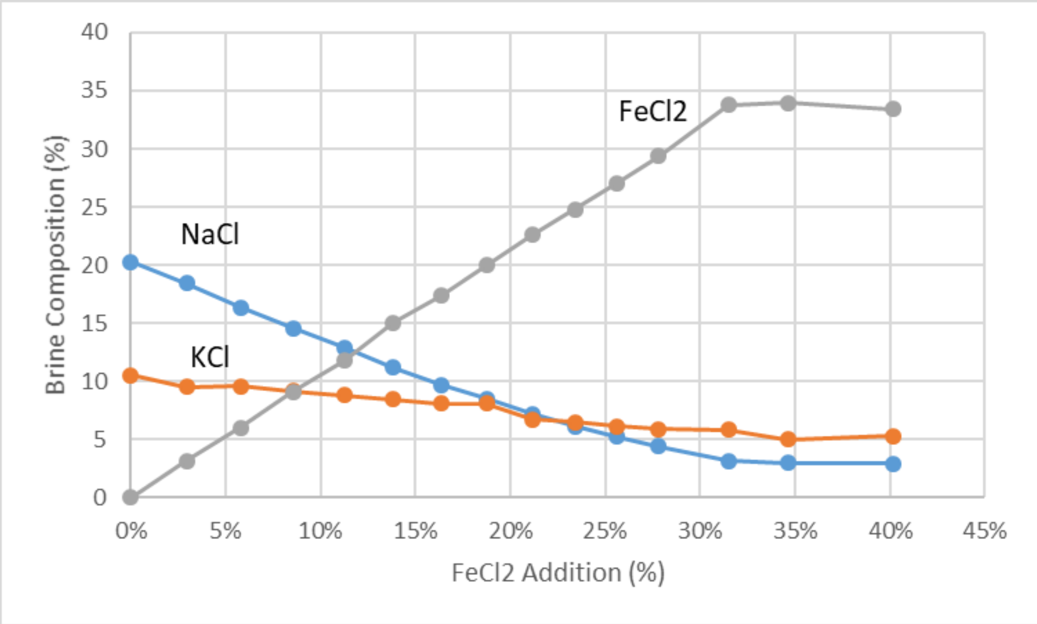


Figure 12: Equilibrium Brine Composition with Increasing $FeCl_2$ Addition (No $MgCl_2$ Present)

The data displayed in **Figure 12** above**Figure** outlines the effects of FeCl2 addition to a saturated brine without MgCl2 present. This is analogous to a saturated brine consisting of a combination of rinneite, sylvite, and halite without carnallite present. It shows rinneite will decompose in a fashion very similar to carnallite.

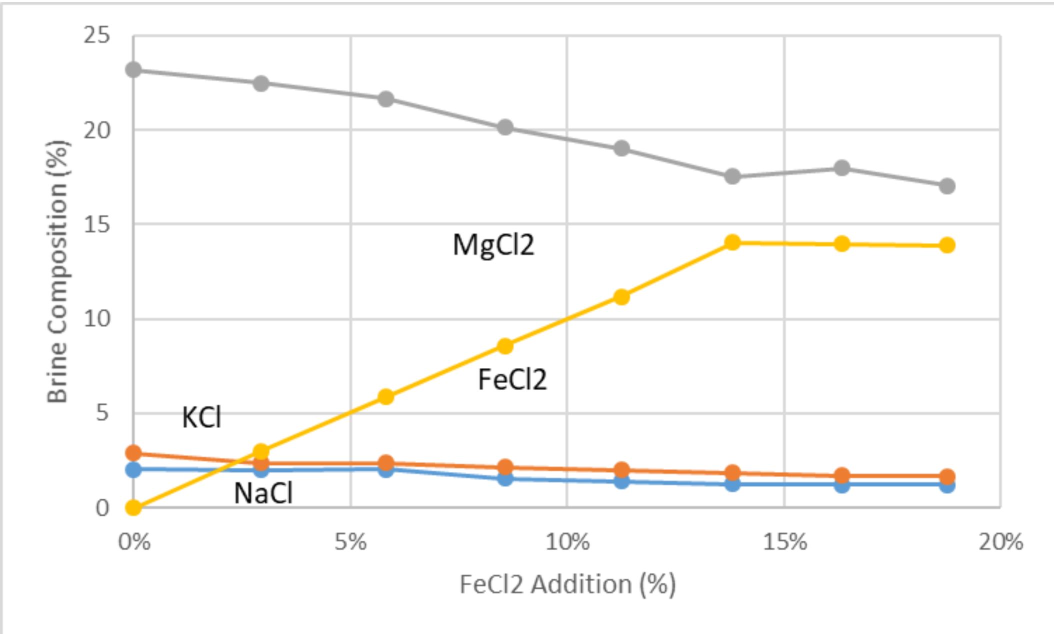


Figure 13: Equilibrium Brine Composition with Increasing $FeCl_2$ Addition ($MgCl_2$ Saturated Initial Brine)

The data in **Figure 13** above starts with a brine saturated in MgCl2, KCl, and NaCl that would be present with a carnallite, sylvite, and halite mixed ore feed and slowly increases the FeCl2 content of the feed to simulate the addition of rinneite to the ore mix in the system.

To supplement these two graphs, work was also completed using a custom modified version of the PHREEQC program available from the United States Geological Survey (USGS). The Pitzer database included with the PHREEQC program simulates brine chemistry and solid precipitation for concentrated brine systems and includes sylvite, halite, and carnallite.

To account for the iron present in the rinneite ore feed, relevant parameters for the Pitzer database were added for FeCl2 species to approximate the behaviour of any proportion of the ore types present in the Khemisset deposit. The results of the modified PHREEQC database calculations closely matched the SRC test data in most cases. Where discrepancies existed, the SRC test work was chosen as more reliable. Combining the PHREEQC data and the SRC test work, equilibrium brine chemistry was estimated for use in the decomposition section of the Khemisset process model. A summary of this work is seen in **Figure 14** below.

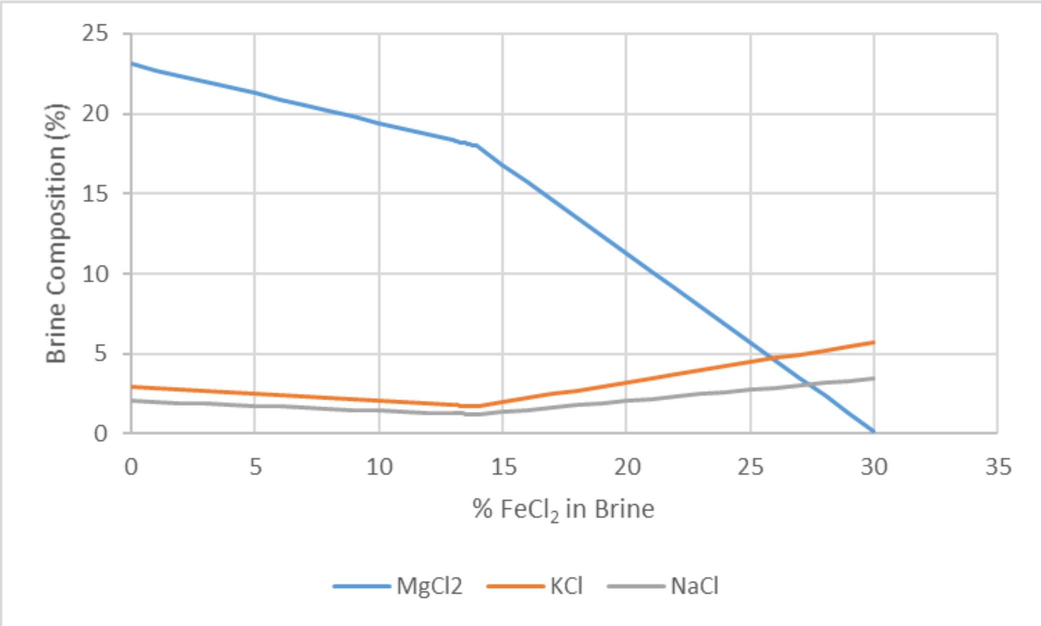


Figure 14: Estimated KCl, NaCl, and $MgCl_2$ Brine Composition at Varying $FeCl_2$ Compositions

This shows that, in a combined circuit, the system will readily dissolve both FeCl2 and MgCl2, while there is limited increase in KCl and NaCl saturation, which indicates efficient decomposition.

Data for the leaching and crystallisation portions of the Khemisset process flow were determined using the modelling program METSIM's built-in equilibrium functions for addressing NaCl and KCl brines as provided to METSIM by Don Larmour.

Metallurgical Recoveries

The proposed process flow sheet was modelled in METSIM to develop a mass and energy balance for the processing plant. In addition to the typical case modelled for the PFD, key recovery estimates were also developed for different feed cases. These are summarised below.

To create bounds of expected plant performance, the METSIM model was used to calculate estimated plant performance for three main scenarios corresponding to:

- Overall average ore feed;
- Average ore feed for Panel 8 (lowest average K_2O ore blend); and
- Average ore feed for Panel 9 (highest average K_2O ore blend).

It is known the panels are not homogeneous and that ore types will vary as each panel is mined. However, such a detailed level of panel definition is not available at this time, and it is expected that multiple faces are likely to be mined simultaneously. Therefore, the modeling work utilises the average composition for each panel when estimating recovery and other plant metrics. The results are summarised below in **Table 14**.

Feed Type	Unit	Average Ore	Panel 8	Panel 9
Product	mtph	101.8	77.8	113.9
	%KCl	99.0	99.0	99.0
	$\%K_2O$	62.5	62.5	62.5
Total Feed	mtph	800.0	800.0	800.0
	$\%K_2O$	9.1	7.5	10.8
Sylvite	mtph	61.6	29.9	36.4
Carnallite	mtph	104.4	199.0	334.4
Rinneite	mtph	47.3	20.6	19.9
Recovery	%	87.2%	81.4%	82.3%

Table 14: Estimated Process Recoveries

In the three cases shown above, the total production follows the same trend as the varying K_2O grade of the ore, but the overall recovery does not directly correlate solely to the ore grade. The variation of ore species plays a significant role in the overall plant recovery for two main reasons.

First, the decomposition brine chemistry as shown in **Figure 14** illustrates that as both $MgCl_2$ and $FeCl_2$ become present in the brine (from carnallite and rinneite, respectively), the equilibrium KCl concentration is depressed. As a result, less KCl is present in the decomposition brine leaving the plant (as process recovery losses).

Secondly, the three ore types – sylvite, carnallite, and rinneite – require differing amounts of water to reach saturation. As this water decreases, the total amount of decomposition brine purge decreases, therefore reducing the total amount of KCl lost with the decomposition brine.

The ore feeds in Panel 8 and Panel 9 are both high in carnallite, causing a decrease in the overall plant recovery estimate. The higher calculated recovery in the average ore case can be explained by the following.

- Higher sylvite content in the average ore decreases the total decomposition brine purge amount and therefore decreases the KCl losses in the decomposition circuit.
- The ore feed is more balanced compared to Panels 8 and 9 for the carnallite and rinneite ratios. This pushes the decomposition brine chemistry further towards the middle of the graph shown in **Figure 14** which decreases the relative KCl content in the decomposition brine purge.

While current mine plan outputs do not allow for segregated ore feed to the plant, **Table 15** below illustrates the estimated expected recoveries for segregated ore feeds of pure sylvite, pure carnallite, and pure rinneite without reclaim under a lower feed rate.

It should be noted that while the carnallite and rinneite ore feeds would allow for recycle of the crystallisation circuit purge brine to the decomposition circuit, the pure sylvite ore case modelled here did not contain a decomposition circuit and therefore suffers from additional losses due to the crystallisation circuit purge (an issue that would be rectified in the design of a sylvite-only plant).

With recovery of the KCl in this purge, the sylvite recovery would increase, providing a greater overall recovery – similar to the positive effect on recovery that increased sylvite has in the mixed ore feed case.

Feed	Unit	Sylvite	Carnallite	Rinneite
Product	mtph	80.3	74.6	78.8
	%KCl	99.1	99.2	99.1
	%K_2O	62.6	62.7	62.6
Total Feed	mtph	666.7	666.7	666.7
	%K_2O	9.1	9.1	9.1
Sylvite	mtph	96.2	0.0	0.0
Carnallite	mtph	0.0	358.7	0.0
Rinneite	mtph	0.0	0.0	175.9
Recovery	%	82.7%	76.9%	81.2%

Table 15: Estimated Recoveries – Segregated Ore Feeds

In summary, the behaviour of the mixed feed in the processing plant is non-linear for several reasons. In evaluating the expected performance of the plant, it is important to consider the interplay of the various potassium species, and in some ways, a mixed feed to the plant is actually advantageous to the recoveries observed in this circuit.

Plant Layout

The plant layout follows standard practice of siting most or all large operations (thickeners, tanks, crystallisers, dryers) at ground level while lofting smaller items such as cyclones and centrifuges that can be laid out in a gravity-flow arrangement. Crushing/sizing/screening circuits are laid out vertically to provide gravity flow of material, with recycle streams being handled by bucket elevators. Other factors affecting equipment arrangement at this level of study include ease of access for plant and maintenance vehicles, and allowance for additional minor equipment not yet identified at this level of engineering.

Given the climate for the plant location, most of the plant is planned to be sited with access structures but not housed in enclosed buildings. For equipment that requires significant maintenance or is sensitive to atmospheric conditions, roofing (at minimum) is provided, and wall cladding is added as needed.

Given the open nature of the plant, permanent maintenance cranes are largely unnecessary, and maintenance needs can be met using mobile cranes. For areas that are more congested or planned to be under roofing, area cranes have been included in the MEL.

An isometric view of the preliminary plant layout is provided in **Figure 15**.

Based on the plant layout and the MEL, preliminary Electrical Single-Line Diagrams were developed for the powered major equipment within the plant battery limits. These were then used for take-offs of detailed equipment lists and capital cost estimates.

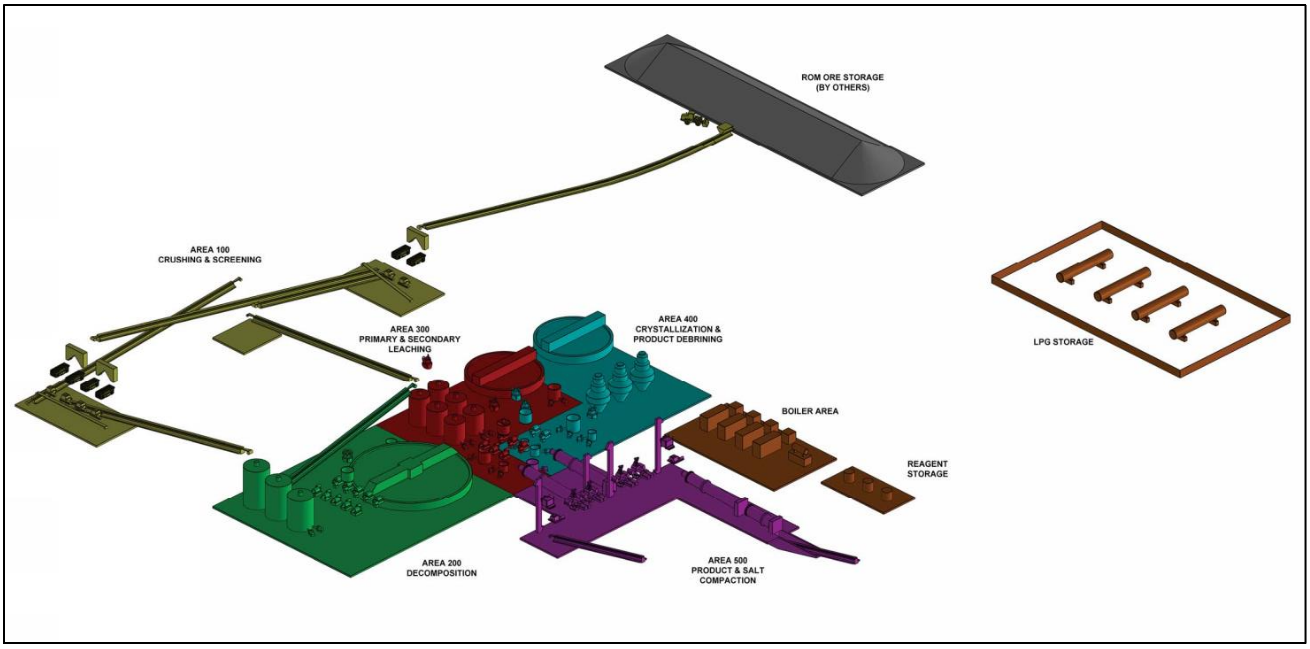


Figure 15:2 Isometric View of Plant Layout

Mine Waste Disposal

The Khemisset Tailings Storage Facility (TSF) concept has been designed primarily for the storage of sodium chloride (NaCl) solids from the process plant, although it can also be used to store excavated material from the decline development. Following a detailed options study and trade-off analysis, the primary TSF site was selected due to its proximity to the plant and low natural ground permeability, which provides a natural protection against brine leakage.

It has been sized based on the mass balance for the processing plant. Based on this, the average NaCl tailings production from the process (dry salt basis) is:

- ROM input to process plant: 800 tph
  - Less mixed salts (K, Na, Fe, Mg, Cl) to deep well injection – 80 tph
  - Less NaCl to salt product circuit – 130 tph
  - Less KCl product – 127 tph
- Residual NaCl to TSF: 463 tph

The hourly numbers provided are on a 7500 hr/year plant operations basis, so total tonnages per year would be an estimated 3,500,000 tpa to the TSF. Given the variability in the ore make-up and other brines for disposal, the TSF may need to store between 3.5 Mtpa and 4.425 Mtpa. Based on these figures and assuming a Life of Mine (LoM) of 19.2 Years (due to much lower production during Year 20), the TSF will need to store between approximately:

- 19.2 x 3.5 Mtpa = 67.2 Mt and
- 19.2 x 4.425 Mtpa = 85 Mt

Assuming a deposited average tailings density of 1.3 t/m^3 in the TSF, the facility will thus be required to store between approximately 51.7 Mm^3 and 65.4 Mm^3. For the purposes of the PFS Golder therefore developed the TSF concept based on a storage capacity of 60 Mm^3.

The conceptual design of the TSF entails the construction of an initial starter wall for storing the tailings generated during the first year of production after commissioning of the plant, with subsequent phases to be constructed to gradually increase the storage capacity of the facility over the LoM.

The facility will be equipped with a seepage collection system on the inside of the starter wall as well as a storm water diversion system around the outer perimeter of the TSF, to separate clean storm water from contact water. The facility will further be equipped with a seepage/contact water collection system at the outer toe of the TSF. Basin preparation will include the removal and stockpiling of topsoil for future reclamation and preparation of the sub-surface materials by light ripping, grading, water conditioning and compaction. Soil sampling and testing will be undertaken to ensure that the in-situ materials meet the required permeability criteria. Material that does not meet the criteria "unsuitable material" will be removed but may be acceptable for use in the downstream zones of the starter wall construction discussed in the following section.

The initial starter wall of the TSF has been designed for the storage of the tailings to be generated during the first year of production, thereby reducing the initial Capex requirements of the facility. Figure 16 below shows a cross section design and stability assessment for the TSF.

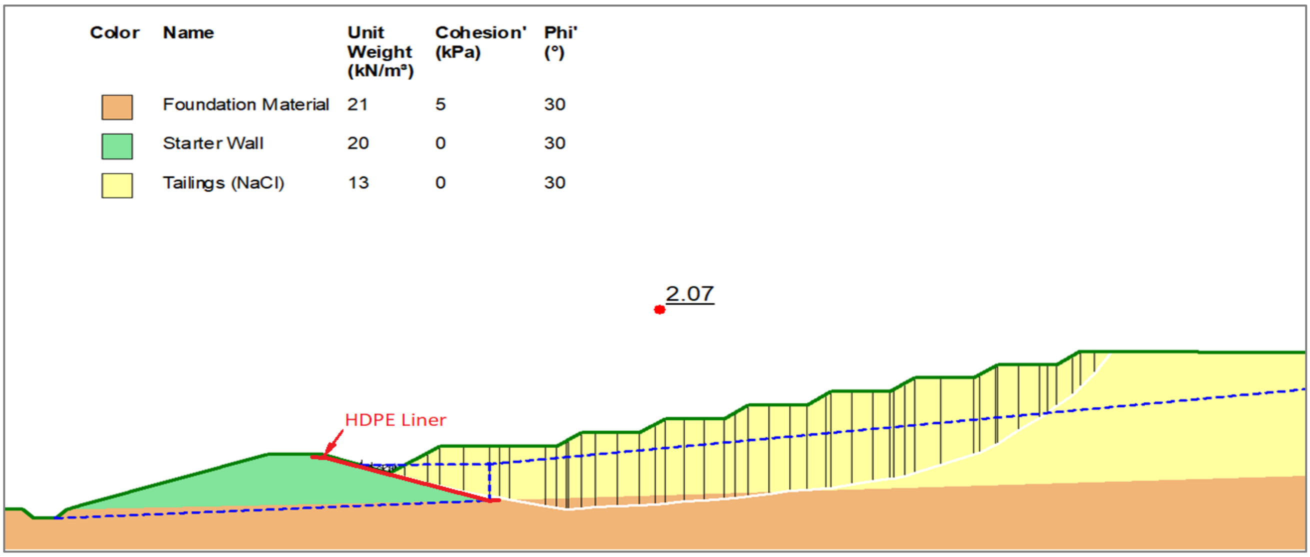


Figure 16: Static Slope Stability Assessment and Factor of Safety for the TSF

Salt by-product credits

The primary waste product produced at Khemisset is 95%+ pure NaCl or salt. Khemisset will produce approximately 4.5 million tonnes of 95% pure NaCl per annum over the life of mine. The Company has conducted a detailed study of the global de-icing salt market and has concluded that the de-icing salt market in the United States of America presents a viable opportunity to monetise this product.

The eastern states of the USA (New York, Massachusetts, Baltimore, Maine, New Jersey, Connecticut) consume approximately 10 million metric tonnes of 95% NaCl de-icing salt per annum (although this can be significantly higher in harsh winters), of which over 80% is currently imported, the majority coming from three companies operating in Chile, Mexico and Morocco. The average price for bulk quantity de-icing salt is typically between US$55/tonne and US$65/tonne, with the 10-year average prices from the annual accounts of both Morton Salts and Compass Minerals indicating a received price of approximately US$60/tonne.

As the salt at Khemisset is a by-product, the operating cost associated with its production is very low. The following **Table 16** summarises the operating cost per metric tonne of salt produced:

Operating Cost Item	US$/t NaCl
Process Plant	5.8
Labour and Materials Handling	1.1
Compacting	1.7
Total Cash Cost to Mine Gate	**8.6**
Trucking to Port of Casablanca and Port Charges	14.1
All-in-Sustaining Cash Cost (FOB Casablanca)	**22.7**
Freight to East Coast US	10.0
All-in-Sustaining Cash Cost to East Coast USA	**32.7**

Table 16: Salt Operating Cost Summary

Infrastructure and Utilities

Buildings

For cost-effectiveness, it was decided to use pre-fabricated building units for the surface buildings, manufactured from 40mm thick insulated galvanised steel panels pre-fabricated and assembled on site to the architect's requirements and sizes, according to the building and structure designs provided and as per the building layout drawings.

All office buildings will be provisioned for at least one unisex disabled access water closet (WC) at entry level. Where changing and ablution facilities are stipulated required, then separate male and female areas have been designated, with allowance for traditional Muslim ablution facilities.

The main entrances to the office buildings are arranged to provide a weather lobby. With double door and lobby arrangement, where users rid their shoes of dust and mud before entering the building, while keeping the wind, dust, heat and rain out. This results in hygienic working conditions and reduces maintenance throughout the building.

All heights of equipment/vehicles (including abnormal sized trucks – to a maximum height of 5.6 m) have been accounted for in the building designs. When large equipment access to a building is required (e.g. mobile cranes and trucks for equipment unloading and maintenance), this is designed to be via a large roller shutter door(s).

Ample external flood and spotlights will be installed to be used to maintain operations in low light conditions.

Materials were all chosen for their durability and ease of maintenance, to minimise operational costs, and maintenance cycles.

The following facilities have been included in the capital cost estimates:

1) Access Control and Induction Facility

Access control and induction provides the necessary facilities for the inducting of all employees entering or leaving the site and inducting visitors on the safety and security regulations required to operate and move on and around the mine, in certain instances, drug and alcohol testing is required. It also provides high security measures to control and monitor access to and from the mine. Security and some mining personnel will operate from this building.

Pedestrian access will be regulated and controlled by security personnel as well as turnstile access control. Vehicular access will be regulated and controlled by security barriers and boom gates.

2) Visitors Parking and Public Transport

Visitors parking and public transport is generally a covered parking area just in front of the access control facility. Visitors are required to park here before entering the mine. Visitors either enter the mine via escorted personnel or their own vehicle depending on the clearance given by security and mining personnel.

Public transport pickup and drop-off usually ties in with turnstile access and security. A waiting room is also included.

3) Waiting Area Shelters and Access Control

The waiting area is generally opposite the access control with a reception area. This is used to accommodate visitors waiting to be escorted into the mine. It also serves as a waiting area for employees using public transport.

4) Mining Offices and Locker Rooms

The mining offices are large enough to accommodate most of the personnel working on the mine. It will also house the locker rooms. The mining offices can also house an in-house training facility and additional offices for contractors.

5) Staff Parking

Staff parking will be covered parking opposite the mining offices. Reverse parking will be taken into consideration regarding the design of the parking area. Generally, one space is provided for staff to accommodate shift changeovers.

6) Ventilation and Air Condition Room

The building will house all HVAC related equipment including water cooling towers, turbines. Parking for operational staff only. The buildings will include a soundproof office. A small storage and service yard is also provided.

7) Fire Station/Proto Rescue and First Aid Facility

The building will house fire fighting vehicles and equipment. It will also provide first aid facilities.

8) General Maintenance Workshop

The building will provide storage and maintenance facilities for mine equipment (mechanical and electrical).

9) Vehicle Workshop

The building will provide storage and workshop facilities for above ground vehicles as per mine activities. There will be vehicle service pits in the workshop areas.

10) Fuel Bay and Fuel Storage

The facility will house and provide fuel for the mine vehicles as necessary.

11) Vehicle Washbay

The building will provide washing facilities to mining vehicles.

12) General Mine Store

The building will provide stores receipt and distribution facilities as required.

13) Truck Parking

The facility provides parking area for mining personnel and drivers.

14) Electrical Substation

Main substation and distribution point for incoming power to the mine. Workshops, storage and space for electrical power generating will be provided to the mine.

15) Water Treatment Works (WTW)

This area is where water is collected and treated before re-use or released into the natural river system.

16) Water Reservoir

Used for water storage and collection that provides fresh water to the mine.

17) Pollution Control Dam (PCD)

Area where all water run-off and polluted water are collected to be used for mining purposes.

18) Wastewater Treatment Works (WWTW)

Area where all non-potable water and raw sewage are collected and treated for re-use or discharged under controlled conditions into the local watercourse system.

19) Change House

As per workforce schedule a suitable ratio of male and female staff facilities will be provided. Sanitary facilities will be designed according to both male and female consumption and needs.

20) Plant Offices and Worksite

The plant offices and worksite will be occupied by mining personnel as per mining activities.

21) Gas Storage Facility

Gas will be required on site for generation of live steam in a boiler station and for drying of the potash product. A gas storage area is provided within the MIA (this area consists of four 200m^3 tankers), but the storage infrastructure will be provided by Emmerson's gas partner, Afriquia Gaz.

Roads and Access

Emmerson completed a detailed options study alongside Golder Associates to determine the optimal site location for the Project installations, and associated connections to existing highways. Options Studies are a crucial part of the Feasibility Study to assess all potential solutions available for the various components of the Project and selected a “go-forward” case to take into the more detailed engineering phase.

The Company completed a comprehensive assessment of the various options for site selection based on a broad range of criteria including:

- Access to orebody
- Proximity to existing infrastructure
- Existing surface land use
- Topography
- Social and environmental factors

Based on this exhaustive process, the following site was chosen for Project surface installations.

Figure 17: Selected Site Location

Proximity to existing infrastructure was considered as a factor in site selection, and this has allowed a suitable connection to the world-class A2 highway to be designed. Approximately 3.2km of the main connection to the highway will be paved, along with the slip lanes to be constructed at the connection point. The design of these paved road is as follows:

- 40mm AE-2 asphalt surface wearing course
- 150mm G1 base course layer works
- 150mm cement stabilised sub-base layer works
- 150mm G6 upper selected layer works
- 150mm G9 lower selected layer works

A diagram showing the design of the connection to the A2 highway is below.

Figure 18: A2 Highway Connection Design

The proposed design of the unpaved roads will allow significant heavy vehicle traffic, and is as follows:

- 150mm G1 natural gravel wearing course layer works
- 150mm cement stabilised sub-base layer works

- 150mm G9 upper selected layer works
- 150mm G9 lower selected layer works

A2 Highway

The A2, which is a very high quality four lane toll road, crosses the Project area and passes within a short distance of the selected site location. Once on this highway, transport of finished product will be of similar roads all the way to the export port, the Port of Casablanca.

Figure 19: A2 highway road crossing the project area

Electricity

Golder, which was appointed by the Company to manage the delivery of its Feasibility Study, with support from Moroccan based electricity contractor Clemessy, and after consultation with Moroccan national grid operator ONEE, has completed full design and cost estimates for the electrical connection at Khemisset. Designs and estimates have been prepared in line with Feasibility Study guidelines provided by the Australasian Institute of Mining and Metallurgy ("AusIMM"). An optioning approach was adopted to identify all the possible connections to the national grid and the go-forward option was selected after a thorough multidisciplinary scoring exercise.

The Company believes it will benefit strongly from the Moroccan Government renewable energy legislation, which is designed to promote renewable energy development across the country. The Company has signed a memorandum of understanding (“MOU”) with global renewable energy developer Voltalia (**Refer RNS dated 7 October 2019**) and, based on early indications, expects to see tangible benefits in the form of significant reductions in tariffs compared to the assumptions used in the Scoping Study, as well as a significant reduction in the carbon footprint of the mine.

Electrical Grid Connection

In addition to the Middle Voltage and High Voltage powerlines that were identified in the Scoping Study assessments, there are two existing Very High Voltage powerlines (225KV) that are strategic to the national grid, connecting the Rabat and Meknes regions. ONEE has provided official approval on feasibility to connect to one of these powerlines, the nearest connection point to one of which is less than 15 kilometers from the preferred Project site. **Figure 20** below indicates the selected location for connecting site to the national grid.

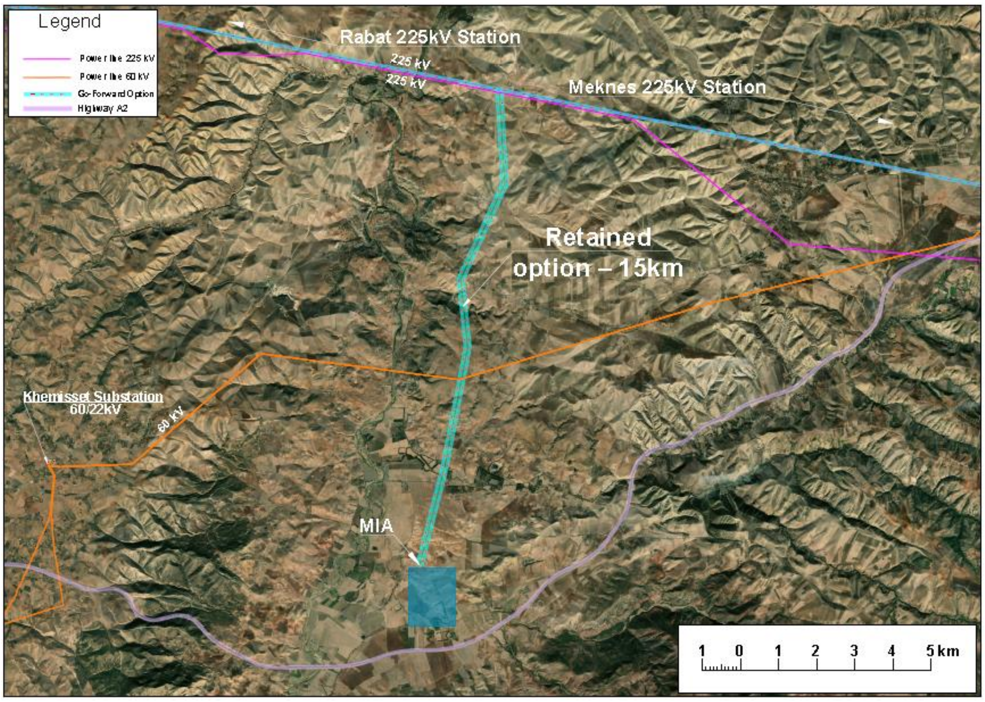


Figure 20: Selected option for project connection to the national grid

The multiple possible supply options identified in the Scoping Study were assessed again as part of the Options Study (refer to **Figure 21** below). A set of selection criteria were used to analyse all possible options and each option was scored independently. Based on the detailed review of final scores, it was decided that a single 225KV powerline with two overhead lines is the optimal solution for Khemisset Project and was selected as the "Go-Forward" case.

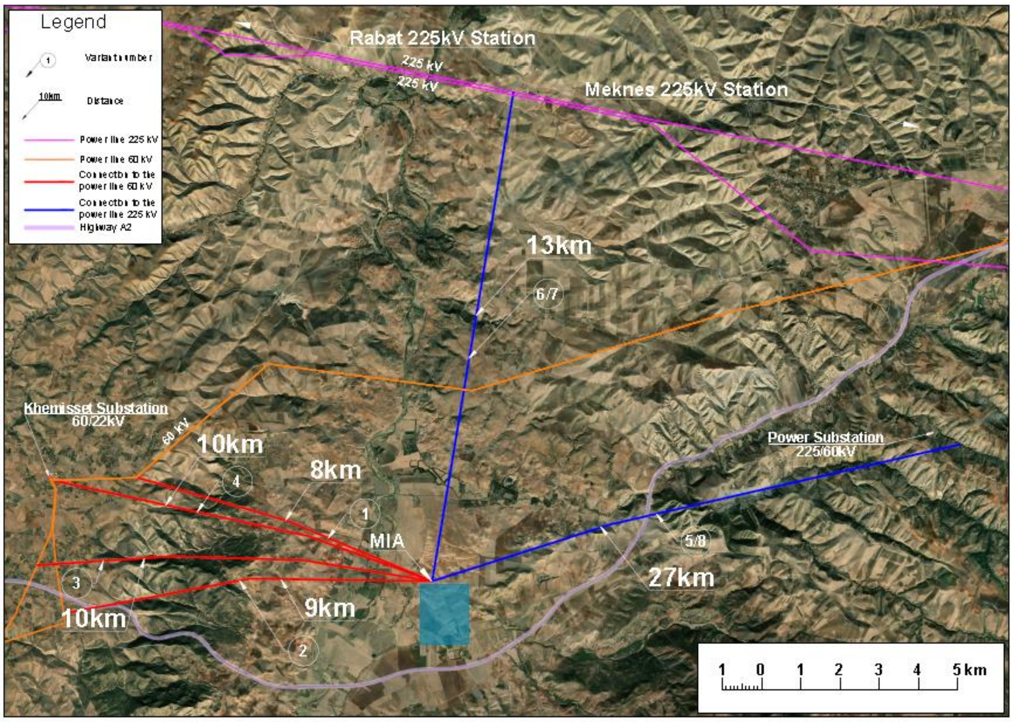


Figure 21: Available options for project connection

Site Electrical Infrastructure

The mine's 225/10 KV intake substation will be connected to the existing 225 KV line by double overhead 225 kV power line to form a closed circuit as a continuity of the existing line. Given the relatively large size of the mine infrastructure area, it is considered impractical to distribute to all infrastructure at 400V. It is therefore proposed that a single 10 kV ring will feed all surface and underground infrastructure, with 10 kV / 400 V step-down pole-mount transformers or compact substations throughout the mine infrastructure area. Compact substations with dry-type transformers are recommended for underground operations.

In most cases, 10 kV and 400 V underground cables are proposed for the mine infrastructure area. However, 10 kV overhead lines will be considered for longer runs to reduce costs and transmission losses.

Contingency Power

The 225 KV powerline from which electrical power will be sourced is considered to be strategic for the national grid. It is, therefore, built and maintained to very high standards. ONEE indicated that it expects only 8 hours per annum of planned outages for preventive maintenance, indicating the potential for over 99% powerline availability. Given that the connection will be completed via an approximately 15Km extension of the existing line to integrate the mine substation into the grid, the specifications of the extension will meet the same high standards of the Moroccan national grid. As a result of high and stable levels of availability, Emmerson will not be required to heavily invest in a contingency powerline or full capacity onsite generation.

The Feasibility Study contemplates the installation of 1,000 kVA of onsite generation capacity as an emergency Uninterruptible Power Supply (“UPS”), which is required for health and safety reasons. The UPS will be used to provide back-up power for key underground utilities including lighting, fire rescue and proto rescue and ventilation. The cost of the UPS is estimated to be US$150K.

Gas Supply

Emmerson will require the supply of gas, as either Liquified Petroleum Gas ("LPG") or Liquified Natural Gas ("LNG"), for the Khemisset processing plant. In Morocco, the most common gas source is LPG, which can be either propane, butane, or a mixture of the two. The Company has continued its discussions with Morocco’s leading LPG storage and distribution company with respect to a long-term supply partnership.

The gas supply model provides that Emmerson’s supply partner will design, supply, install, and maintain all onsite gas storage facilities at its cost, while Emmerson would provide civil works, electricity and other support services required for the facility’s operation.

In this scenario, there would be no capex required from Emmerson with respect to ensuring supply of LPG. In operation, gas prices will be floating with reference to global market prices plus freight and taxes to deliver to site in Morocco. This will allow the Company to hedge its gas exposure, thus protecting it from short term volatility in prices.

Given the long-term project life and the relatively high and steady gas consumption rates, Emmerson believes that Khemisset will benefit from highly competitive gas prices in the Moroccan context.

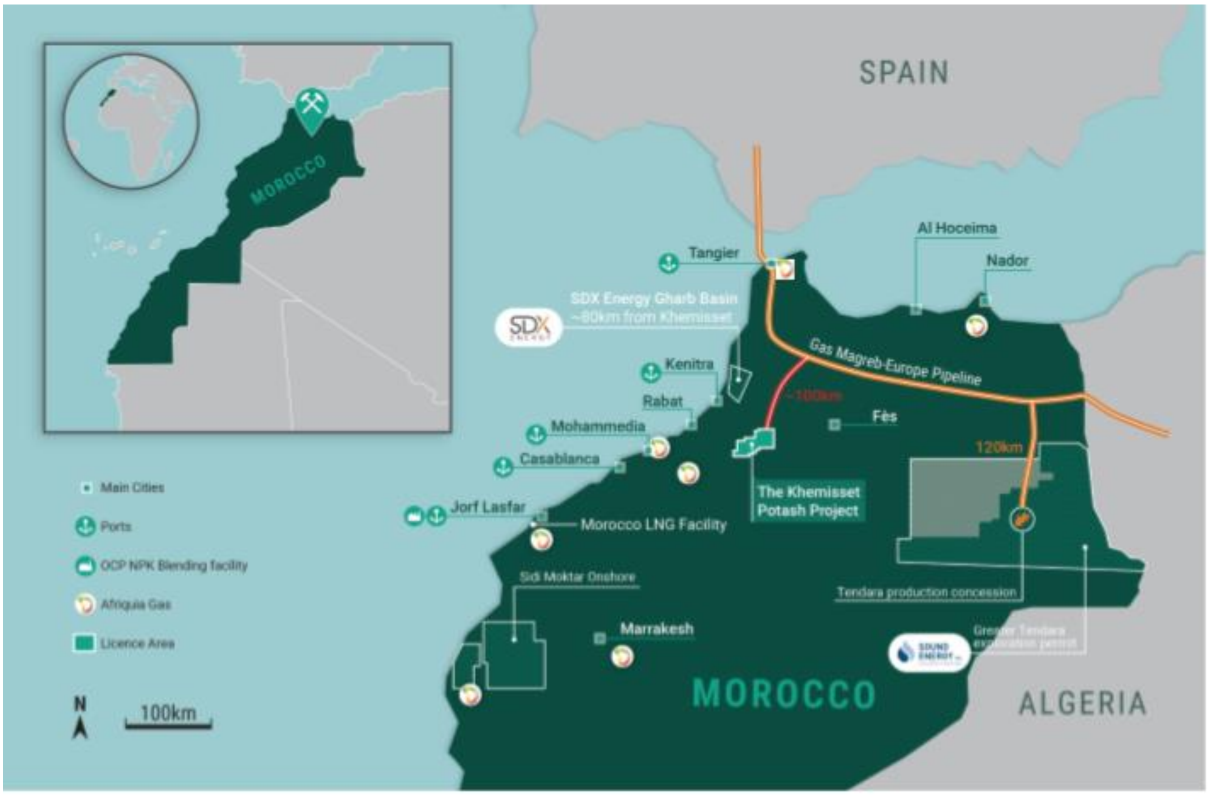


Figure 22: Moroccan Gas Infrastructure Relative to the Khemisset Potash Project

The Company has obtained a proposal from one of the largest gas suppliers in Morocco confirming that it would build and maintain an on-site storage facility at no cost to Emmerson (see announcement released 23 October 2018). This would be done under a long-term supply agreement to deliver all required gas at market rates to the site. Gas storage to allow 10 days' supply to be stored at all times would be required at the MIA.

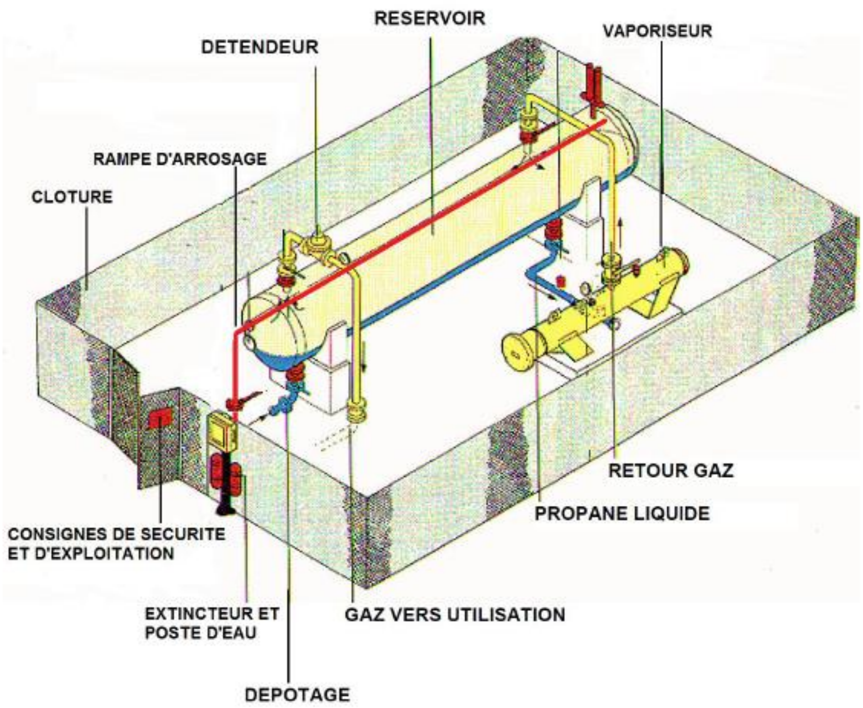


Figure 23: Schematic of Onsite Gas Storage and Distribution

Port and Logistics

Emmerson completed a detailed options study, which is a crucial part of the FS to assess all options available for the various components of the Project and selected a "go-forward" case to take into the more detailed engineering.

The Company completed a comprehensive assessment of the various options available for transport and logistics solutions from the Project site to various potential export ports and local customers.

Due to the outstanding local road infrastructure and the minimal investment expected to be required to access it, and the very close proximity to a number of potential ports, the Company's go-forward logistics solution will remain trucking product from site to its export terminal.

Due to the high-quality infrastructure already in place, confirmed capacity, storage and handling capability for potash and only minor additional transport cost, the Company has elected to go-forward with the Port of Casablanca as its export terminal.

Port of Casablanca

The Port of Casablanca is one of the largest in Africa and currently moves over 8 million tonnes per annum. It handles multiple products including soft commodities (grains, wheat, legumes), fertiliser, phosphate, coal and clinker. The Port currently has total capacity of approximately 10 million tonnes per annum and there are plans to further increase the capacity in the coming years.

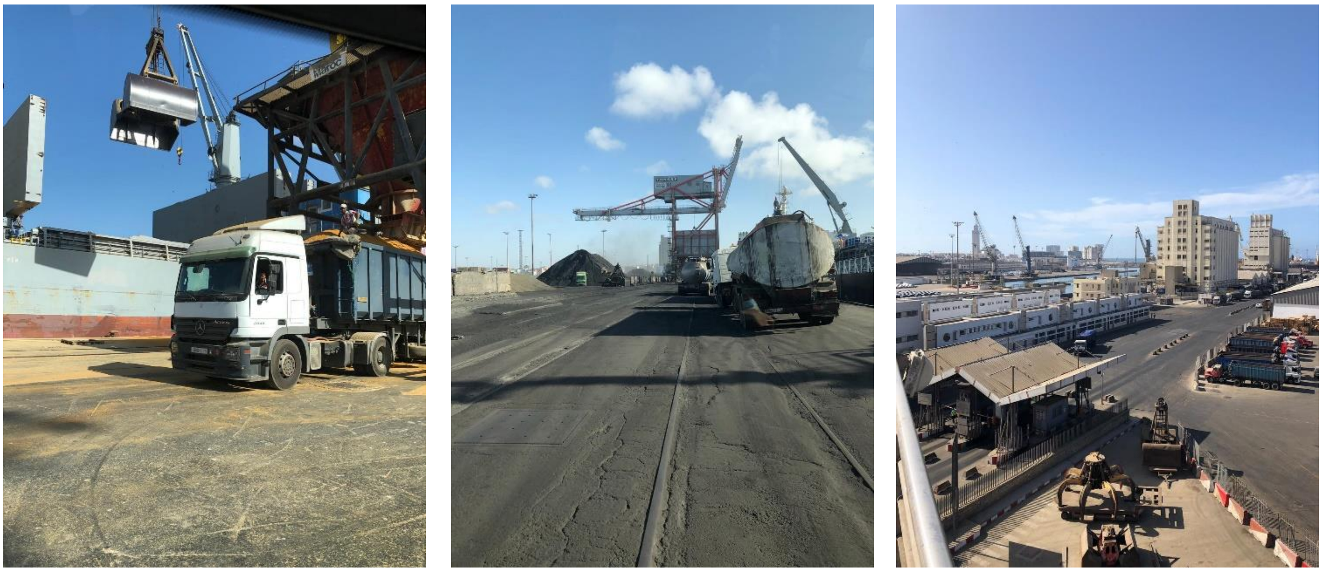


Figure 24: Port of Casablanca Facilities

Although the PoC is now the preferred option for the Company for the FS, consultation with the port authorities indicate that the Port of Mohammedia is still a viable opportunity and, therefore, will not be completely excluded from the overall development plans. The Company believes this is a prudent risk mitigation measure to ensure that its product can be export efficiently and with minimal disruptions in all scenarios.

Road

Over the last two decades, Morocco has invested considerably in upgrading its national road infrastructure. The country now has more than 57,300km of roads, 44,180km of which are paved, and more than 1,800km of national highway including the A2, which runs through the Khemisset Potash Project. The Moroccan Government plans to spend over US$700 million per annum over the coming decades to upgrade and extend the national roads network.

The A2, which is an exceedingly high quality, four lane, toll road, crosses the project area and passes within a very short distance of two potential site locations. The Company will only need to build a new entrance to highway and approximately 1.5km of paved road to connect one of the project sites to the proposed highway entrance.

Figure 25: A2 highway road crossing the project area

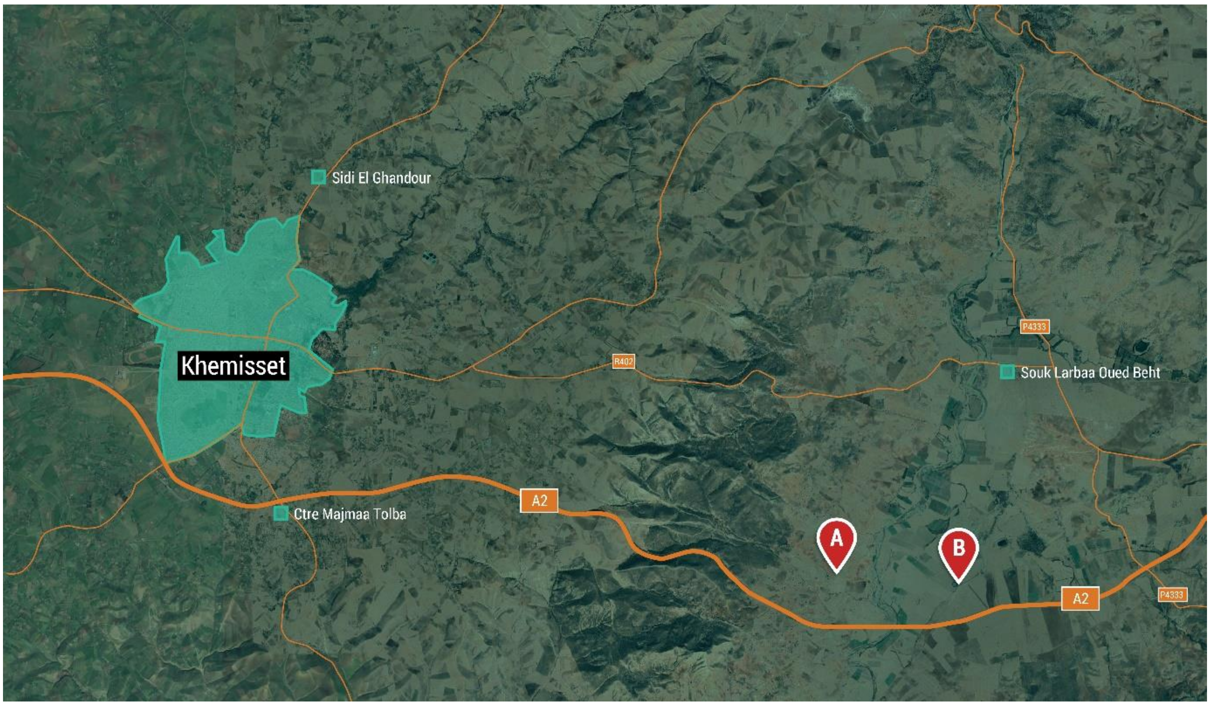


Figure 26: Potential Project Sites (A & B) Relative to Road Infrastructure

Rail

ONCF ("Office National des Chemins de Fer") is a governmental entity and the national railway owner and operator in Morocco. The railway infrastructure is well developed in Morocco and ONCF has a branch dedicated to the transportation and logistics of goods including industrial products. ONCF controls 80 trains that are specific for goods transport and move approximately 27 million tonnes per annum 70% of which moves through the ports of Tangier, Casablanca, and Jorf Lasfar.

The nearest loading platform is in Meknes, which is 55km from the proposed Project. Access is via well maintained national roads. There are several other loading sites with poorer road access.

The 2030 strategic line for ONCF highlights building of a new railway line between Meknes and Rabat via Khemisset, this presents a good opportunity for the project in case this new infrastructure is built in the coming years.

Due to double handling (loading at site to trucks and then offloading and reloading to trains), and an overall increase in delivered cost to the Port of Casablanca it was decided to rule out rail for the initial Khemisset Project development plan. However, the availability and proximity of rail is a major positive factor for any Project expansions in future.

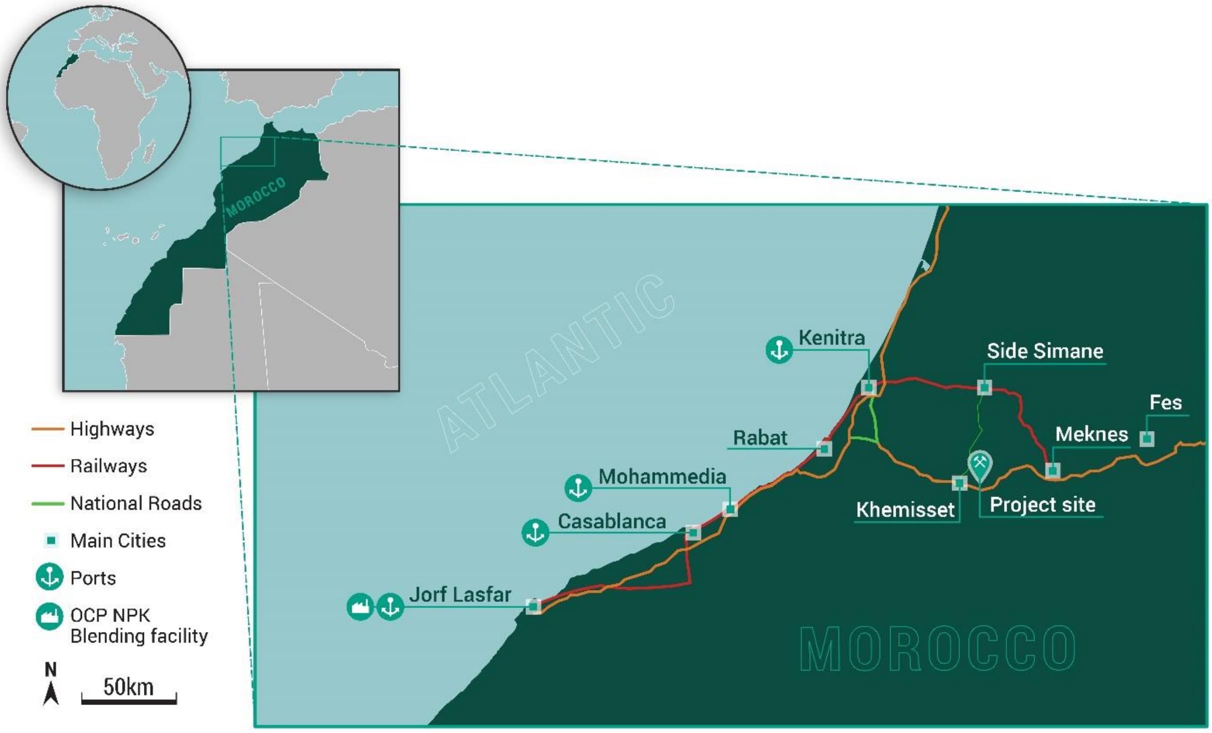


Figure 27: Overview of Transport and Logistics Infrastructure from Project Site to Ports and Customer

Transport and Logistics Costs

Emmerson conducted detailed analysis of various logistics routes and obtained firm quotes from several transport and logistics providers.

Options reviewed included:

1) Trucking cost from site to Mohammedia and storage in a local warehouse at port;
2) Trucking cost from site to Casablanca with no local storage (i.e. on time delivery);
3) Trucking cost from site to Casablanca with storage in a local warehouse at port; and
4) Trucking cost from site to Meknes, loading to rail and rail to Port of Casablanca.

Although trucking to Mohammedia provided the best operating cost outcome, the additional US$7.5m to US$10.0m of capital cost to upgrade the port more than offset this operating cost gain and was a key consideration in eventually selecting the Port of Casablanca as the export terminal.

Consideration was also given for the requirement for a port storage facility to help manage the logistics requirements for Khemisset. After close consultation with the port operators and one of the largest transport and logistics companies in Morocco, the Company has concluded that it does not require onsite storage at the port.

The prime reason is the relatively small quantities that Emmerson will ship are well within the limits of delivering and loading in three to five days. The transport and logistics company confirmed it has the trucks available to deliver product "on time" to the wharf front to be loaded onto ships for export. This method is currently utilised by de-icing salt and clinker operators at the Port of Casablanca.

LOGISTICS OPTION SUMMARY	Trucks direct to Mohamedia Port		Trucks direct to Casa Port		Trucks via warehouse in Casa		Casa Port by Trains	
	Cost Item	US$/tonne	Cost Item	US$/tonne	Cost Item	US$/tonne	Cost Item	US$/tonne
Capex for port uprade	1	$7.5 - 10m						
On-site loading to trucks	1		1		1		1	
Transport to Mohamedia Port	1	9.11						
Storage in Mohamedia warehouse	1	0.01						
Transport to Casa Port			1	11.39				
Transport to Casa warehouse					1	10.25		
Storage in Casa warehouse					1	0.77		
Loading to trucks in Casa warehouse					1	0.74		
Transport from warehouse to Casa Port					1	1.14		
Transport to Meknes railway siding							1	3.13
Storage in railway station							1	0.16
Loading to train wagons							1	0.74
Transport by train to Casa port							1	8.77
unloading trains in Casa Port							1	0.74
Port Charges	1	2.66	1	2.66	1	2.66	1	2.66
Cost on ship		11.78		14.05		15.55		16.21
Shipping to Brazil	1	10.00	1	10.00	1	10.00	1	10.00
Total CFR Brazil - US$		**21.78**		**24.05**		**25.55**		**26.21**

Table 17: Overview of Transport and Logistics Infrastructure from Project Site to Ports and Customer

Environmental and Social Impacts

Mining activities in Morocco are governed by the most recent iteration of the mining code, Law 33-13 of 2015. The code stipulates that any mining license application must be accompanied by an Environmental Impact Assessment (EIA) in order to demonstrate the potential impacts and mitigation measures of the proposed project. In addition to safeguarding public heath, public safety and protected sites, other environmental legislation to be met by the license holder includes those under Law 10-95 (Water Code) and Law 13-03 (Air Pollution).

Emmerson is implementing environmental and social baseline and impact assessments in accordance with Equator Principles and IFC Performance Standards. In doing so MSL will develop the EIA aspects of the Project in-line with international standards that are common requirements for obtaining project financing.

Initial baseline environmental and social studies have been completed and have indicated no red flags or fatal flaws for the development of the Khemisset Project in the format considered in the FS. The Company is currently completing a full Environmental and Social Impact Assessment ("ESIA") which will adhere to the IFC Performance Standards and Equator Principles and will form an integral part of the eventual application for a mining permit at Khemisset.

Capital Cost Estimates

A summary of capital costs is presented in **Table 18.** The estimate has a ±20-25% level of accuracy. Detailed summaries of the key components can be seen **in Table 19, 20 and 21**.

Capital Cost Estimates Summary

Item	US$M
Mining	89.6
Processing Plant (incl salt)	146.6
Surface Infrastructure	48.4
Total Pre-Contingency	**284.6**
Indirects	47.9
EPCM	32.8
Contingency	45.5
TOTAL Pre-Production Capital Cost	**410.9**

Table 18: Summary of Capital Cost Estimate for Khemisset Potash Project

Mining Capital Cost Estimate – Direct Capital Cost

Item	US$M
Mine Surface Systems	0.03
Mine Access	28.0
Access Development	14.0
Mining Equipment	27.5
Underground Systems	20.1
TOTAL	**89.6**

Table 19: Summary of Capital Cost Estimate for Mining

Process Plant Including Salt Circuit – Direct Capital Cost

Area / Discipline	Total Cost ($)
(1) Equipment	81.7
(2) Piping	11.0
(3) Civils- Earthworks	1.8
(4) Civils - Concrete	8.2
(5) Buildings	0.7
(6) Steelwork	12.6
(7) Instruments	3.4
(8) Electrical	20.8

Area / Discipline	Total Cost ($)
(9) Refractory, Insulation	0.6
(10) Painting	1.7
Total Direct Field Costs	**142.5**
Indirect Field Costs	4.1
Total Field Costs	**146.6**
Freight & Other	13.0
Total Installed Costs	**159.6**
Total Installed Costs Excluding Salt Circuit	**137.6**

Table 20: Summary of Capital Cost Estimate for Processing

Surface Infrastructure – Direct Capital Costs

Description	Cost (US$)
Building Costs	3.7
Roads and Access Costs	3.1
Stormwater Drainage	0.2
Water Supply & Reticulation	2.0
Sewage Drainage	0.3
Electricity Supply & Reticulation	7.7
Tailings Storage Facility	30.5
Surface Water Management	0.2
Miscellaneous Other	0.7
TOTAL	**48.4**

Table 21: Summary of Capital Cost Estimate for Infrastructure and Logistics

Operating Cost Estimates

A summary of operating costs (mine operating costs for first full year of operations) is presented in **Table 22** below. The estimate has a ±20-25% level of accuracy. The estimate is based on operating utilisation of 82.2% or 7,200hrs per annum.

For road haulage, quotes were obtained directly from several Moroccan trucking companies to ship potash from the mine site to the Port of Casablanca. Port costs were provided by the Port of Casablanca authority.

Freight to Brazil was estimated based on distance and times from www.searates.com, loading rates in the Port of Casablanca, and daily freight rates for Handymax (up to 35,000 DWT) obtained from several of sources.

Operating Cost Item	US$/t ROM	US$/t MOP
Mining (incl Contract Mining)	7.8	60.2
Processing	5.5	42.7
Other Site Operating Costs	0.7	5.6
Administration	0.4	2.8
Total Cash Cost to Mine Gate	**14.4**	**111.2**
Trucking to Port of Casablanca and Port Charges	2.0	14.1
Sustaining Capital	4.2	32.7
All-in-Sustaining Cash Cost (FOB Casablanca)	**20.6**	**158.0**
Freight to Brazil	1.4	10.0
All-in-Sustaining Cash Cost to Brazil	**22.0**	**168.0**

Table 22: All-in Sustaining Cash Cost to Brazil for First Full Year of Production

Economic Analysis

Economic sensitivity analysis of Khemisset shows it to be a financially robust project that delivers very strong NPVs and cashflows through a range of potash prices. A summary of NPVs at a variety of potash prices and discount rates can be seen in **Table 23** below.

NPV - US$ millions		MOP Price - US$/tonne				
		288 (-30%)	350 (-15%)	412 (Base)	473 (15%)	536 (30%)
Discount Rate	4%	1,151.0	1,719.6	2,288.3	2,857.0	3,425.7
	6%	855.5	1,316.0	1,776.5	2,237.0	2,697.5
	8%	634.9	1,012.9	1,390.9	1,768.9	2,146.9
	10%	468.1	782.4	1,096.7	1,410.9	1,725.2

Table 23: NPV Sensitivity to Potash Price and Discount Rate

Strong cashflow generation at a variety of low potash prices is fundamental to the ability to finance the Project. Khemisset delivers strong, post-tax, cashflows which Management believes will be capable of delivering the requisite finance to complete the construction and ramp up of the mine. A summary of the post-tax cashflow and EBITDA at a variety of potash prices can been seen in **Table 24, Table 25** and **Table 26** below.

EBITDA – US$ millions	MOP Price - US$/tonne					
	227 (-45%)	288 (-30%)	350 (-15%)	412 (Base)	474 (15%)	536 (30%)

	130.4	189.3	248.3	307.2	366.1	425.0

Table 24: EBITDA Sensitivity to Potash Price

Post Tax FCF – US$ millions	MOP Price - US$/tonne					
	227 (-45%)	288 (-30%)	350 (-15%)	412 (Base)	474 (15%)	536 (30%)
	87.5	136.8	186.0	235.2	284.5	333.7

Table 25: Post-Tax Free Cash Flow Sensitivity to Potash Price

IRR	MOP Price - US$/tonne					
	227 (-45%)	288 (-30%)	350 (-15%)	412 (Base)	474 (15%)	536 (30%)
	14.7%	23.3%	31.1%	38.5%	45.5%	52.3%

Table 26: IRR Sensitivity to Potash Price

Key Financial Assumptions for DCF Model
Industry Expert Argus FMB Price Forecasts over Life of Mine (approx. average US$412/tonne real flat)
Nominal Discount Rate of 8%
Costs and revenues escalated at 3.0% per annum over life of mine (average UK inflation since 1998)
5 Yr Corporate Tax Holiday
20.0% Corporate Tax Rate on Exported Product
Two years pre-production, ramp-up 50% in year 1

Table 27: Key Assumptions Used in Financial Model