

ASX Release 21 November 2019

Further clarification in relation to Muga Project Update information contained in September 2019 quarterly activities report released on 14 October 2019

Highfield Resources (ASX: HFR) ("Highfield" or "the Company") provides further clarification in relation to its quarterly activities report lodged on 14 October 2019 which included an update on the Company's flagship Muga Potash Project ("Muga" or "the Project").

In its quarterly activities report for the quarter ended 30 September 2019 and lodged with the ASX on 14 October 2019 the Company reported on further enhancements to the process plant design and other parameters for the Project which have improved environmental outcomes and project financials, with revised NPV₈ of €1.97 billion and IRR of 25%. In this quarterly report the Company made reference to the previous Muga Project Update announced on 15 October 2018.

The Company sets out below further clarification of the technical and financial parameters of the recent 14 October 2019 update in comparison with the previous Project update dated15 October 2018.

Cautionary Statement. The production target set out in this update is derived from Proved and Probable Ore Reserves and Inferred Mineral Resources from the Muga tenement as well as the Exploration Target at the Vipasca tenement. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the Mineral Resource in the market announcement dated 10 October 2018 and the Exploration Target in the market announcement dated 19 June 2015 continue to apply and have not materially changed.

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Issued Capital 329.5 million shares 24.66 million options

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Muga Project Overview

Highfield Resources (ASX: HFR) ("Highfield" or "the Company") is a Spanish potash developer. The Company's flagship Muga Project ("Muga" or "the Project") is targeting the relatively shallow sylvinite beds in the Muga Project area that cover about 60km² in the Provinces of Navarra and Aragon. Mining is planned to commence at a depth of approximately 350 metres from surface and is therefore ideal for a relatively low-cost conventional mine.

The Vipasca Permit Area ("Vipasca") is located adjacent to the Muga Project and covers approximately 27km². Some areas of the tenement are highly prospective for economic potash mineralisation, with a primary focus on the deeper, higher grade, P1 and P2 potash horizons.

The project is intended to be developed in two phases, the first phase to produce approximately 500,000 tpa of Muriate of Potash (MOP) and the second phase to produce a further 500,000 tpa of MOP, for a total at full production of 1 Mtpa.

Ore Reserve, Mineral Resource and Exploration Target

The information in this release referring to the mine plan or mining activities, as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code"), is derived from Ore Reserve Estimate related to Muga announced 22 January 2019 (refer ASX, "Updated Ore Reserve Estimate – Muga Project"), Mineral Resource statement related to Muga 10 October 2018 (refer ASX, "Updated Mineral Resource Estimate – Muga Project") and the Exploration Target as per the market announcement of the 19 June 2015 (refer ASX, "Substantial Exploration Target to Muga Mine"). The estimated Ore Reserves and Mineral Resources underpinning the production target have been prepared by competent persons in accordance with the requirements of Appendix 5A (JORC Code). The relevant Competent Persons' statements are shown at the end of this ASX announcement.

ORE RESERVE ESTIMATE

The Muga Potash Project Ore Reserve Statement prepared by Highfield Resources and audited by SRK Consulting (UK) Limited ("SRK") which is presented in Table 1 below is as per the ASX announcement released on the 22 January 2019. See Appendix A for JORC Code section criteria for further details. The Proved and Probable Ore Reserve has been derived from the Measured and Indicated Mineral Resource of 235 million tonnes as previously reported on 10 October 2018 and comprises 108.7 million tonnes at 10.2% Potassium Oxide ("K2O", potash), with a Proved Ore Reserve of 42.9 million tonnes at 10.2% K2O and a Probable Ore Reserve of 65.8 million tonnes at 10.2% K2O.

The audited Ore Reserve Statement has been reported in accordance with the terminology and guidelines of the "JORC Code). Specifically, it comprises the portion of the Mineral Resource classified as Measured or Indicated which is planned to be mined and processed, and then transported to the point of sale. The Ore Reserve is presented in terms of plant feed and inclusive of losses and dilution incurred during mining and is a sub-set of, and not additive to, the Mineral Resource estimate released on 10 October 2018 from which it was derived.

The Company confirms that it is not aware of any new information or data that materially affects the information included in this market announcement and that all material assumptions and technical parameters underpinning the estimates in the ASX announcement released on 22 January 2019 continue to apply and have not materially changed.



Table 1: Audited SRK Ore Reserve Statement for the Muga Potash Project Deposit effective date 31 December 2018

One Become Classification	Reserve Classification Tonnage %K ₂ O		9/MaQ	0/ VC I	
Ore Reserve Classification	(Mt)	%K2U	%MgO	%KCl	
Proved Reserve	42.9	10.2%	0.4%	16.1%	
Probable Reserve	65.8	10.2%	0.5%	16.1%	
Total Ore Reserve (Proved + Probable)	108.7	10.2%	0.5%	16.1%	

- All figures are rounded to reflect the relative accuracy of the estimate and have been used to derive sub-totals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, SRK does not consider them to be material. The Concession is wholly owned by and exploration is operated by Geoalcali S.L., the wholly owned Spanish subsidiary of Highfield Resources.
- 2. The standard adopted in respect of the reporting of Mineral Resources and Ore Reserves for the Project, following the completion of required technical studies, is in accordance with the guidelines of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.
- SRK reasonably expects the Muga deposit to be amenable to a variety of underground mining methods for the shallow and
 inclined potash seams. Ore Reserves are reported at an 8% K₂0 cut-off estimate based on potash price assumptions,
 metallurgical recovery assumptions from initial test work, mining costs, processing costs, general and administrative (G&A)
 costs, and other factors.

Ore Reserve assumptions

The Ore Reserve estimate was prepared by Highfield Resources and audited by SRK. The approach, and the assumptions made, for the purpose of the Ore Reserve estimate are summarised in the following sections. Whilst the approach is similar to the approach presented in the release of the Muga Project Update statement of 15 October 2018, some of the assumptions used in the Ore Reserve estimate differ. See below and Appendix A for JORC Code section criteria for further details.

Ore Reserve cut-off grade approach

The cut-off grade utilised for mining is 8% K2O with a maximum waste salt content of 30%. SRK verified the input parameters and the cut-off grade approach together with the technical justification behind the production scenario proposed by Highfield. SRK also assessed the sensitivity of the cut-off grade to operating costs with additional contingencies applied to test the robustness of the project economics. The Company and SRK are confident that the Ore Reserves are reported in accordance with the JORC Code guidelines and have the potential for economic extraction.

No constraints have been applied for insolubles or carnallite (a magnesium compound) content as it is expected the mined potash can be blended to achieve the appropriate product specification.

Mining method approach

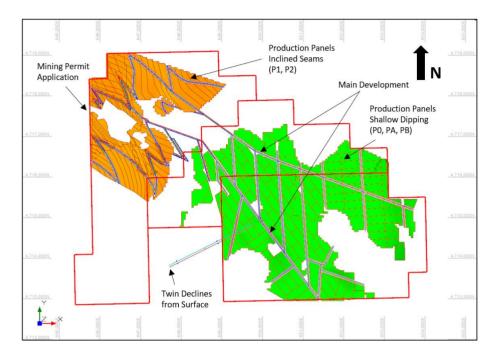
For the planned mine production panels, the tonnage and grade have been diluted by 15 cm of waste in the roof and the floor. The seams are also constrained by a minimum mining height of 2.1 metres which is consistent with the planned mining equipment. The shallow dipping seams utilise a set of two parallel roadways as the main development access, one for fresh air intake and access and the other for exhaust ventilation and conveyor belt materials handling system. The mining method approach is a typical Room and Pillar ("R&P") panel layout. The room width is specified at 8 metres and the height and pillar size are determined by the total combined seam thickness, geotechnical constraints due to depth below surface and/or any equipment limitations.

The inclined potash seams in the north-west of the deposit (see Figure 1) require an alternative mining approach to the R&P panel layout used for the shallow dipping seams, to minimise dilution and maximise extraction, taking into consideration the geotechnical constraints and equipment limitations. For the inclined seams the planned dilution effect is considered for extraction by Continuous Miners only. It is assumed that



extraction by Road Headers will have no planned dilution as the equipment is able to mine selectively to the dipping seam contact. The conversion of Measured and Indicated Resources to Proven and Probable Reserves is 46.3%.

Figure 1: Plan view of revised Muga mining panels including access development and boundary constraints



Compared with the mine plan that formed the basis of the Muga Project Update announced on 15 October 2018, the revised mine plan on which the Ore Reserve Estimate is based also incorporates the anticipated requirements of the environmental approval process, particularly related to subsidence controls and exclusion zones around towns, infrastructure and objects of significant cultural importance.

SRK reviewed the geotechnical characterisation work carried out by the Company and third-party consultants and completed FLAC3D numerical modelling to establish the optimum spacing and stable pillar dimensions for cross-cuts on retreat through the panel pillars to improve extraction ratios while maintaining a suitable Factor of Safety for pillars over the range of depths.

Processing approach

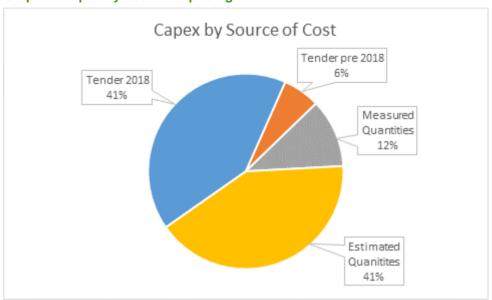
The detailed economic analysis supporting reasonable prospects for eventual economic extraction of the Mineral Resource assumes processing with conventional crushing, flotation and crystallisation.

The proposed beneficiation process consists of a hybrid of two conventional beneficiation processes for sylvinite ores, namely froth flotation and dissolution/recrystallisation. Flotation is applied to the coarse fraction of the feed ore after crushing, and dissolution/recrystallisation, which produces a higher quality product, is applied to fines and intermediate fractions in order to achieve an overall optimum level of recovery. Metallurgical test work was carried out at the Saskatchewan Research Centre ("SRC") laboratories in Canada which was overseen by the metallurgical consultancy, Global Potash Solutions, and Highfield metallurgical staff. The samples for this test work were taken as a result of a detailed geo-metallurgical review of all previous geological and metallurgical work. Representative samples of the different ore types based on anticipated presentation of these materials from the mine to the process plant were collected and tested under anticipated process plant operating conditions. The results from this work were then incorporated into a process design developed by the Canadian engineering company, Hatch in Saskatchewan, which has extensive potash process plant design experience..For the purpose of the Ore Reserve estimate 80% recovery, as validated by the original metallurgical test work, was used for the purposes of calculating the cut-off grade.



Economic factors

The assumed capital and operating costs used to report the Ore Reserve estimate are based on the Company's signed agreements with contractors, detailed quotes, or estimations made by the Company and its third-party consultants. The capex estimate includes firm, recent quotations for capital plant, budget prices from manufacturers, measured quantities and tested market rates. A small number of items were estimated from all-in rates based on ratios (e.g. earth moving costs estimated based on cubic metres of earth at a per metre rate). The source of pricing is shown in Graph 1 below.



Graph 1: Capex by source of pricing

The capex estimate is comprehensive and confirmed by Micon International Company Ltd. ("Micon") to be superior to typical estimates at this stage of a project's development. Allowances have been made for the full mining fleet to extract ore over the life of mine including refurbishment and replacement costs, ground support, conveying systems for ore and backfill operations, ventilation systems and other materials to support mining development. For the full scale mine operation, the equipment includes 2 bolter-miners, 4 road headers, 5 continuous miners, 11 feeder breakers and 20 shuttle cars. The process plant capex includes all of the equipment as assessed by Hatch to produce up to 500,000 tpa of MOP for phase 1 production. This includes mined ore receipt and handling, size reduction of the ore, recovery of potash from the ore by conventional flotation and also by a crystalliser circuit.

The product sales and forecast pricing used to support the Ore Reserve estimate assume that 100% of the first phase of production is sold into local and regional markets and for the second phase a conservative approach has been adopted which considers 25% sold into northern European markets and 25% to export markets. Forecast Potash prices for the Ore Reserve estimate are based on Argus Media's Q3 2018 dataset. The forecast used in the model for southern Europe price for 2020 is around €255-265/tonne and the weighted average price for the mix of markets as described above used for the life of mine in the financial model is around €360-380/tonne.

A flat €13/tonne for transport of sales product to the point of sale has also been applied in the economic assessment as well as a mine gate sales price of €27.5/tonne for de-icing salt tonnages. There are no mining royalties payable under Spanish law, therefore no mining royalties are considered as part of the review of the Ore Reserve estimate.



Social and environmental considerations

In addition to the statutory consultation required as part of the environmental approval process, the Company has implemented a comprehensive stakeholder engagement programme. This is based on a strategy that includes regular meetings with community leaders, community groups and an actively managed project website.

A range of environmental factors have been considered for the development of the Ore Reserve estimate. These include groundwater assessments, surface water management infrastructure, waste management, environmental controls around the temporary waste storage area and mining exclusion zones around surface infrastructure to mitigate against potential subsidence.

Approval assumptions

At the time of the Ore Reserve Statement in January 2019, the Company stated that it was confident that it had completed all necessary work required for the environmental approval process and that it was towards the end of that process and it remained confident of receiving the environmental permit in due course. The Company did receive its environmental permit as was advised to the market in an announcement on 6 June 2019 (refer ASX, "Muga Receives Positive Environmental Permit").

The next stages of permitting is receipt of Mining Concessions from the mining authorities in Madrid, Navarra and Aragon. The Company is working collaboratively with these three entities to expedite these approvals. Following receipt of the Mining Concessions the Company will then be able to secure construction permits from various authorities including the water authority, road and power authorities and the town halls of Sangüesa and Undues, being the two towns closest to the mine site, one in the province of Navarra and one in the province of Aragon.

MINERAL RESOURCE ESTIMATE

Cautionary Statement. The production target set out in this update is derived from Proved and Probable Ore Reserves and Inferred Mineral Resources from the Muga tenement as well as the Exploration Target at the Vipasca tenement. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the Mineral Resource in the market announcement dated 10 October 2018 continue to apply and have not materially changed.

The new Mineral Resource Estimate as authored by SRK (refer ASX announcement 10th October 2018 "Updated Mineral Resource Estimate – Muga Project"), is as reported in Table 2 below. Changes from the previous statement released in November 2015, which was authored by the Competent Person, CRN, are reported in Table 3. The relevant Competent Persons' statements are shown at the end of this ASX announcement. The overall Mineral Resource tonnage has increased by 3.7 Mt to 267.4 Mt. The grade of the Mineral Resource has decreased from 13.5% K2O to 12.4% K2O. The main reason for this is the use of a lower cut-off grade for the 2018 Mineral Resource Estimate of 8% overall K2O instead of 8% K2O-in-sylvinite. Since the completion of the November 2015 Mineral Resource Estimate, the geological model has been updated to incorporate two additional drill holes in the centre of the deposit, namely J15-02 and R-03, see



Figures 2, 3 and 4.

The updated geological model was created in Strat 3D and Studio RM software, property of Datamine. Variograms were updated and successfully modelled for the main horizons and these parameters used to inform the grade estimation which was completed using Ordinary Kriging ("OK") for all major horizons, rather than Inverse Distance Weighting Cubed as per the previous estimate of November 2015. The estimated block model was classified by SRK into Measured, Indicated and Inferred Mineral Resources, in accordance with the guidelines of the 2012 JORC Code.

The Company confirms that it is not aware of any new information or data that materially affects the information included in this market announcement and that all material assumptions and technical parameters underpinning the estimates in the ASX announcement released on 10 October 2018 continue to apply and have not materially changed.



Table 2: Audited SRK Mineral Resource Statement for the Muga Potash Project Deposit

Classification	Horizon	Density	Tonnage	% K₂O	% MgO	%Na ₂ O	%	True
		(g/cm ³)	(Mt)	701-2-		,	Insolubles	thickness
		(3)	` '					(m)
Measured	P0	2.1	10.29	9.8	0.2	25.1	23.3	2.3
	PA	2.0	18.22	11.8	8.0	24.2	20.0	2.0
	PB	2.1	38.14	13.1	0.2	27.3	18.4	4.1
	P1	2.2	15.36	12.3	0.1	31.5	16.7	3.5
	P2	2.2	9.76	13.7	0.1	19.8	11.9	2.1
	P4							
Sub-total Meas	sured	2.1	91.77	12.4	0.3	26.3	18.3	
Indicated	P0	2.1	36.42	10.3	0.5	27.8	27.6	4.3
	PA	1.9	15.00	12.1	2.0	22.7	21.2	2.2
	PB	2.1	25.61	12.1	0.3	27.8	20.3	1.7
	P1	2.2	43.81	13.3	0.1	30.8	17.8	5.0
	P2	2.2	22.14	13.4	0.1	21.5	13.4	4.4
	P4				•			
Sub-total Indic	ated	2.1	142.98	12.2	0.4	27.2	20.4	
Measured +	P0	2.1	46.71	10.2	0.4	27.2	26.7	3.9
Indicated	PA	2.0	33.22	11.9	1.3	23.5	20.5	2.1
marcatoa	PB	2.1	63.75	12.7	0.2	27.5	19.2	3.1
	P1	2.2	59.17	13	0.1	31	17.5	4.6
	P2	2.2	31.9	13.5	0.1	21	12.9	3.7
	P4				•			
Sub-total Meas	sured +	2.1	234.75	12.3	0.4	26.9	19.6	
Inferred	P0	2.1	2.49	10.1	0.5	27.9	29.4	4.0
	PA	1.9	0.84	11.8	1.7	23.4	21.5	1.3
	PB	2.1	2.96	11.8	0.2	28	20	1.4
	P1	2.2	7.19	12.7	0.1	29.9	17	2.8
	P2	2.2	10.71	13.5	0.1	20.6	13.3	3.0
	P4	2.2	8.41	13.7	0.2	31.7	17.1	1.9
Sub-Total Infer	red	2.2	32.6	12.9	0.2	26.8	17.1	
Grand Total	P0	2.1	49.2	10.2	0.4	27.2	26.8	3.9
	PA	2.0	34.06	11.9	1.4	23.5	20.6	2.1
	PB	2.1	66.71	12.7	0.2	27.5	19.2	3.1
	P1	2.2	66.36	13	0.1	30.9	17.5	4.4
	P2	2.2	42.61	13.5	0.1	20.9	13	3.5
	P4	2.2	8.41	13.7	0.2	31.7	17.1	1.9
Total		2.1	267.35	12.4	0.4	26.9	19.3	

^{*}Reported above a cut-off grade of 8% $\rm K_2O$ and a minimum mining thickness (where horizons will be mined separatly) of 1.5 m

Table 3: Muga Potash Project Deposit Mineral Resource Estimate October 2018 compared to Mineral Resource Estimate of November 2015 as authored by CRN and now superseded.

	2018 I	Mineral Resource	Statement			17 November 2	015	
	Tonnes In Place	Grade K ₂ O	MgO	Na ₂ O	Tonnes In Place	Grade K₂O	MgO	Na ₂ O
	(Mt)	(%)	(%)	(%)	(Mt)	(%)	(%)	(%)
Measured	91.8	12.40%	0.3%	26.3%	75.1	13.60%	0.4%	29.6%
Indicated	143.0	12.21%	0.4%	27.2%	149.4	13.30%	0.3%	29.4%
Total Measured & Indicated	234.8	12.28%	0.4%	26.9%	224.6	13.40%	0.4%	29.5%
Inferred	32.6	12.92%	0.2%	26.8%	39.2	13.80%	0.4%	29.7%
Total	267.4	12.36%	0.4%	26.9%	263.7	13.50%	0.4%	29.5%

^{*}Insolubles refers to clays, gypsum and sulphates

^{*}Numbers have been rounded to reflect the relative level of accuracy and as such totals may include rounding discrepancies



Figure 2: General footprint of updated Muga Mineral Resource showing last two exploration drill holes completed since 2015 and incorporated into the 10 October 2018 MRE.

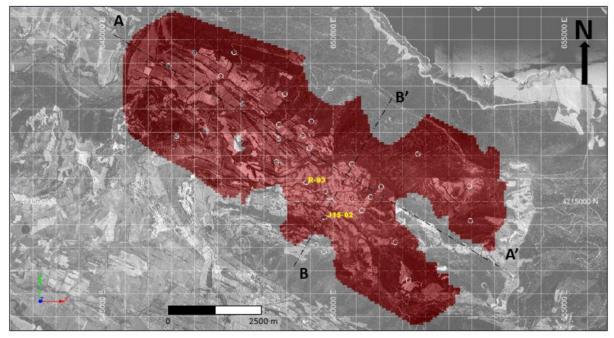


Figure 3: A-A' NW-SE Cross-profile along the mineral deposit. Vertical scale exaggerated 1:3.

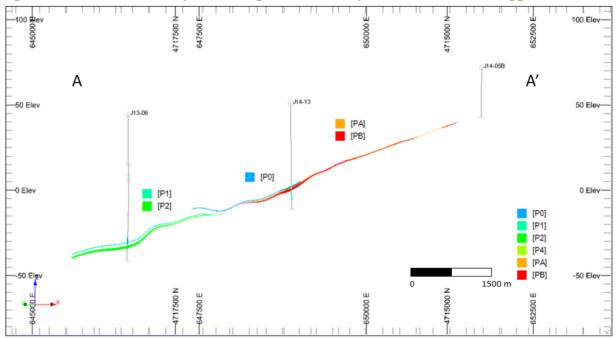
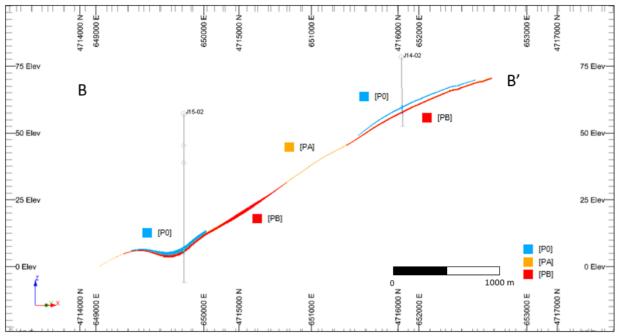




Figure 4: B-B' SW-NE Cross-profile along the mineral deposit nearby J15-02. Vertical scale exaggerated 1:3.



EXPLORATION TARGET¹

Cautionary Statement. The production target set out in this update is derived from Proved and Probable Ore Reserves and Inferred Mineral Resources from the Muga tenement as well as the Exploration Target at the Vipasca tenement. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the Exploration Target in the market announcement dated 19 June 2015 continue to apply and have not materially changed.

The Exploration Target is as per the ASX announcement released on 19 June 2015. It has been reviewed by a Competent Person as per the statement at the end of this document.

The Company confirms that it is not aware of any new information or data that materially affects the information included in this market announcement and that all material assumptions and technical parameters underpinning the estimates in the ASX announcement released on 19 June 2015 continue to apply and have not materially changed.

¹ The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the target in the market announcement dated 19th June 2015 continue to apply and have not materially changed.



Table 4: Exploration Target

	Tonnage (million tonnes)			Gra		
	Low	Base	High	Low	Base	High
Capa 1	63	95	127	12	14	16
Capa 2	63	95	127	12	14	16
Total	127	191	255	12	14	16

The Exploration Target encompasses the Capa 1 and Capa 2 seams (two of five seams encountered across the Project) and excludes any of the other project areas contiguous with the Muga Project. The Company chose to exclude the Capa 0, Capa A and Capa B from the Exploration Target, however, it believes continuity could exist in these three seams, mainly the Capa B. These seams do not appear to be as thick nor as high grade as the Capa 1 and Capa 2.

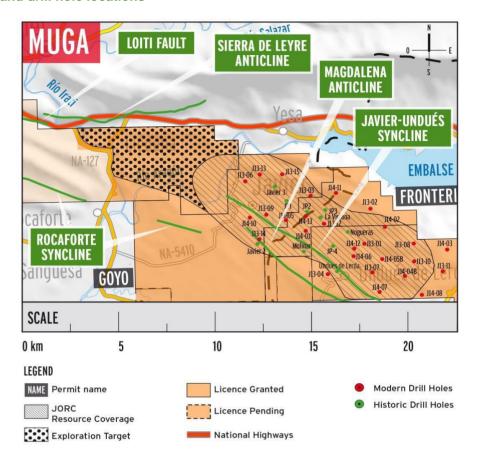
The Exploration Target has a range of tonnage of 127 million tonnes to 255 million tonnes, with a grade range of 12% to 16% K₂O. This Exploration Target is supported by a continuation of the surface geology identifying the same geological features as those observed in Muga, including the same geological units, the same sedimentary environment and the same geological structures. Furthermore, the drillholes in the western sector of Muga show important thicknesses of evaporite materials with very good potash intersections, showing no evidence of depletion, or proximity to the edge of the basin and interpreted to extend into the Vipasca tenement. A gravimetric survey carried out in 2015 demonstrated continuity of the potash bearing evaporite into the north western extension of the Project area. Also, in 2016 seismic studies have confirmed the previous assumptions, identifying reflectors that are interpreted as the layers of potash and salt at depth.

Exploration Target Geology

As shown in Figure 5 below, the depositional basin bounds are defined to the south-west at the east-south east/west-north west trending Rocaforte Syncline near the margin of the Aragón River. To the north-west is the Sierra de Leyre anticlinal structure that overthrusts the Pamplona Marls Formation, the underlying unit of the evaporite. This thrust and two reverse faults run approximately east-west.



Figure 5: Muga Project area focusing on Exploration Target area showing selected regional structure and drill hole locations



The first fault in the north is within the Pamplona Marls over Yesa turbidites. The second is coincident with the Liedena Sandstone, which overlays the evaporite. These faults are considered the extension of the Loiti Fault towards the east which also corresponds to the synsedimentary line between marine sediments within the Basin to the Eocene-Oligocene continental sediments at the thrust front.

The south boundary of the Exploration Target is an important fault running north-west / south-east that extends towards the east acting as limit to Magdalena anticline, considered the southern limit of south-eastern section of the Muga Project area. In the west, the fault converges to the Loiti structure beyond the investigated area.

Geophysical Surveys

In this geological context the Company completed a gravimetric survey which seeks to identify low density salt materials in relation to the density of the surrounding lithologies. The initial survey was made in the northern part of the Goyo Permit area, where positive results in drill holes showed a thick salt interval and important sylvinite intersections. The results of this initial survey were positive with a clear, broad negative gravimetric anomaly open towards the north western extent of the Project area.

These initial positive gravimetric survey results led the Company to complete a further electromagnetic (TDEM) survey which defined the depth of the salt unit, based on the high resistivity response of salt in relation to others materials.

With these results, the Company launched a second survey campaign to the west of the Aragón River into the north-western extension of the Muga Project area. A detailed gravimetric survey has been completed in this area covering about 15 km² which includes 353 measurement points on a grid of 200m x 200 m. This survey shows an important negative anomaly consistent with that seen in the Goyo permit area. The anomaly



is open towards the north and north-west suggesting continuity of the potash bearing evaporite unit into these areas.

A complementary TDEM profile has also been completed in the central position of gravimetric anomaly. The profile shows the presence of a thick salt unit at shallow levels in the northern section at depths below surface of between 200m and 600m depth. The profile shows the continuity of the salt unit towards the north below a resistive unit interpreted as sandstones.

The map in Figure 6 below shows the results of the geophysical surveys. Importantly it also demonstrates the evaporite unit commences in the Exploration Target region at depths below surface of less than 200m.

EMBALSE DE YES FRONTERIZO Ruest MOLINERAS I GOYO **GOYO SUR** MUGA SUR SCALE 25 LEGEND Modern Drill Holes WANE Permit name Licence Granted Historic Drill Holes Licence Pending Reference Dritt Hole TDEM (Time Domain Exploration Target Electromagnetic) National Highways

Figure 6: Muga Project area showing geophysical surveys and Exploration Target Area

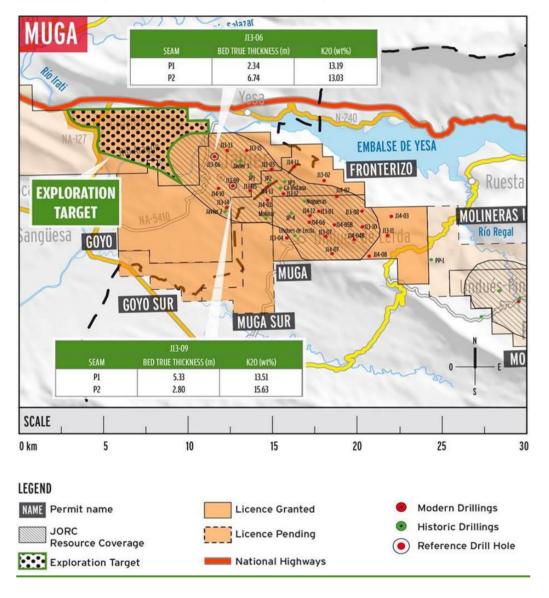
Drill Hole References

Drilling across the Project area indicates strong continuity of the evaporite unit towards the west in the key potash seams within this unit including the Capa 1 and Capa 2 (described also as P1 and P2 below). The Company has used the drilling results from exploration holes J13-06 and J13-09, which are outside of the Exploration Target, as the basis for estimating the potential ranges of true thickness and grades of the key potash bearing seams. The presence of Capa B is not discounted, but it is not included in the Exploration Target given the Capa 1 and Capa 2 appear to be generally thicker and higher grade and as a result the likely mining target.



Drill holes locations for J13-06 and J13-09 are shown in Figure 7 below. These are critical holes as they intersected mineralisation at the base of the syncline structure that appears to extend into the north western area of the Project and further into the Vipasca Project area. These drill holes intersected the most complete potash intervals in the base of the syncline structure and as a result are believed to represent the most appropriate references for estimating the continuity of potash mineralisation into the Exploration Target area.

Figure 7: Muga Project area highlighting Exploration Target with key reference drill holes J13-06 and J13-09 and assay results for seams Capa 1 and Capa 2 (P1 and P2)



2019 MINE PLAN

The 2019 Mine Plan is based on the Proved and Probable Ore Reserves as released on the 22 January 2019 and Inferred Mineral Resources for the Muga deposit audited by SRK as per the ASX release on 10 October 2018, as well as the abutting Exploration target as per the ASX announcement of 19 June 2015, after taking into account certain changes set out below to reflect developments subsequent to these previous announcements.

The Company has a reasonable expectation that the Inferred Mineral Resources and Exploration Target tonnes included in the 2019 Mine Plan will be considered in longer term assessments of Ore Reserves



following further drilling as well as engineering assessments and the receipt of mining exploitation permits as well as the current interpretations relating to geology as described above. The Company has a reasonable expectation that the Exploration Target from the abutting tenement is a continuation of the Muga Mineral Resource and would be mined as an extension of the planned Muga mining operation.

Recent drilling at Muga-Vipasca released on 10 October 2019 (refer ASX, "Encouraging Drill Holes Completed at Vipasca") has increased the Company's expectations in relation to the Exploration Target included in the 2019 Mine Plan. Specific results from this release are:

Recent drillholes at the Vipasca permit area have confirmed the presence of potash at good grades and potentially mineable depths.

V18-02 has confirmed the continuity of the Vipasca deposit and that the mineralisation remains open towards the West. Specifically, V18-02 intersected a total of 37 metres of potash mineralisation including:

- 4.8 metres at an average grade of 15.25% K2O from 996 metres;
- 2.4 metres at an average grade of 14.18% K2O from 1119 metres; and
- 8.1 metres at an average grade of 12.95% K2O from 1139 metres.

V18-01 intersected a total of 1.8 metres of potash mineralization at 9.32% K2O, confirming the continuity of the mineralization towards the north-eastern edge of the Vipasca investigation permit.

The Exploration Target from the abutting tenement is included at the end of the 2019 Mine Plan.

Table 5 below describes the various sources that are included in the 2019 Mine Plan.

Table 5: Source of 2019 Mine Plan Tonnes

	Reserves, Resource or Exploration Target		Sources of toni the Mir		
	Million		Million		
	Tonnes	Grade %K2O	Tonnes	Grade %K2O	
From Muga Proved and Probable Ore					
Reserves	109	10.2	109	10.2	
From Muga Inferred Mineral	32 12.9				
Resources ²			22	10.3	
Exploration Target ³	127 to 255	12-16	49	12.8	

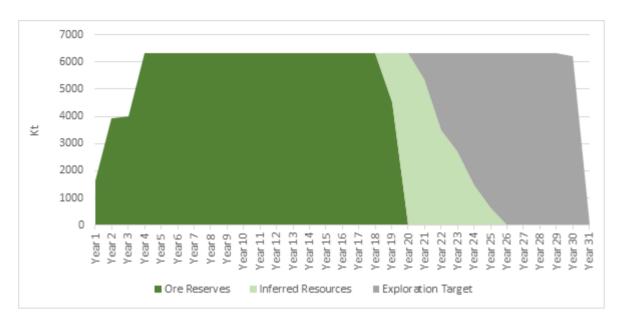
The 2019 Mine Plan yields an estimated mine life of 30 years comprising approximately 19 years of mine life from Muga as developed from the Muga Ore Reserves and a further 11 years from Muga Inferred Mineral Resources and the Exploration Target from the Vipasca abutting tenement. As shown in the Graph 2 below:

² There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised..

³ The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised.



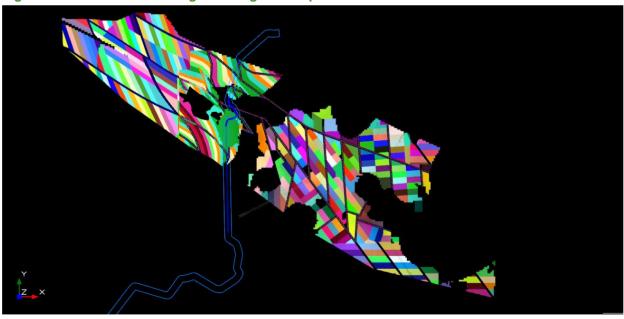
Graph 2: 2019 Mine Plan Sequencing ROM tonnes processed



Mine Planning and Process Design

A detailed 2019 Mine Plan was developed by the Company's mine planning team with support from mining consulting group, SRK. The 2019 Mine Plan targets a production rate to deliver approximately 1,000,000 tpa of MOP over a mine life of 30 years⁴ based on the current planned mining activities which includes Proved and Probable Ore Reserves and Inferred Mineral Resources from Muga and the Exploration Target from the abutting tenement of Vipasca, adjusted as set out above, see Figure 8 below.

Figure 8: 2019 Mine Plan design for Muga and Vipasca extension



⁴ This production target must be read in conjunction with the cautionary statement on page 1 that "there is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised" and that "the potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the target in the market announcement dated 19th June 2015 continue to apply and have not materially changed."



The 2019 Mine Plan also incorporates the anticipated requirements of the environmental permitting process, particularly related to subsidence controls and exclusion zones around towns, infrastructure and objects of significant cultural importance.

Underground access will be by twin parallel declines from surface, over a length of 2.6 km to a depth below surface of approximately 350 meters. The declines, approximately 25 metres apart along their length, are connected by three crosscuts and will be developed concurrently with bolter-miners using continuous haulage systems to transport mined material to surface. The same equipment will be used to develop underground infrastructure including workshops and service areas such as emergency evacuation chambers, pumping stations and electrical substations.

The primary production method will be room and pillar with an advancing chevron pattern approach. The pillar design has been assessed to provide an optimal extraction ratio while maintaining ground stability to ensure safe working and environmental conditions are achieved in the potash environment, see Figure 9 below.

1. Ving Room Full Length
2. Ving Room Short Length
3. Roadway Room
4. Corner Room Short Length
Barrier Pillar
1. Total Panel Area for Calculation

434 m

Figure 9: Chevron pattern mining in East and North section of the mine

The mining fleet includes bolter-miners for main access development, continuous miners for high volume thick seam extraction and road headers for selective mining of thinner and steeper dipping areas. See Figure 10 for examples of a typical bolter miner, continuous miner and road header.



Figure 10.1, 10.2 and 10.3: Bolter miner, Continuous Miner and Road Header





In-seam horizontal exploratory drilling will be undertaken once the declines are completed and will continue from strategic positions throughout the mine life.

Secondary extraction is achieved through floor-cuts and pillar cross-cuts on mining retreat. Mineral haulage will be with high capacity electric shuttle cars from the face to a crusher located in the seam and then conveyed to surface. Parallel conveyor systems will be used to convey ore from working areas and separately place waste material into underground workings. The shift system enables 21 hours per day cutting time per machine.

Process Design

Mined potash grade and process recoveries have been assessed based upon the resource geology assessment, mine planning, metallurgical test work, and technical process studies that have been completed to date. The production of MOP at the project's full capacity peaks at over 1.330 Mtpa with an average of 1.005 Mtpa. The 2019 Mine Plan yields an estimated mine life of 30 years comprising approximately 19 years of mine life from Muga as developed from the Muga Ore Reserves and a further 11 years from Muga Inferred Mineral Resources and the Exploration Target from the Vipasca abutting tenement. On a tonnage basis the 30 years of Muga mine life is estimated to be 109 million tonnes of Muga Proved and Probable Reserves, 22 million tonnes from Muga Inferred Mineral Resources and 49 million tonnes from the abutting Exploration Target⁵.

Subsequent to the receipt of the positive Declaración de Impacto Ambiental ("DIA"), the key environmental permit required to move the Muga Project forward, in June 2019 (refer ASX, 6 June 2019 "Muga Project Receives Positive Environmental Permit"), the Company has continued to undertake improvements to the mine and process plant designs. These improvements have been as a result of detailed test work and basic design undertaken by German engineering specialists GEA Messo GmbH and K-UTEC as described below. As well as delivering better technical and commercial outcomes as described below, the enhancements deliver a number of value adding and improved environmental results and achieve improved compliance with the DIA environmental permit issued by the Ministry for Ecological Transition (Ministerio para la Transición Ecológica, "MITECO").

The enhancements to the circuit have resulted in recovery improvements to approximately 94%, the production of commercial vacuum salt, removal of magnesium from the brine which may result in a potential further revenue stream at a later date, as well as earlier commencement of residue management by backfilling which significantly de-risks surface residue storage, and enhancing subsidence controls.

Barcelona-based Grupo IDP has already commenced detailed design engineering for the process plant and

⁵ This production target must be read in conjunction with the cautionary statements on page 1 that "there is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised "and that "the potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the target in the market announcement dated 19th June 2015 continue to apply and have not materially changed."



will work closely with engineering specialists, GEA Messo GmbH and K-UTEC, to similarly develop the engineering for a timely construction start.

Process enhancements have resulted in an updated process flow diagram (PFD). This has integrated the production of crystallised potassium chloride (KCl or Muriate of Potash (MOP)) and sodium chloride (NaCl or vacuum salt) by replacing the fine flotation, leaching and KCl crystallization described in the project update of October 2018 (refer ASX release 15 October 2018, "Muga Project Update") with a leaching and crystallisation plant that will treat the fines coming from the crushing stage plus the rejects, or tailings, from the coarse flotation. The simplification in the flotation circuit means that the rougher and cleaner stages of the coarse fraction continue to produce a relatively high-grade KCl concentrate, whilst the fine fraction is diverted to a conventional low temperature leaching process, where the KCl coming with the fines from the crushing stage plus the tailings from the coarse flotation are leached at 25-35°C to be selectively crystallised producing vacuum salt and potash concentrate products.

The performance of the crystalliser and associated equipment, and in particular the leaching tanks, has been confirmed by a test work programme carried out by GEA Messo GmbH, a European specialist manufacturer of crystallisers, at their Testing Laboratoy in Duisberg Germany, during August and September 2019. The analytical results from the simulation tests, both with and without flotation agents, were investigated and the quality was calculated by using the formula $P = 100 - CCa - CMg - CSO_4 - C_{insolubles} - CNa$ [% m/m], see Table 6 below for an explanation of this formula.

The obtained KCl purity was 99.6 % with a washing of the cake after separation as can be seen in the table below.

Table 6: Analysis of Crystal Samples

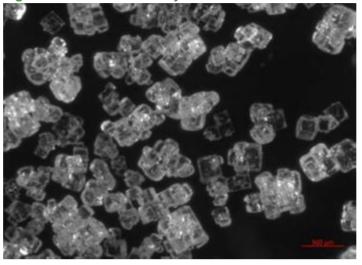
Analysis of crystal samples - dried at 105 °C of report M 1221

		salt 2161/6	Tale Na	salt ICI	Tale Na	salt CI	KO	Cl cryst	allizatio	on
	sample	orig. sample	Cryst.	unw.	Cryst	unw.	Cryst.	wash.	Cryst.	wash.
parameter		crushed, dried		NaCl- ation	V 4 N centrift		Test V	2 KCI	V 3	KCI
Flocculent	[mg/kg]		0,035		0,039		0,040		0,049	
Additivs	[mg/kg]		0,000		0,000		344		0,000	
DS at 105°C	[wt%]	1,66								
water insolubles	[wt%]	2,88	n. d.		n. d.		n. d.		n. d.	
			[wt%]	[mol/ 100g]	[wt%]	[mol/ 100g]	[wt%]	[mol/ 100g]	[wt%]	[mol/ 100g]
Sodium	Na*		34,36	1,4946	36,67	1,5952	0,34	0,0148	0,34	0,0148
Potasium	K ⁺		3,93	0.1005	1.84	0.0471	52,16	1,3341	52.21	1,3354
Calcium	0,5 Ca ²⁺		0,972	0,0485	0,760	0,0379	0,005	0,0002	0,005	0,0002
Magnesium	0.5 Mg ²⁺		0,176	0.0145	0.063	0.0052	0.014	0.0012	0.015	0.0012
Sum cations			39.44	1,6580	39.34	1,6854		1,3503		1.3516
Chloride	CI ⁻		57,75	1,6289	58,19	1,6412	47.78	1,3478	47,91	1,3514
Sulphate	SO ₄ 2-		2,30	0.0478			0,0057	0,0001	0,0075	0,0002
Sum anions				1,6767		1.6412		1.3479		1,3516
Sum ingredients			99,5	•	97,5	,	100,3	,	100,5	,
Difference Ionic balar	nce			-0,0187		0,0442		0,0024		0,0000
Error in Ionic balance	[rel%]			-1,12		2,69		0,18		0,00
Calculations										
KCI via K			7,5	0,1005	3,5	0,0471	99,5	1,3341	99,6	1,3354
NaCl via Na			87,3	1,4946	93,2	1,5952	0,87	0,0148	0,87	0,0148
CaSO4 via Ca			3,30	0,048	2,58	0,038	0,017	0,000	0,02	
MgCl2 via Mg			0,69	0,0145		0,0052		0,0012		0,0012
Σ			98,8		99,6		100,4		100,5	
Further calculations										
Purity = 100- K or Na Mg - Insolut	- Ca - \$04 -		92,6		95,5		99,6		99,6	



The test report notes that "higher quality could be produced by other washing procedures for example, counter-current washing or re-slurrying – which was not part of the test work plan." (Note that the desired purity is >98%). The image below shows the clean potash crystals obtained through crystallisation, with flotation additives having been added to the feed brine.

Figure 11: Clean Potash Crystals



The potash concentrate from the crystalliser will be blended with the floated KCI before conventional drying, compacting and glazing. The good recovery presented by the crystallizer enhances the high grade concentrate from the flotation circuit and leads to a significant improvement in overall recovery and an improvement in particle size distribution which aids compaction. The new particle size distribution (PSD) is described in the graph below. V2 is "discontinuous surface cooling crystallization of KCI at 80°C to 35°C test with flocculent" and V3 is "Discontinuous surface cooling crystallization of KCI at 80°C to 35°C test with flocculent and additives" and the graph shows that there is no significant impact on PSD with the use of additives.



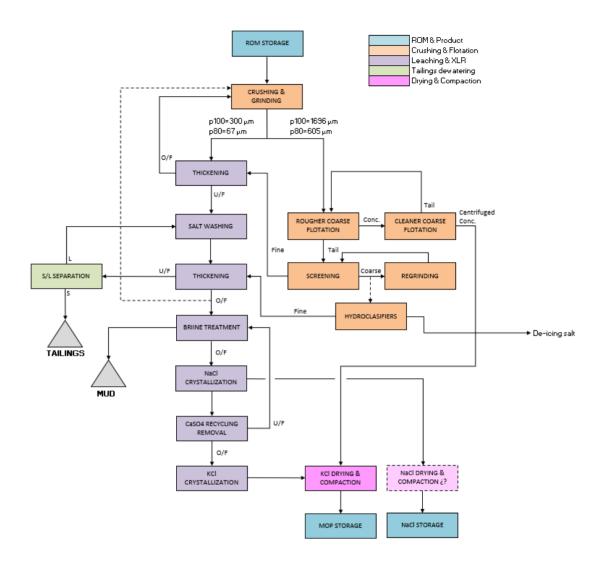
Graph 3: Test work results

Erstellungsdaturer	V2.PPP	V3.PPP 29.05.2019 13:13:59				
Erstellungsdatum:	29.05.2019 13:01:51	29.05.2019 13:13:59				
Firma:	GEA	GEA				
Bearbeiter:	Kloster	Kloster				
Probe:	V2	V3				
Probennummer:	KCI	KCI				
Siebsatz:						
Dichte (kg/m²):	1000	1000				
Formfaktor:	1	1				
	-	-				
dmin=	94,5 µm	110,1 µm				
d50=	405,6 µm	425,2 µm				
dmax=	958,0 µm	922,3 µm				
Ospz.=	16,1 gm/kg	15,2 gm/kg				
d Sauter=	372,0 µm	393,7 µm				
	n=4,5 / 1,0	n=4,8 / 1,2				
		d'=458,6 µm / 188,6 µm				
	BM=99,9 %	BM=99,9 %				
	Knick=615,2 µm	Knick=618,1 µm				
Q/1-Q [%]						
200,0 μm	2,7 / 97,3	1,7 / 98,3				
315,0 µm	20,4 / 79,6	15,1 / 84,9				
400,0 µm	51,0 / 49,0	43,6 / 56,4				
500,0 µm	83,7 / 16,3	78,2 / 21,8				
630,0 µm	99,0 / 1,0	98,7 / 1,3				
030,0 µm	33.0 / 1.0	36.//1.3				
800,0 µm	99,7 / 0,3	99,7 / 0,3				
					1,0	© V21
800,0 µm			Î	ı		
800,0 µm			Î		10,0	
9,0 Titel			Ì		10,0	
800,0 µm Titel 9,0 0,0 0,0 0,0					10,0 20,0 30,0	
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0					10,0 20,0 30,0 40,0	
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0					10,0 20,0 30,0 40,0 50,0	
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0					10,0 20,0 30,0 40,0	
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0	
Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0					10,0 20,0 30,0 40,0 50,0 60,0 70,0	
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,			Â		10,0 20,0 30,0 40,0 50,0 60,0	
Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0					10,0 20,0 30,0 40,0 50,0 60,0 70,0	◎ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	◎ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0	◎ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	◎ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	◎ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	◎ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31
800,0 μm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31
800,0 µm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31
800,0 µm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31
800,0 µm Titel 9,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,					10,0 20,0 30,0 40,0 50,0 60,0 70,0 80,0 1-Q [%]	○ V31

The blended and final product will be a Muriate of Potash (MOP) containing a minimum of $60\% K_2O$, which is the standard for commercial MOP. The block diagram of the process is shown Figure 12 below:



Figure 12: Block diagram of process



Between the leaching and crystallisation stages, a solid-liquid separation process and a brine treatment process have been included. The solid-liquid process separates the solid phase (mainly composed of salt (NaCl) and insoluble particles which make up the final tailings) and the brine (containing all the leached potassium chloride (KCl)). The brine is then treated before crystallisation to remove magnesium and calcium sulphate to prevent fouling within the crystalliser.

The integrated production of potassium chloride and sodium chloride takes advantage of the temperatures required to crystallise both products and avoids unnecessarily re-heating the brine for each product. This results in improved energy usage, and improved mineral recovery (around 15% higher).

The improved recovery of 94% achieved as a result of the testwork described above is one of the key factors in the improved financial outcomes for the project, see Table 7 below. The NPV and IRR impact of the improved recovery as compared to the October 2018 release is shown below in Table 11.

The crystalliser plant is integrated into the site layout as show in figure 13 below:



Hangar de Sal Vacuum

| Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Sal Vacuum | Hangar de Constitución, de Constitu

Figure 13: Process plant site layout, Grinding, Flotation and Crystallisation Plant Island

Project Timetable

Geoalcali 🕖

The project schedule assumes that construction will commence in approximately the second half of 2020 to allow sufficient buffer to secure all the necessary construction permits. This is also the time required to manufacture, deliver and assemble the bolter miners. The twin declines are developed over the subsequent two years along with the mining infrastructure and process plant construction. Thus, the anticipated timeline to first potash production is approximately three years, and the Company will look to accelerate this where possible.

Muga Project and Vipasca Permit Technical and Financial Update

DEL PROYECTO; PROYECTO MÍNA MUGA (NAVARRA Y ARAGÓN)

The enhancements mentioned in this document have resulted in a modest increase in the estimated Muga CAPEX from €541 million as reported in October 2018 (refer ASX release 15 October 2018, "Muga Project Update") to €576 million, see Table 7 below for a breakdown of capital cost elements. One area of improvement has been the bringing forward of the backfilling infrastructure to enhance residue management which has resulted in moving the costs for implementing the backfilling equipment from sustaining capital to up-front capital. There has also been some minor cost increase in process plant equipment. Importantly, however, in addition to improved environmental outcomes, there have been significant improvements in recovery, production of commercial vacuum salt, as well as earlier commencement of residue management and treatment of by-products as described above. These multiple enhancements result in significantly improved Project economics as shown in Table 6 below.

The technical parameters underpinning the Exploration Target in the 19 June 2015 announcement continue to apply and have not materially changed. The geological information underpinning the Exploration Target described in the 19 June 2015 announcement is described in the "Exploration Target" section above. As described above, more recent drilling results within the Exploration Target have given the Company



additional confidence of continuity between the mineralization in the current Muga Reserves and the Exploration target in the abutting Vipasca tenement. The Company considers that it is reasonable to assume that the same mining assumptions used for determination of the current Ore Reserves will apply for the Exploration Target.

The parameters underpinning this update, including recoveries, salt by-product production, foreign exchange rates and potash prices, have been updated as set out below.

Table 7: Projected Financial Metrics for Muga Project (real terms unless stated otherwise)

	15 October 2018	14 October 2019
CAPEX phase 1 (500,000 tpa MOP)	€342 million	€368 million
CAPEX phase 2 (Additional 500,000 tpa MOP)	€199 million	€208 million
Total CAPEX	€541 million	€576 million
ROM tonnes	179.8 million tonnes	179.8 million tonnes
Average plant tonnage feed rate	500 tph	400 tph
K₂O grade	10.7%	10.7%
KCI recovery	76%	94%
LOM MOP production ⁶	24.1 million tonnes	30.1 million tonnes
LOM MOP potash prices ⁶		
Years 1-15 of MOP production	€358/t	€339/t
Years 16-30 of MOP production	€415/t	€508/t
Foreign exchange Euro:USD	1:1.15	1:1.09
De-icing salt production	10.2 Mt	11.4 Mt
Vacuum salt production	-	15.2 Mt
C1 cost (€/t) Mining Processing incl. waste and backfilling Environmental and G&A Sustaining capex Salt by-product credit Total (at mine gate)	38 57 11 10 <u>(12)</u> €104	34 60 10 8 <u>(30)</u> €82
Tax rate (Navarra)	28%	28%
Life of mine ⁶	27 years	30 years
NPV ₈	€1.16 billion	€1.97 billion
IRR	23%	25%

Given changes in the potash market and prices since October 2018, the potash prices used in the financial modelling have been updated and are now based on the recently released September 2019 forecasts from the independent research company CRU Group. Potash prices also include the effect of updating foreign

⁶ Cautionary Statement. The production targets set out in this update is derived from Muga Proved and Probable Ore Reserves and Inferred Mineral Resources from the Muga tenement as well as the Exploration Target at the Vipasca tenement. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The potential quantity and grade of an Exploration Target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised. The technical parameters underpinning the target in the market announcement dated 19th June 2015 continue to apply and have not materially changed.



exchange rates to reflect current levels, as potash price forecasts are expressed in US dollars. The separate NPV and IRR impacts of revised potash forecasts and current exchange rates as compared to the October 2018 release are shown below in Table 11.

The salt by-product credit is based on the Company's estimates of salt prices and now reflects commercial production of vacuum salt as well as de-icing salt. The Company has surveyed and sourced local and international salt prices for de-icing and vacuum salt and prices. However, the disclosure of these prices is considered to be commercially sensitive. The NPV and IRR impact of revised vacuum salt sales as compared to the October 2018 release is shown below in Table 11. There is no material change from the sale of de-icing salt.

The destination sales strategy used in the ASX release dated 15 October 2018, "Muga Project Update" is unchanged. This means that for the purposes of the current financial analysis, 100% of the first phase of production is assumed to be sold into local and regional markets and for the second phase a conservative approach has been adopted which considers 25% sold into northern European markets and 25% to export markets. NPV is calculated on nominal cash flows.

It should be noted that apart from the enhancements to the process design mentioned above, the overall assumptions underpinning the Project, including the mine plan, Reserves, Inferred Resources, the exploration target as well as the marketing and sales strategy, remain materially unchanged, as per the ASX release 15 October 2018, "Muga Project Update". The process plant configuration has been improved as a result of the test work and design by GEA Messo, as described above, such that whilst the process plant still comprises flotation and crystallization as described in ASX October 2018, the flotation circuit now is somewhat smaller whilst the crystalliser circuit now includes an integrated vacuum salt production facility and an impurity removal facility. Other improvements, including contract mining and an accelerated ramp up to production, as well as the impact the improved operating parameters may have on the Reserves, will be analysed in the coming months to assess whether they have the potential to further enhance the Project technical and/or financial outcomes.

The capital cost breakdown for Phase 1 production as compared to the 15 October 2018 ASX release is shown in Table 8 below.

Table 8: Capex breakdown for Phase 1 of the Muga Project.

CAPEX BREAKDOWN (Euros)	15 October 2018	14 October 2019
Preliminaries	9,611,934	3,425,411
Underground Capex incl. backfilling infrastructure	72,505,061	83,003,823
Above ground civil works	30,342,112	41,510,960
Facilities buildings	5,068,944	Included in civils capex
Process Plant Capex	136,416,038	151,580,543
Dewatering and backfilling plant	20,633,812	17,231,616
Utilities	11,898,444	13,393,327
Indirect Costs	43,242,393	42,632,774
Pre-production Costs	12,758,052	14,844,676
	342,476,790	367,623,130

It should be noted that backfilling conveyors were not included in the upfront capex in the ASX release of 15 October 2018, "Muga Project Update", as these were previously part of sustaining capex incurred subsequent to the start of production.



Financial Sensitivity Analysis

The Company has run sensitivity analysis on the key Project parameters which have the potential to have a significant impact on the projected returns. This analysis indicates the projected returns for the Project are most sensitive to changes in the received potash price. The financial results use an MOP price forecast based on CRU Group's Q3 2019 dataset. The sensitivity analysis indicates that even in the downside scenario of a fall of 20% in received potash prices the Project would still deliver a post-tax NPV₈ of €1.3 billion and an IRR of 20%.

The Company has run a financial analysis considering if the Exploration Target and the Muga Inferred tonnes were deleted from the projected forecasts. The implications for the forecast financial information of not including the Exploration Target and the Muga Inferred tonnes in the production target, yields an NPV₈ of €1,130 million, although the Company considers that a better reflection of the impact is a range of €1,000 million to €1,300 million and an IRR 24%.

The Company has run financial sensitivity analysis to determine the impact of changes to the NPV₈ and IRR of the project due to fluctuations of the operating cost, project CAPEX and the potash price forecast. These can be seen in tables 9 and 10 below.

Table 9: Sensitivity analysis impact on NPV

			NPV € Eu	ro billions οι	ıtput	
		-20%	-10%	Base	10%	20%
Sensitivity	Operating Cost	2.16	2.06	1.97	1.87	1.78
analysis	Project CAPEX	2.04	2.00	1.97	1.93	1.89
allalysis	Potash price forecast	1.30	1.63	1.97	2.30	2.63

Graph 4: Sensitivity analysis impact on NPV

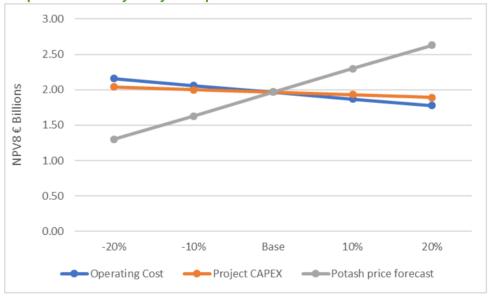


Table 10: Sensitivity analysis impact on IRR

				IRR %		
		-20%	-10%	Base	10%	20%
Consitivity	Operating Cost	27%	26%	25%	24%	23%
Sensitivity analysis	Project CAPEX	28%	26%	25%	24%	22%
analysis	Potash price forecast	20%	23%	25%	27%	29%



Key Risks

Key risks identified in this document included:

- Adverse movement in the potash price;
- · Adverse movement in key operating costs;
- Timely project approvals by authorities;
- Results of future detailed engineering can be uncertain; and
- Project funding.

Influence on Project Financial Outcome

The various improvements and updates described above have had different impacts to the Project financial analysis as can be seen in table 11 below.

Table 11: Influence on Project Financials of the Various Updates

Improvements	NPV8 after the change	NPV8 impact	IRR after
	(€ billions)	(€ millions)	
NPV Oct 2018	1.16		22.60%
Updated foreign exchange rate	1.29	132	24.00%
Updated potash price forecast	1.5	205	22.80%
Vacuum salt	1.66	164	24.30%
Process improvements	1.97	308	24.90%
NPV Oct 2019	1.97		24.90%

Forward Looking statements

This announcement includes certain 'forward looking statements'. All statements, other than statements of historical fact, are forward looking statements that involve various risks and uncertainties. There can be no assurances that such statements will prove accurate, and actual results and future events could differ materially from those anticipated in such statements.

Such information contained herein represents management's best judgment as of the date hereof based on information currently available. The company does not assume any obligation to update any forward looking statements.

For more information:

Highfield Resources Limited

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About Highfield Resources

Highfield Resources is an ASX listed potash company with four 100% owned tenement areas located in Spain.

Highfield's Muga-Vipasca, Pintanos, Izaga and Sierra del Perdón potash tenement areas are located in the Ebro potash producing basin in Northern Spain, covering an area of around 335km².

Following the granting of a positive environmental permit Highfield is now focusing on securing the Mining Concession and the construction permits necessary to take the Project into the construction phase

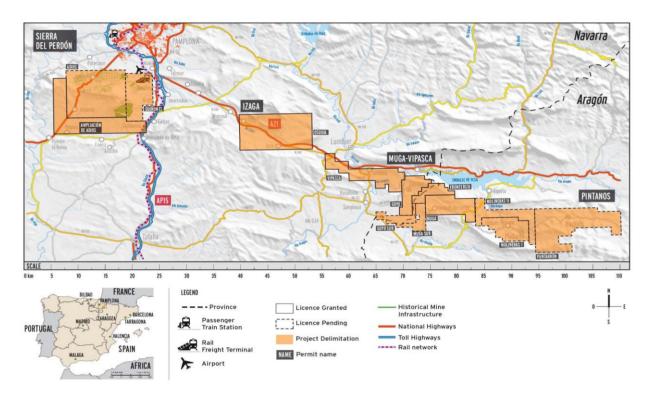


Figure 14: Location of Highfield's Muga-Vipasca, Pintanos, Izaga and Sierra del Perdón Tenement Areas in Northern Spain



COMPETENT PERSONS STATEMENT FOR MUGA POTASH PROJECT

This report was prepared by Mr Peter Albert, Managing Director of Highfield Resources. The information in this report that relates to Ore Reserves is based on information prepared by Dr Mike Armitage, the Chairman of SRK Consulting (UK) Limited. Dr Mike Armitage is the Competent Person who assumes overall professional responsibility for the Compliance Opinion. The information in this report that relates to Mineral Resources, Exploration Results and Exploration Targets is based on information prepared by Ms Anna Fardell. Senior Consultant at SRK Consulting (UK) Limited, and Mr Tim Lucks Principal Consultant at SRK Consulting (UK) Limited.

Dr. Mike Armitage is employed by SRK Consulting (UK) Limited. The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled under the direction of Dr. Mike Armitage, who is a Member the Institute of Materials, Metals and Mining ("IMMM") which is a "Recognised Overseas Professional Organisation" ("ROPO") included in a list promulgated by the Australian Securities Exchange ("ASX") from time to time.

Dr. Mike Armitage has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

Dr. Mike Armitage consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.

Ms. Anna Fardell is a Resource Geologist employed by SRK Consulting (UK) Limited, and has at least five years' experience in estimating and reporting Mineral Resources relevant to the style of mineralisation and type of deposit described herein. Ms. Fardell is a registered member of the Australian Institute of Geoscientists (6555) and is considered a Competent Person (CP) under the definitions and standards described in the JORC Code 2012.

Ms. Anna Fardell consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.

COMPETENT PERSONS STATEMENT FOR MINERAL RESOURCES AND EXPLORATION TARGETS OTHER THAN MUGA MINERAL RESOURCES.

This report was prepared by Mr Peter Albert, Managing Director of Highfield Resources. The information in this report that relates to Ore Reserves, Mineral Resources, Exploration Results and Exploration Targets is based on information prepared by Mr José Antonio Zuazo Osinaga, Technical Director of CRN, S.A. and Mr Manuel Jesús Gonzalez Roldan, Geologist of CRN, S.A.

Mr José Antonio Zuazo Osinaga is a licensed professional geologist in Spain, and is a registered member of the European Federation of Geologists, an accredited organisation to which Competent Persons (CP) under JORC 2012 Code Reporting Standards must belong in order to report Exploration Results, Mineral Resources, Ore Reserves or Exploration Targets through the ASX.

Mr José Antonio Zuazo Osinaga has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as CP as defined in the 2012 edition of the JORC Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves.

Mr José Antonio Zuazo Osinaga and Mr Manuel Jesús Gonzalez Roldan consent to the inclusion in this update of the matters based on their information in the form and context in which it appears.

APPENDIX A

TECHNICAL APPENDIX: JORC TABLE 1

Table A-1. JORC Checklist of Assessment and Reporting Criteria Section 1 Sampling Techniques and Data

Section 1 Sample	ing Techniques and Data	
Criteria	JORC Code explanation	Commentary
Sampling techniques	 Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information. 	 At Muga, 11 historic drillholes were drilled in the 1980s and in early 1991. Detailed lithology logs and analysis on core were completed.
		 29 new holes have been drilled and cored since 2013 by Geoalcali Sociedad Limitada (Geoalcali), for a total of 40 holes on the property.
		• The information on which HFR drilling campaigns was based was obtained from 13 drillholes and two wedged holes (from both Muga and Pintanos projects) drilled in 1990 and earlier. Historical exploration data collected by previous exploration efforts and acquired by the client, as well as publically available record sources, including technical reports and geological reports. The drilling programme complete in 1989-1990 was outlined in detail by E.N. Adaro. The historical programs, in general, were well-documented.
		• The new drillholes have been geologically logged, photographed, and analysed. 24 out of 29 of the holes were geophysically logged, 18 through the mineralised zone. Following logging and photographing, samples are marked in 0.3 m intervals and numbered for analysis. Core is sawed with hydraulic oil as the lubricating agent; half core is retained and shrink-wrapped, and samples to be analysed are bagged and secured with plastic ties and boxed for shipping to ALS Global (ALS) for crushing, grinding and splitting. Cored samples are analysed by inductively coupled plasma- optical emission spectrometry (ICP-OES) and X-ray fluorescence (XRF) by ALS. Sample preparation is in Seville, Spain and analysis work is completed in Loughrea, County Galway, Ireland. The ALS laboratories used are internationally accredited in the procedures and test work carried out.
		• The historical holes contributed to a Maiden Inferred Mineral Resource in November 2013 (Agapito Associates Inc.) and to several subsequent updates to the Mineral Resource estimates, including the one declared here. The historical drillholes containing potash mineralization were sampled using a 'grooving' technique. This was completed by sawing a shallow ditch or several cuts in the cores surface. The samples were then submitted for geochemical analyses. 570 geochemical results are available for the 1989-1990 drilling campaign. The results were obtained through the internal POSUSA laboratory and were analysed for KCl, MgCl ₂ , NaCl, insolubles, and clay. The intervals listed for these samples reflect the thickness of the sample as measured in the drill core; however, true thicknesses

for the sample intervals is outlined in the historical strip logs to account for structural dip of

Criteria	JORC Code explanation	Commentary
		the intervals. Samples were typically limited to 30 cm or less to maintain good sample resolution. No original analysis results are available for the unknown former drilling programme (prior to 1980s). Results for Javier-3, Vistana, and Nogueras are summarized in the E.N. Adaro report. These drillholes were only analyzed for KCl, and therefore lack results pertaining to MgCl ₂ (to determine carnallite content) or insolubles. It is unknown if the sample intervals account for true thicknesses based on structural dip or if they are simply reflective of the intervals as seen in drill core. No sample length restrictions are apparent as samples varied in thickness up to 1.74 m. The method of geochemical analyses is currently unknown for both the 1989-1990 drilling campaign and the other historical unknown drilling programme.
		 An attempt to re-survey historical collar locations was partially successful; however, in many cases the collars could not be located, and therefore were not accurately re-surveyed. Difficulties converting the historical survey results are still noted and some drillholes are plotted with limited confidence.
		 Geophysical wireline data and historical geological reports are of good quality and appeared to correlate reasonably well with historical assay results.

Criteria	JORC Code explanation	Commentary
Drilling techniques	Drill type (e.g., core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type, whether core is oriented and if so, by what method, etc.). The provided HTML reverse is a content of the provided HTML reverse in the provided HTML reverse is a content of the provided HTML reverse in the provided HTML reverse is a content of the provided HTML reverse in the provided HTML reverse is a content of the provided HTML reverse in the provided HTML re	 Drilling procedures are unknown from historical Javier holes drilled prior to 1987, including drillholes Javier-2, Javier-3, Vistana, Nogueras, Molinar, and Undués de Lerda. The drilling programme completed in 1989-1990 was outlined in detail by Empresa Nacional Adaro Investigaciones Mineras (E.N. Adaro 1989–1991). E.N. Adaro, stateowned group tasked with exploration and development of Spain's Mineral Resources, produced detailed reports and "reserve" studies of the Javier-Pintanos area. Historical drilling was completed with the Mayhew 1500 drill rig from June to August 1989. During this time, JP-1 through JP-4 were completed. Holes were drilled open hole to core point. The tricone bit used for open hole drilling was reduced through stages from 12 1/4-inch to 5 7/8-inch diameter. Upon completion, the hole was abandoned and cemented through the 8 1/2-inch diameter drillhole. Approximately 2,208 m were drilled in Muga, not accounting for some re-drilling in JP-3 and JP-4. For JP-3 and JP-4, the mineralised zone was drilled into and not cored for analysis. Both holes were re-drilled through the salt section to take the appropriate cores. No record of a re-drilled hole is available for JP-4; two sets of analyses were available for JP-3, listed as JP-3 and JP-3D. JP-3D was the re-drilled hole and was completely cored. Limited deviation data are available for JP-1, JP-2, JP-3, JP-3D, and JP-4 for the lower half/salt section and were used in the model. If no deviation surveys were found, then the holes were considered to be vertical. In 2013, a drilling programme was initiated at Muga. Holes were cored from surface. When the top of salt is reached, the mud is re-formulated to a super-saturated brine to eliminate or diminish dissolution of the highly soluble evaporite minerals. Drilling has been contracted to Geonor Servicios Técnicos S.L. of Galicia, Spain, using a Christensen CS3000; and Fordia Golden Bear and Sondeos y Perforaciones Industriales del Bierzo (SPI) SPIDrill 260. Dri

Criteria	JORC Code explanation	Commentary
Drill sample recovery	 Method of recording and assessing core and chip sample recoveries and results assessed. 	 Detailed information on core recovery for the historical programme is not available, but the analysis data are largely complete over the mineralised zones.
	 Measures taken to maximise sample recovery and ensure representative nature of the samples. 	 Core recovery on the 2013–2017 drilling campaign averaged greater than 95% in Muga in the mineralised zones, although some samples show dissolution due to
	 Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. 	undersaturated brine mud. Typically, these samples are thought to under-report the target potassium mineralogy because of the highly soluble nature of those minerals, but it is also possible that less desirable or deleterious mineralogy (i.e. MgO) may also under-report in this situation.
		 PQ core is the recommended diameter for core, but in some cases the hole is completed with HQ. Core sampling procedure is well-documented in the 2013–2017 drilling program. In total 12 drillholes (455.10 m) were drilled with PQ through the mineralised unit, another 12 drillholes (406.8 m) were completed with HQ diameter.
Logging	 Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. 	 Lithology logs were completed for the historical drilling programs. The 1989–1990 drilling programme included Muga and Los Pintanos holes: Javier-3, JP-1, JP-2, JP-3D, JP-4, PP-2/2B, and PP-3. The sample intervals were comparable to industry standards (generally <30 centimetres [cm]), but the methodology is unknown. Thirty
	 Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. 	centimetres is typically used for a maximum sample length for potash in order to assure samples are not diluted and confidence in mineralogy is maintained over the interval. Sample intervals for the unknown (pre-1987) drilling programme used a much larger sampling interval (up to 2.44 m) for Nogueras, Vistana, and Javier-3.
	 The total length and percentage of the relevant intersections logged. 	 In the modern program, cuttings were collected from the open holes and the core was logged, photographed, sampled, and analysed in approximately 0.3 m lengths.
		 In both drilling campaigns 100% of the relevant intersections were lithologically logged.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	 If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all subsampling stages to maximise representivity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. 	
	 Whether sample sizes are appropriate to the grain size of the material being sampled. 	conditions (lost circulation) and is not part of normal procedure.
Quality of assay data and laboratory tests	 The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established. 	 Geochemical results are available for the 1989–1990 drilling campaign, complete with 360 samples in Muga. The results were obtained through the internal Potasas de Subiza S.A. (POSUSA) laboratory and were analysed for KCl, MgCl₂, NaCl, insolubles, and clay. The intervals listed for these samples reflect the thickness of the sample as measured in the drill core; however, true thicknesses for the sample intervals is outlined in the historical strip logs to account for structural dip of the intervals. Samples were typically limited to 30 cm or less to maintain good sample resolution. No original sample analyses are available for the pre-1987 drilling program. Results for Javier-3, Vistana and Nogueras are summarised from the E.N. Adaro comprehensive reports (E.N. Adaro 1989–1991). These drillholes were only analysed for KCl, and therefore lack results pertaining to MgCl₂ (to determine carnallite content) or insolubles. The "grooving" technique on the historical sampling was used to minimise destruction of core and may not be representative. The method of geochemical analyses used for both the 1989–1990 drilling campaign and the pre-1987 drilling programme is unknown as is the identity of the laboratory that conducted the geochemical analyses.

Criteria	JORC Code explanation	Commentary
		 A resampling programme for Javier-Pintanos was carried out by North Rim (Stirrett and Mayes, 2013). Re-sampling on Vistana, Nogueras, and Javier-3 was carried out at the Litoteca de Sondeos in Spain, the state-run core laboratory. North Rim attempted to duplicate the historical sample intervals; their methodology is described below.
		· ·
		 In the 2013–2017 sampling program, chemical analysis was by ICP-OES and XRF. Highfield and ALS, the primary contract laboratory, maintained quality control procedures
		of standards, duplicates and blanks. Internal SRM, blanks and duplicates were inserted by Highfield personnel during sample preparation.
		 ALS inserted commercial standards BCR-113 and BCR-114 both potash fertilizer materials, a muriate of potash (MOP) and sulfate of potash (SOP), respectively, as well

Criteria	JORC Code explanation	Commentary
		 as their own internal standard as a blank material SY-4, a diorite gneiss. Duplicates were submitted to ALS and show good internal agreement. Highfield made multiple Standard Reference Material-type (SRM) samples representing low-, medium-, and high-grade (LG, MG, HG) potash material, and they show good accuracy and precision within a +2 standard deviation envelope based on 30, 31 and 27 for HG, LG and MG, respectively. The insertion rate is one blank per 50 samples or batch; one SRM and one lab duplicate per 20 samples or batch. Check samples were tested at SRC and show good agreement for K₂O values.
Verification sampling assaying	 of The verification of signification and either independent or personnel. The use of twinned holes. Documentation of primary procedures, data verificate (physical and electronic) procedures. 	North Rim and documented in a report to Highfield. The aim of the geochemical resampling programme was to acquire sufficient confidence in the historical chemical analyses data to develop a Mineral Resource estimate, to be reported in accordance with the JORC Code. Only three drillholes with cored intervals containing potash mineralisation were available for re-sampling within the project area: Vistana, Nogueras,
	Discuss any adjustment to a	
		 Highfield receives all chemical analyses in .XLS or .CSV format from the laboratories and one person is responsible for transferring those data into a master database and maintaining the QA/QC monitoring. The results of the QAQC samples are reviewed by Geoalcali and outliers are identified and sent for reanalysis.
		 A database was built from the historical drillhole information by Highfield and checked against the historical reporting of chemical analyses and intervals listed on the lithologic logs.
		 The master database was checked against the ALS-issued Certificates of Analysis.

Criteria	JORC Code explanation	Commentary
Location of data points	 Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control. 	 Historical collar locations were re-located in most cases and re-surveyed. Some historical collars could not be located as many were drilled on agricultural land. Historical drill hole location maps consistently show locations and so suggest confidence in the hole coordinates. Historical data and maps are referenced to the European Datum 50 (ED50) and have been updated to the European Terrestrial Reference System 1989 (ETRS89) datum for compatibility with modern survey information. All new locations from the 2013–2017 drilling programme are surveyed before and after drilling by a licensed surveyor.
Data spacing and distribution	 Data spacing for reporting of Exploration Results. Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied. 	 Exploration drillhole spacing varies between 300-1000 m. 2013-2014 drilling campaigns were designed to fall on the historical seismic line traces. This was followed by infill drilling to refine the interpretation from previous campaigns. Then current drilling density is 1.66 DDH/km² Samples have been composited over the thickness of identified potash beds for the reporting of exploration results. The drillhole spacing and distribution are deemed adequate to establish geologic and grade continuity commensurate with the Mineral Resource classification applied, as discussed under "Section – Mineral Resources" in this table. Geologic restrictions, allowances for unknown geologic anomalies, and downgrades of classification were applied to reasonably characterize geologic confidence.
Orientation of data in relation to geological structure	 Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported ifmaterial. 	 Historical holes were assumed to be vertical in the absence of deviation surveys. Deviation data show relatively vertical trajectories in surveyed holes. Data on bed orientation were incorporated into the database to calculate apparent true thickness. The regional structure is discussed in more detail in "Geology" and in "Property Structure." The deposit is bedded, and historical seismic maps showed evaporite unit propagating to the west at increasing depths.

Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	 In the 2013–2017 drilling program, Highfield personnel maintained effective chain of custody procedures for the samples. Core was picked up at the drill site and brought to the secured warehouse for detailed logging and sampling. Following sampling (see sections on sampling herein), sample bags and boxes were secured with zip ties for shipping to the laboratory. There is no detail available on the procedures used to ensure sample security for the historical samples.
Audits or reviews	 The results of any audits or reviews of sampling techniques and data. 	 Besides the re-sampling programme carried out by North Rim, CPs compared historical chemical analyses data to estimate K₂O from geophysical records. In addition, ALS assayed samples both by ICP and XRF and these values were compared as discussed in "Verification of sampling and assaying data."

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria **JORC Code explanation** Commentary Mineral Muga property comprises six permits: Goyo (ref. 25780) and Muga (ref. 3500) are granted • Type, reference name/number, location and Investigation Permits (PI) in Navarra. Fronterizo (ref. Z-3502/N-2585) straddles the tenement and ownership including agreements or material issues land tenure with third parties such as joint ventures, Navarra and Aragón border and its PI was granted 05 February 2014. Vipasca (ref. 35900) was applied for at the end of 2013 and granted on 11 December 2014. Goyo Sur (ref. status partnerships, overriding royalties, native title 35920) and Muga Sur (ref. 3524) are still pending being granted. All permits are held 100% interests, historical sites, wilderness or national park by Geoalcali S.L, a wholly owned Spanish subsidiary of Highfield Resources. and environmental settings. Property descriptions and land status were obtained from the list of lands as set forth in The security of the tenure held at the time of the documents provided by Highfield. reporting along with any known impediments to obtaining a license to operate in the area. The CPs have reviewed the mineral tenure from documents provided by Highfield including permitting requirements, but have not independently verified the permitting status, legal status, ownership of the project area, underlying property agreements or permits. Exploration and exploitation of mineral deposits and other geological entities in Spain are governed by the Mining Law 22/1973, which is further governed by the Royal Decree 2857/1978. All sub-surface geological structures, rocks, and minerals are considered the property of the public domain and are categorised into four sections under the Spanish law (A, B, C, and D), and must have mining authority authorisation and supervision for commercial exploitation. Section C covers the minerals of interest for Highfield, and a mining concession would need to be awarded prior to exploitation which requires the accompaniment of environmental permits and municipal licenses (electrical, water etc). Generally, exploration and investigation permits are applied for prior to applying for a mining concession (not legal obligation) and are aimed at determining the potential of the area through exploration practices (drilling, seismic, sampling etc.). These are granted through the region's government/mining authority where the exploration or investigative work will take place. Exploration permits (PE) are valid for one year and can be renewed for one additional year. A PE allows only non-intrusive investigation, which is defined by the various Spanish regions and can vary. A PI is good for up to three years and renewable in three-year terms or longer depending on the scope of the intended work. Investigation permits carry with them municipal approval as they are publicly released for community discussion. To carry out work under the

investigation permit, the permittee must contract with the individual the landowners to allow

Criteria	JORC Code explanation	Commentary
		 In order for both types of permits to remain valid, the applicable taxes must be paid and the permittee must comply with the applicable regulations and exploration plan approved by the mining authority. Investigation permits require assessment reporting which requires the permittee to submit working plans, budgets, and initiate work within certain time allotments. Exploration and investigation permits can be transferred in whole or in part to other third parties with enough technical and financial backing but must be authorised by the proper mining authorities in Spain.
Exploration done by other parties	 Acknowledgment and appraisal of exploration by other parties. 	 The historical drilling programme completed in 1989–1990 was outlined in detail by E.N. Adaro (1989–1991). E.N. Adaro, the state-owned group tasked with exploration and development of Spain's Mineral Resources, produced detailed reports and "reserve" studies of the Javier-Pintanos area.
		• Potash was first discovered in the Ebro Basin in the Catalonia area in 1912 at Suria after the potash discoveries in Germany (Moore 2012). Salt was first discovered through drilling, later followed by four economic potash mining zones with a combined total thickness of 2.0 to 8.0 m (Stirrett and Mayes 2013). The potash horizons in the area were identified to cover approximately 160 km² at depths of approximately 500 m sub-surface, unless they were brought closer to surface by anticlinal or tectonic structures (Stirrett and Mayes 2013). Several deposits were located in the Catalonia area, including, Cardona, Suria, Fodina, Balsareny, Sallent, and Manresa. Several of these areas were developed into mines and are all flanked by anticlinal structures. The potash deposits in the Navarra region were not located until later, in 1927, through comparative studies to the deposits found at Catalonia (Stirrett and Mayes 2013).
		 Production at Pamplona began in 1963 with a capacity of 250,000 tonnes per annum (tpa) of K₂O. A thick carnallite member overlies the sylvinite, so in 1970 a refinery with the capacity for 300,000 tpa was built to accommodate for carnallite from the Esparza (Stirrett and Mayes 2013). Carnallite mining was ceased in 1977. Inclined ramps for the mine were located near Esparza, reaching the centre of the mine, with further shafts located at Beriain, Guendulain and Undiano. In 1982, 2.2 million tonnes of sylvinite were extracted with an average K₂O grade of 11.7% (Stirrett and Mayes 2013). The operations in Navarra were closed in the late 1990s.

Criteria	JORC Code explanation	Commentary
Geology	Deposit type, geological setting and style of mineralisation.	 The Upper Eocene potash deposits occur in the sub-basins of Navarra and Aragón provinces within the larger Ebro Basin. The Navarrese sub- basin includes the Muga-Vipasca (Javier) and adjoining Los Pintanos deposits. The first deposits in the region, occurring at the end of the Cretaceous period, were characterised by a regressive period with reddish continental deposits. The Eocene is marked by the beginning of tectonic compression, causing formation of subsiding basins parallel to the Pyrenees Mountains with emersion and erosion in some parts. The different basins are separated by orogenic events developing in the north and south as turbidite basin carbonate platforms. Towards the end of the Eocene epoch, the sedimentation axis migrated south to the Jaca-Pamplona Basin, on which the Oligocene materials were deposited. The pre-evaporitic basin sedimentation occurs in a context of continuous tectonic compression during the Eocene and Oligocene epochs, as synsedimentary tectonics of the end of the Orogeny, with pronounced sediment influx. The influence of the turbidites towards the end of the Eocene epoch in the Bartoniense series, are sourced from the east initially into the Pintano Basin and contained by the Flexura de Ruesta and then from the northwest into the Basin as the Belsue Formation. This potash deposit contains a 100 m-thick Upper Eocene succession of alternating claystone and evaporites (anhydrite, halite, sylvite and carnallite). The evaporites accumulated in the elongated basin at the southern foreland of the Pyrenean range (Busson and Schreiber 1997). The evaporites overlie marine deposits and conclude in a transitional marine to non-marine environment with terrigenous influence. Open marine conditions existed in the Eocene-Oligocene epochs, progressing to a more restricted environment dominated by evaporation and the deposition of marl, gypsum, halite, and potassium minerals. Later, tectonism and resulting salt deformations formed broad anticlines, synclines

Criteria	JORC Code explanation	Commentary
		• Two fault systems dominate and bound the Muga sub-basin, to the north by the extension of the thrusting Loiti Fault and to the south by the Magdalena Fault. The Basin axis is defined by the Javier-Undues Syncline. To the east, the Basin climbs to the Flexura de Ruesta, a northwest-southeast offset block contemporaneous with evaporite deformation that resulted in a higher saddle area between the Muga and Pintano sub-basins. Approximately vertical faults parallel to the west of the Flexura de Ruesta have been defined by two-dimensional (2D) seismic surveys (Empresa Nacional Adaro Investigaciones Mineras [E.N. Adaro] 1988–1991). Basin continuity to the west-northwest has not been roughly defined by seismic surveys. A 2D high-resolution seismic survey was run for POSUSA in August–October 1988, by CGG over most of what is now the project area. This consisted of 9 lines totalling 55 km (Geoalcali 2012). The resulting structure maps for both the top (techo) and bottom (muro) of salt were developed by CGG in combination with the regional seismic, field map, satellite imagery, and drill hole data; however, this information seemed to be unreliable while progressing in drilling campaigns as the density markers were not confirmed by the lithologies in the drillholes. The potash-bearing zones lack any velocity/density contrasts within the salt; it is not possible to detect potash or map the structure of the zone directly. Coverage of the seismic interpretation does not extend to the northwest part of the basin.
		• Potash is used to describe any number of potassium salts. By and large, the predominant economic potash is sylvite: a KCl usually found mixed with salt to form the rock sylvinite which may have a K ₂ O content of up to 63% in its purest form. Carnallite, a potassium magnesium chloride (KCl•MgCl ₂ •6H ₂ O), is also abundant, but has K ₂ O content only as high as 17%. "Carnallite" is used to refer to the mineral and the rock interchangeably, although "carnallitite" is the more correct terminology for the carnallite and halite mixture. Besides being a source of lower grade potassium, carnallite involves a more complex production path, so it is less economically attractive. The depositional environment is that of a restricted marine basin, influenced by eustasy, sea floor subsidence, and/or uplift and sediment input. It is suggested that the basin is a combination of reflux and drawdown. Reflux represents a basin isolated from open marine conditions thereby restricting inflow, increasing density, and increasing salinity. Drawdown is simple evaporation in an isolated basin resulting in brine concentration and precipitation. This is the classic "bulls- eye" model (Garrett 1996). In this case, the basin is further influenced by erosion at the basin edges due to contemporaneous and post-depositional uplift, resulting in localised shallowing and

Criteria	JORC Code explanation	Commentary
		sediment influx (Ortiz and Cabo, 1981). In that classic model, a basin that is cut off from open marine conditions will experience drawdown by evaporation in an arid to semi-arid environment. In the absence of sediment influx, precipitation will proceed from limestone to dolomite to gypsum and anhydrite to halite. Depending on the composition and influences of the brine at that time, the remaining potassium, magnesium, sulfates, and chlorides will progress from potassium and magnesium sulfates to sylvite and then carnallite. The formation of sylvite and carnallite are proposed herein as secondary and primary, respectively. • In the Muga Project area, the mineralogy is dominated by sylvinite and some carnallite appearing as medium red-orange and white, largely coarse crystals in bands and in heavily brecciated beds with high insoluble material, largely fine-grained clays, anhydrite and marl. The upper potash beds transition to finely banded light brown marls and clays. The salts just below the upper potash tend to be dark grey to black. In some lower beds, halite becomes brownish, sandy to coarsely granular sand and sandstone as sediment influx from the basin edges. In portions of the halite beds, sediment influx from the basin edges. In portions of the halite beds, sediment influx from the basin edges is seen as sandy to coarsely granular sands and sandstones. The lower salt is banded, exhibits very large cubic crystals and, in some cases, high angles and folding indicative of recrystallisation and structural deformation. The literature denotes this salt as the "sal vieja" or "old salt" (Ortiz and Cabo 1981). The evaporite beds and bands, in general, are separated by fine to very coarse crystallised and recrystallised salts, generally grey, sometimes light to medium honey brown or white, with anhydrite blebs, nodules and clasts.

A commany of an information material to the	Criteria	JORC Code explanation	Commentary
	Drill hole information	 A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level— elevation above sea level in metres) of the drill hole colla dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain 	Not applicable. Not applicable.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	 In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cutoff grades are usually Material and should be stated. 	Not applicable.
	 Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. 	
	 The assumptions used for any reporting of metal equivalent values should be clearly stated. 	
Relationship between	These relationships are particularly important in the reporting of Exploration Results.	Not applicable.
mineralisation widths and intercept	 If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. 	
lengths	 If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known'). 	
Diagrams	 Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. 	 Figures illustrating the Geology, Drilling and relevant mineralisation relating to the Muga- Vipasca and Pintano properties and the current footprint of the declared Mineral Resources are contained within the 2018 Technical Report.

Criteria	JORC Code explanation	Commentary
Balanced reporting	 Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to vavoid misleading reporting of Exploration Results. 	Updated analysis results are presented in previous Highfield ASX releases.
Other substantive exploration data	 Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples—size and 	 A 2D high-resolution seismic survey was run for POSUSA in August–October 1988, by CGG over most of what is now the project area. This consisted of 9 lines totalling 55 km (Geoalcali, 2012). An additional 2D seismic was run at a later date (unknown) increasing the total available seismic to 16 lines, totalling 87.3 km (RPS 2013).
	method of treatment; metallurgical test results; bu density, groundwater, geotechnical and roc characteristics; potential deleterious or contaminatin substances.	• RPS of Calgary, Alberta, Canada, completed a re-interpretation of the 2D historical seismic lines and profiles on behalf of Highfield. The re-interpretation programme was designed to review the overall accuracy of the historical data in terms of good correlation to drillhole data and geological intersections, as well as identify any sub-surface structures that may adversely affect the salt-bearing strata within the project area. A total of 16 lines were reviewed and were tied to wells with historical wireline data from the 2D seismic RPS. The paper copies of the seismic were digitized as the original tapes were unavailable.
		 RPS interpreted that there is no indication of widespread salt removal due to faulting or dissolution. Deep structural features are noted across the project area, and only poor quality seismic data exist over these features. A large-scale structural high is present between Muga and Los Pintanos areas, separating them geologically.
		 The CPs initially used these structural data, but the historical map is modified and corrected to reflect updated drill hole information.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	The Muga geotechnical/hydrogeological drilling programme focused in the declines is still in progress; however, no further exploration drilling is expected in the area, until the underground development.
	 Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	 Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for 	Composite values and hole depths/coordinates in the Strat3D geologic block model were visually compared (on screen) with values in the database values for accuracy.
	Mineral Resource estimation purposes.	 Block model grade and thickness results were compared with the drill hole database to ensure a realistic representation of the composites in the vicinity of drill holes.
	Data validation procedures used.	• In modern holes, duplicate and check analysis samples were prepared for select intervals in each potash cycle. Duplicate cores were quartered and sent to ALS for analysis. ALS incorporated blank, repeat, and potash standard samples in the testing protocol. Check samples were sent to a second qualified laboratory (SRC, Canada) to verify results. ALS maintains its own internal procedure and chain of custody to high industry standards. There was good agreement in the duplicates.
		 Both ALS and SRC are laboratories of international repute for the analysis of potash. They maintain their own QC program. QC measures, and data verification procedures applied, include the preparation and analysis of standards, duplicates, and blanks.
		 Check samples were sent either to ALS and SRC and also showed good agreement.
Site visits	Comment on any site visits undertaken by the	The previous CPs from Agapito Associates visited the ALS Laboratory Group analysis
	Competent Person and the outcome of those visits.	sample preparation facility in Seville, Spain on 30 August 2013.
	If no site visits have been undertaken indicate why this is the case.	 The visits were conducted for the purposes of exploration planning, data collection, site observation, core inspection, drill rig inspection, chemical laboratory inspection, and QA/QC confirmation.
		 Ms Anna Fardell, a Member of the Australian Institute of Geoscientists (6555) and an employee of SRK Consulting (UK) Limited is the CP for the updated Mineral Resource Statement. Ms Fardell visited the Muga Project in July 2017 and visited a number of drillhole collars and observed the drilling procedures used at Vipasca P.I., and the core storage and sampling procedures in the core yard.
		 No changes were implemented after the July 2017 visit as all procedures were found to be followed diligently and to high industry standards.

Criteria	JORC Code explanation	Commentary
Geological interpretation	 Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. 	 To the southeast and east, the model is bound by a structural limit called Ruesta fault. To the south, the deposit is bound by the plunging La Magdalena anticline, which is delimited by a fault in its southern limb. The current Mineral Resource is limited by the northern limb of Magdalena anticline and does not extend towards this discontinuity, as no drilling has proved the extension.
	 The use of geology in guiding and controlling Mineral Resource estimation. 	 The estimated Mineral Resources remain open to the west into the Vipasca permit area at increasing depth.
	 The factors affecting continuity both of grade and geology. 	• Grade parameters were composited as length-weighted averages of the individual analyses over a continuous bed thickness. In most instances, top and bottom bed contacts are gradational, introducing some trade-off between grade and thickness. Contacts were selected to maximize thickness while maintaining a composite grade as close as possible to 12.0% K ₂ O with a true thickness equal to greater than 1.5 m. Depending upon the vertical grade distribution, bed thicknesses less than 1.5 m and composite grades less than 8.0% K ₂ O were required in some instances to create a robust geologic model.
		 Structural dips were calculated from the base-of-salt surface constructed from seismic, outcrop, and drill hole data. Dips in individual beds were adjusted locally by stacking the variable-thickness interburden and potash beds above the base- of-salt surface.
		 Drillhole and seismic indicate generally predictable bed continuity across the property, nonetheless variation in potash thickness, grade, and mineralogy between drill holes is present. Faults, folds, and other structural disturbances can limit mineralisation locally. Potash quality can be affected by varying depositional environments or structure, including depositional highs, syngenetic faulting, basement carbonate mounds, algal reefs, post- depositional gypsum dewatering, groundwater dissolution along fault conduits, and by other complex features.
		 At this stage of the exploration programme, Mineral Resources are classified as Measured, Indicated, and Inferred only.
Dimensions	 The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource. 	 The mineralisation occurs in potash beds P0, PA, PB, P1, P2, and P4 at least over an area spanning approximately 24 km². Potash bed P3 also appears in the basin, but it does not have economic interest. The mineralisation ranges in depth between 180 m and 1,400 m below surface. P0 ranges from 0.6 to 7.8 m in thickness, the grade varies between 0.7-16.1% K₂O; the MgO content

Criteria	JORC Code explanation	Commentary
		ranges between 0.09-19.8% and the insoluble content between 10.59-25.21%. PA ranges from 0.78 to 6.3 m in thickness, the grade varies between 0.84-18.27% K ₂ O; the MgO content ranges between 0.05-6.11% and the insoluble content between 7.12-28.91%. PB ranges from 0.77 to 12.9 m in thickness, the grade varies between 0.32-18.28% K ₂ O; the MgO content ranges between 0.08-2.34% and the clay content between 7.68-27.25%. P1 ranges from 0.83 to 10.5 m in thickness, the grade varies between 5.42-15.26% K ₂ O; the MgO content ranges between 0.07-0.21% and the insoluble content between 7.67-15.85%. P2 ranges from 1.8 to 6.9 m in thickness, the grade varies between 12.09-15.63% K ₂ O; the MgO content ranges between 0.19-0.21% and the insoluble content between 7.17-13.06%. P4 intersected in J13-09, has an average thickness of 3.3 m, an average grade of 13.71% K ₂ O, an average MgO content of 0.19 and insoluble content of 8.85%.
		 Secondary grade constituents (MgO, insoluble and halite) were modelled with the block model and show a degree of variability similar to K2Ograde.
modelling technique(s) applied and key assisted the techniques techniques treatment of extreme grade vointerpolation parameters and max extrapolation from data points. If a estimation method was chosen included.	technique(s) applied and key assumptions, including	gridded- seam geologic (block) model constructed with Strat3D v 2.2.82.0 software.
	treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	analyses, historic and modern interpretations of 2D seismic surveys, surface topography in the form of a digital elevation model (DEM), permit boundary lines and historic resource
		 Grade parameters used in the block model were composited as length-weighted averages of the individual analyses over a continuous bed thickness.
		 No drillholes or drillhole data were excluded from the model within the basin limiting structures. No sample or composite outliers were identified, and none were excluded, cut,
	 The assumptions made regarding recovery of by- products. 	 or capped in the model. Bed thicknesses were corrected to true thicknesses for modelling according to local dip
	 Estimation of deleterious elements or other non- grade variables of economic significance (eg sulphur for acid mine drainagecharacterisation). In the case of block model interpolation, the block size in relation to the average sample spacing and the search 	and downhole deviation survey data. Historic holes lacking deviation surveys were assumed vertical.
		 The potash beds of interest were gridded into single layers of 50 m² blocks of variable vertical thickness representing the local thickness of the respective potash bed. For grade estimation, the block size was increased to 250 m² blocks.
	 employed. Any assumptions behind modelling of selective mining units. 	 Block true thicknesses was interpolated into 50m blocks by inverse distance cubed. An exponent of 3.0, instead of a lower value such as 2.0, was selected to enhance local variability in the model consistent with the variability evident in the drillholes.

Criteria	JORC Code explanation	Commentary
	 Any assumptions about correlation between variables. Description of how the geological interpretation was 	 The block thickness estimation was conducted using an anisotropic elliptical search radius with a major axis of 4,000 m oriented at an azimuth of 120°, parallel to the axis of the basin and a minor axis of 2,000 m perpendicular to the major axis.
	 used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. 	 A maximum of 15 and minimum of 3 drillhole composites within the search ellipse was used for estimation. The anisotropic model was used as it reflects the axis of the Muga basin and the relative geological continuity observed in the drillholes.
	 The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available. 	\bullet Grade estimation was conducted by Ordinary Kriging for the main and the secondary parameters. The maximum variogram range for K ₂ O and MgO is 2,500 m for Na ₂ O is 1,200 m and for insoluble is 1,000 m.
Moisture	 Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content. 	• Tonnages are estimated using variable bulk density of 2.12 g/cm³ based on bulk density measurements from core samples; in the case of PA, the seam with higher MgO content, a regression was applied to calculate the density as there was a strong relationship between density and MgO content in this seam. There is negligible water within the mineral structure in the potash which has no impact on the density.
		• The mineralisation is dominated by evaporites rich is K ₂ O.
		 Sylvinite is a mechanical mixture of halite (NaCl) and sylvite (KCl) typically with inclusions of insolubles (typically clays) and limited carnallite (KCl·MgCl₂·6H₂O).
Cutoff parameters	The basis of the adopted cutoff grade(s) or quality parameters applied.	 The Company has sourced technical and economic parameters from the recent mining study. The assumed parameters include processing recovery, mining and processing costs per tonne run of mine, and G&A, logistics to port and freight costs per tonne MOP. A commodity price of USD 313/t MOP has been assumed, and mineral royalties have been considered. A cut-off grade has been calculated using these assumptions and rounded up to 8%. SRK has verified the input parameters and the cut-off grade calculation, alongside the technical reasoning behind the proposed production scenario. SRK has tested the sensitivity of the cut-off grade to operating costs and a contingency. SRK is confident that the Mineral Resource as reported fulfils the requirement that it should have potential for economic
		 extraction. No constraints have been applied for insolubles or carnallite (that is, magnesium) content as it is expected the material can be blended to reach the appropriate product specification. SRK notes that the assumptions and technical and economic parameters will change as further technical work is undertaken.

JORC Code explanation Criteria Commentary Mining factors Assumptions made regarding possible mining methods, The MRE does not include any out-of-bed dilution. or assumptions minimum mining dimensions and internal (or, if The analysis assumes a base case mining scenario with multi-seam room-and-pillar mining. applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made. Metallurgical The basis for assumptions or predictions regarding The detailed economic analysis supporting reasonable prospects for eventual economic extraction of the Mineral Resource assumes processing with conventional crushing, factors or metallurgical amenability. It is always necessary as part assumptions of the process of determining reasonable prospects for flotation and crystallization. eventual economic extraction to consider potential • Flotation was used successfully to process similar sylvinite mineralisation at POSUSA metallurgical methods, but the assumptions regarding Adaro's Navarra and Subiza potash mines at Sierra del Perdón from the 1970s through metallurgical treatment processes and parameters 1990s. made when reporting Mineral Resources may not Preliminary flotation testing conducted by Geoalcali on sylvinite core from Muga supports always be rigorous. Where this is the case, this should KCI recoveries in excess of 80%, similar to the historical Navarra and Subiza potash mines be reported with an explanation of the basis of the and sufficient to justify reasonable prospects for eventual economic extraction. 80% was metallurgical assumptions made. used for the purposes of calculating the cut-off grade. High insolubles and high magnesium (associated with carnallite) have the potential to reduce KCl recovery during the flotation process.

Criteria **JORC Code explanation** Commentary

factors or assumptions

Environmental • Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.

• No environmental factors or other discipline were considered when reporting Mineral Resources or provided by Geoalcali as part of this study.

Bulk density

- Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
- The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.
- Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.

- Density measurements were conducted on pieces of diamond core and cover all the major lithologies at Muga throughout the 2013-2017 drilling campaigns by the ALS Sevilla
- Tonnages are estimated using variable bulk density of 2.12 g/cm³ based on bulk density measurements from core samples; in the case of PA, the seam with higher MgO content, a regression was applied to calculate the density as there was a strong relationship between density and MgO content in this seam. There is negligible water within the mineral structure in the potash which has no impact on the density. Measurements were made in July 2017 by the SGS Vostok Ltd. Testing Laboratory.

Criteria	JORC Code explanation C	ommentary
Classification	 The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Person's view of the deposit. 	 Based on the definitions and guidelines presented in the JORC Code, SRK has assigned portions of the Mineral Resource into the Measured, Indicated and Inferred categories. In determining the appropriate classification criteria, several factors were considered: JORC Code reporting requirements and guidelines; Quality of data used in the estimation; Quantity and density of sample data; Geological knowledge and understanding, focusing on geological and grade continuity; Quality of the geostatistics and interpolated block model; and Experience with other deposits of similar style. The Mineral Resource classification appropriately reflects the CP's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	 The mineral resource estimate was produced by Geoalcali under the supervision of Anna Fardell of SRK Consulting (UK) Ltd. The final parameters, classification and block model was reviewed according to SRK's internal peer review process, and in draft form by the Company. No other external reviews have been completed to date.

Criteria **JORC Code explanation** Commentary • Where appropriate a statement of the relative accuracy and The stated Mineral Resource is a combination of Measured, Indicated and Inferred Mineral Discussion of confidence level in the Mineral Resource estimate using an Resources, generally reflecting the apparent grade continuity as well as geological continuity relative approach or procedure deemed appropriate by the Competent accuracy/ and sample spacing. Person. For example, the application of statistical or geostatistical There is a high level of confidence in the underlying drillhole data. confidence procedures to quantify the relative accuracy of the resource within There is a high level of confidence in the geological continuity of the mineralisation above stated confidence limits, or, if such an approach is not deemed the cut-off grade of 8% K₂O. appropriate, a qualitative discussion of the factors that could affect The variography has characterised the spatial correlation between grades and shows the relative accuracy and confidence of the estimate. grades are correlated sufficiently. • The statement should specify whether it relates to global or local There is a good degree of confidence in the accuracy of block estimates, which were estimates, and, if local, state the relevant tonnages, which should validated using several methods to ensure the estimated grade provides a reasonable be relevant to technical and economic evaluation. Documentation reflection of the underlying sample data. The block model has been validated on both a should include assumptions made and the procedures used. global and local scale. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	 Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves. 	 The Mineral Resource estimate as presented in the ASX announcement released on 10 October 2018 by the Company has been used as the basis for conversion to Ore Reserves as presented in Table 1. The Mineral Resources presented are inclusive of those Mineral Resources converted to Ore Reserves. SRK has restricted the Ore Reserve estimate to only Resources classified as Measured and Indicated.
Site visits	 Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case. 	 A site visit (21 to 23 November 2018) was specifically undertaken by John Merry to review the project site and undertake discussions with the in-country Geoalcali team on the Environmental and Social aspects and project permitting. John was accompanied on the site visit by Nuno Castanho for additional site familiarisation, discussions on mine planning and managing the data collection for the SRK team. The site visit by 'Other Experts' was considered sufficient to inform the CP to understand the status of the project and estimate of Ore Reserves from the updated Feasibility Study by the Company. The SRK geotechnical and mine planning team has had considerable interaction with the Geoalcali management and technical services team throughout 2018 to support revisions to the mine plan. Anna Fardell (CP for Mineral Resources) visited the Muga Project in July 2017 as part of a separate commission to independently review the Mineral Resource estimate, visiting a number of drillhole collars and observed the drilling procedures, core storage and sampling procedures in the core yard.
Study status	 The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered. 	 The technical and economic viability of mining potash at the Muga Project has been confirmed by SRK's report "An Independent Technical Review of the Ore Reserve estimate for the Muga Potash Project, Spain" (January 2019). The type and level of individual studies that support the report have been carried out to an overall study status considered to be at Feasibility Level. In SRK's opinion, the modifying factors applied in the are appropriate and the economic evaluation demonstrates the economic viability of the Ore Reserve under the currently assumed valid set of assumptions.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	 The cut-off grade utilised for mining is 8% K₂O with a maximum waste salt content of 30% based on earlier trade-off work by Geoalcali. The geological model is used to target the optimal grouping of seams for maximum grade (%K₂O) limited by the minimum mining height with the appropriate extraction ratio applied.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	 The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling. The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). The mining dilution factors used. The mining recovery factors used. Any minimum mining widths used. The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. The infrastructure requirements of the selected mining methods. 	 In the production panels, the tonnage and grade have been diluted with 15 cm in the roof and the floor. The seams are constrained by a minimum mining height of 2.1 m for the planned mining equipment. The shallow dipping seams utilised a set of two parallel roadways as the main development access, one for fresh air intake and access and the other for exhaust ventilation and conveyor belt materials handling system. The mining method approach is a typical Room and Pillar ("R&P") panel layout. The room width was specified at 8 m and the height and pillar size would be determined by the told combined seam thickness, geotechnical constraints due to depth below surface and/or any equipment limitations. SRK notes that Geoalcali plans to mine the shallow dipping seams as a whole seam approach, including waste dilution between seams, in order to facilitate the extraction process and optimise the mining sequence. The inclined potash seams in the NW of the deposit required an alternative mining approach, to the R&P panel layout used for the shallow dipping seams, to minimise dilution and maximise extraction, taking into consideration the geotechnical constraints and equipment limitations. An adaptation of the existing R&P method was considered for developing a practically achievable inclination for the roadways and mining rooms while maintaining the same production targets and utilising the same excavation and material handling method. For the inclined seams the planned dilution effect was considered for extraction by Continuous Miners only. It is assumed that extraction by Road headers would have no planned dilution as the equipment is able to mine selectively to the dipping seam contact. The revised mine plan also incorporates the anticipated requirements of the environmental permitting process, particularly related to subsidence controls and exclusion zones around towns, infrastructure and objects of significant cultural importance. SRK reviewed the geotechnical char
Metallurgical factors or assumptions	 The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well-tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining 	 The proposed beneficiation process consists of a hybrid of the two conventional beneficiation processes for sylvinite ores, namely froth flotation and dissolution / recrystallisation. Flotation, the lower cost process, is applied to the coarse fraction of the feed ore after crushing, and dissolution / recrystallisation, the higher cost process but which typically produces a higher quality product, is applied to fines and intermediate fractions, in order to achieve an optimum level of recovery.

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	 applied and the corresponding metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications? 	 Sufficient testwork has been conducted to support the development of the flowsheet. The testwork has focused on flotation, as this process is more sensitive to the ore characteristics than is dissolution / recrystallisation, and because flotation makes the largest contribution to the overall recovery. The later stages of testwork have been conducted by a well-regarded and experienced laboratory. The testwork has tested the response of the two lithology types identified, as well as to a blend of these lithology types.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	 Environmental approval and other permits: While Geoalcali is confident it is at the end of the environmental permitting process, the government is not following any time-bound process and there is a risk of further delays. There is also a suite of further permits required that will take time to work their way through the system. These can only be progressed following receipt of the DIA. Geoalcali has a dedicated group responsible for managing the permitting process which will help moderate this risk. Environmental management: The groundwater study is currently being reviewed and updated based on further data collection which will be used to update the underground water management approach. Waste Management: SRK understands that the current permitting process requires the ground surface to be clear of mine waste 20 months from completion of the Muga mine operation. In SRK's opinion some of this waste may need to be stored offsite. Geoalcali has a number of contingency plans available if there is not sufficient room to store mine waste in the underground mine and further detailed work should be completed to integrate the underground waste management approach with the revised mine plan.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	 In SRK's opinion the layout and the scope of site surface infrastructure assets appear reasonable. The layout appears compact which will reduce footprint, costs for services connections and should optimise operating costs. Access to the Project is via a gravel road linking to main national highways located a few kilometers from site. Spain has a well-developed national power grid system; power supply and distribution. SRK understands that the Company has a detailed plan for land acquisition where necessary and has either acquired from, or is in advanced negotiations with, all land holders.
Costs	 The derivation of, or assumptions made, regarding projected capital costs in the study. The methodology used to estimate operating costs. Allowances made for the content of deleterious elements. The derivation of assumptions made of metal or commodity 	 Capital costs have been calculated from a detailed capital cost plan. These costs are derived from signed agreements, detailed quotes, or estimations made by the Company and their third-party consultants. Operating costs have been calculated from a detailed operating cost plan. These costs are derived from signed agreements, detailed quotes, or estimations made by the Company and their third-party consultants.

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	 price(s), for the principal minerals and co- products. The source of exchange rates used in the study. Derivation of transportation charges. The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. The allowances made for royalties payable, both Government and private. 	 SRK has recommended that the structure of productivity and cost estimates which inform the Company technical-economic model be better integrated in-line with the revised mine plan supporting the Ore Reserve estimate and has undertaken an internal check model. The Company assumes 100% GMOP sales with 50% of total production sold in France, 25% sold to northern Europe and the final 25% sold to export markets. This is represented in the financial model as 100% of the first phase of production being sold to the French market and the second phase of production split considers 50% sold into northern European market and 50% to the export market. SRK has undertaken a price sensitivity to support the Ore Reserve estimate. A flat EUR13/t for transport to the point of sale has been applied by SRK under operating costs as applied by the Company as a deduction to the sales price. A mine gate sales price of EUR27.5/t has been applied to the de-icing salt sales tonnages, as provided by the Company. SRK understands that there are currently no royalties payable in Spain. The Company is not currently liable for any private royalties.
Revenue factors	 The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products. 	 Final concentrate can be packaged as-is, yielding Standard MOP ("SMOP"), or granulated to produce Granulated MOP ("GMOP"). Geoalcali has used market research from Argus Media Group (Argus) to develop its potash marketing strategy. SRK understands that Argus is a leading commodity price and market forecast reporting agency utilised by many potash industry participants. Their reports cover all aspects of potash supply, demand, marketing, potash logistics and pricing.
Market assessment	 The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. A customer and competitor analysis along with the identification of likely market windows for the product. Price and volume forecasts and the basis for these forecasts. For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract. 	Detailed analysis on demand, supply and stocks for the potash sector are widely available in the public domain. SRK understands that price forecasts have been obtained from Argus.
Economic	 The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. NPV ranges and sensitivity to variations in the significant assumptions and inputs. 	 SRK has undertaken an economic viability test to assess and confirm the statement of Ore Reserves, as reported in this ITR, comprising 108.7 Mt at 10.2% K₂O, equivalent to 16.1% KCI. SRK has used most of the assumptions as presented in the Company's financial model as a basis for its own technical economic model. The economic evaluation demonstrates the economic viability of the Ore Reserve under the currently

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		assumed valid set of assumptions
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	 As well as the statutory consultation required as part of the EIA process, Geoalcali have implemented a comprehensive stakeholder engagement programme. This is based on a strategy that includes regular meetings with community leaders, community groups and an actively managed project website. The one potential challenge for the Project will be the discrepancy in the distribution of taxes that arise from the project development. Currently all the surface infrastructure lies in the Navara province and this is where the bulk of the taxes will be paid Geoalcali is assessing the potential to develop some value-add processes (e.g. vacuum salt production) in the Aragón region. This will help with the generation of additional employment in this region but will not significantly alter the revenue imbalance. The distribution of monies by the foundation is another mechanism that can help with the rebalance. The management of the Foundation will require care going forward. Geoalcali might consider mechanisms for community representation in the selection of projects in the future.
Other	 To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: Any identified material naturally occurring risks. The status of material legal agreements and marketing arrangements. The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent. 	 While Geoalcali is confident they are at the end of the environmental permitting process, the government is not following any time-bound process and there is a risk of further delays. There is also a suite of further permits required that will take time to work their way through the system. These can only be progressed following receipt of the DIA. Geoalcali has a dedicated group responsible for managing the permitting process which will help moderate this risk. SRK understands that there is a low risk of flammable gas in the underground mine and explosion protected electrical equipment may need to be specified for certain underground areas.
Classification	 The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. 	 SRK's audited Ore Reserve statement is confined to those seams that are currently being considered in the revise mine plan. Specifically, SRK has classed that material reported as a Measured Mineral Resource within the mining lease application and mine plan as a Proved Ore Reserve; and that material reported as an Indicated
	 The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any). 	Mineral Resource within the mining lease application and mine plan, as a Probable Ore Reserve.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	 The technical and economic viability of mining potash at the Muga Project has been confirmed by SRK's report "An Independent Technical Review of the Ore Reserve estimate for the Muga Potash Project, Spain" (January 2019). Anna Fardell (CP for Mineral Resources) previously visited the Muga Project in July 2017 as part of a

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		separate commission to independently review the Mineral Resource estimate which was stated in an ASX announcement release on 10 October 2018 by the Company.
Discussion of relative accuracy/ confidence	 Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available. 	 SRK can confirm that the Ore Reserve defined in Table 1 of this report has been derived from the resource blocks provided to SRK and incorporates sufficient estimates for ore losses and dilution based on appropriate studies. The cut-off grade utilised for mining is 8% K₂O with a maximum waste salt content of 30% based on earlier trade-off work by Geoalcali which is applied to the geological model is used to target the optimal grouping of seams for maximum grade (%K₂O) limited by the minimum mining height with the appropriate extraction ratio applied. The revised mine plan also incorporates the anticipated requirements of the environmental permitting process, particularly related to subsidence controls and exclusion zones around towns, infrastructure and objects of significant cultural importance. The large difference between SRK's audited Mineral Resource statement and its audited Ore Reserve statement is partly a function of the relatively low mining recovery inherent in the Room and Pillar mining method employed. It is also partly a function of the fact that SRK has limited the Ore Reserve statement to that portion of the Mineral Resource on which an appropriate level of technical work has been completed. In this case this relates to the LOM plan for the Resources only classified as Measured and Indicated.