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Briefing Note

Our ref 50303/10/HS/JG
Date 12 April 2018
To North Yorkshire Joint Minerals & Waste Local Plan (M&WLP) Examination
From Lichfields for Sirius Minerals PLC (Sirius)
Copy Minerals Planning Authority (MPA)

Subject **Hearing Session 13th April 2018 - Potash Safeguarding – Position Statement**

1.0 Introduction

1.1 This Position Statement sets out the response of Sirius to the questions raised by the Inspector for discussion on 13th April 2018 relating to Potash Safeguarding and the interaction with hydrocarbon exploration and exploitation.

2.0 Sirius' Base Position

2.1 Sirius considers that the base position of the M&WLP should be compliant with NPPF which requires the MPA to identify and safeguard minerals of local and national importance. The extent of the Potash resource, which is a mineral of local and national importance as defined by NPPF is known and identified in the draft M&WLP of 2015.

2.2 In respect of the above, the basis of this approach is set out fully in the Statement submitted by the Mineral Products Association (MPA), which is supported by Sirius.

3.0 Sirius' Compromise Position

3.1 Notwithstanding the above, Sirius recognises the advice of PPG, that a reduced Safeguarding Area can be justified and is supportive of the approach being taken by the MPOA in general terms in this regard. However, the prosed Safeguarding Area for Potash indicated on the submitted Local Plan Proposals Map is based on an erroneous consideration of the resource available from that area. Having raised this matter at the 24 March Examination Hearing Session, the MPA has asked Sirius to provide a Safeguarding Plan which covers an area more appropriate for the purposes of compliance with NPPF and engaging the approach to defining a reduced Potash safeguarding area when compared to that contained within the 2015 draft M&WLP. This Safeguarding Plan is attached at Appendix 1 to this Statement along with supporting justification.

3.2 In order for the W&WLP to be found sound, it is considered that the Safeguarding Area indicated on the plan at Appendix 1 should be included on the M&WLP Proposals Map.

4.0 Interaction with Hyrdocarbon Exploration and Exploitation

4.1 Both Sirius and INEOS were represented at the Hearing Session on Safeguarding on 34th March 2018. Clear differences in view were apparent at that Hearing Session relating to the potential effects of hydrocarbon development in proximity to Potash mining. The Inspector therefore requested that Sirius and INEOS seek to agree, where possible, any common ground between the parties and to also identify area where there was uncommon ground.

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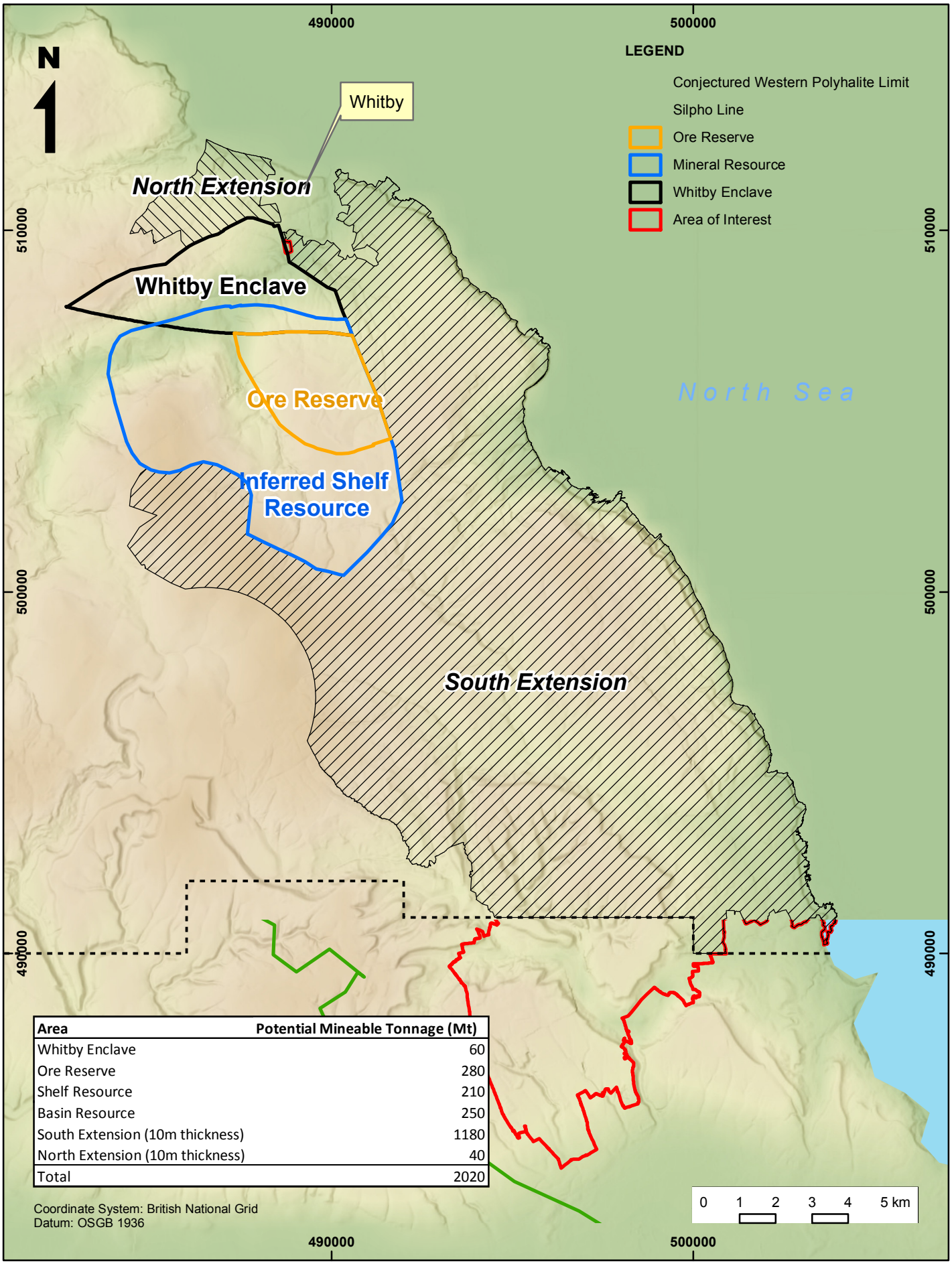
4.2 Sirius and INEOS' advisors met in Leeds on 4 April 2018. Following that meeting, INEOS has issued a Statement, which in part, purports to be a statement of common ground. It is not such a statement and Sirius has substantive concerns relating to several of the statements made in that document. For ease of reference and brevity, Sirius has reproduced the INEOS Statement at Appendix 2 and included comments where it is necessary to correct what INEOS has attributed to Sirius and to make comments on the matters raised by INEOS more generally.

4.3 Sirius and its advisors will be attending the Hearing Session on 13th April and will be prepared to answer questions from the Inspector relating to the attached documents in this Position Statement.



Area	Potential Mineable Tonnage (Mt)
Whitby Enclave	60
Ore Reserve	280
Shelf Resource	210
Basin Resource	250
South Extension (10m thickness)	1180
North Extension (10m thickness)	40
Total	2020

Coordinate System: British National Grid
Datum: OSGB 1936

APRIL 2018	U7563	WOODSMITH MINE OPTIONS ASSESSMENT	
srk consulting		Safeguarding Area	

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Appendix 1

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External Memorandum

To:	Graham Clarke	**From:**	Mike Armitage
Company:	Sirius Minerals plc	**Project Number:**	UK7563
Copied to:		**Project Title:**	Woodsmith Mine
File Ref:	U7563 Woodsmith Mine_Polyhalite Potential_Memo v1.docx	**Date:**	April 2018
Subject:	**Polyhalite Potential**		

1 INTRODUCTION

Sirius Minerals Plc (Sirius) has asked SRK to comment upon the polyhalite potential within its declared Area of Interest (AOI) in North Yorkshire and, specifically, to determine the likely extent of mine workings should the Woodsmith Mine continue to operate for a 200 year period.

SRK has previously produced a report commenting upon the polyhalite potential in the region as input to Sirius's planning application process. This report was produced in September 2014 and is titled "An Independent Report on the potential for polyhalite exploration in North Yorkshire, England with particular reference to the York Potash Project" (the SRK Polyhalite Potential Report). In addition, SRK has produced Mineral Resource and Ore Reserve estimates for the Woodsmith Mine which were most recently publicly reported in SRK's Competent Persons Report included in the prospectus produced by Sirius in April 2017 in support of its listing on the London Stock Exchange (the SRK CPR).

This memo draws on the findings of both the above reports but does not repeat the detail within these.

2 POLYHALITE POTENTIAL IN THE AOI

2.1 Introduction

As noted in the SRK Polyhalite Potential Report, polyhalite has been demonstrated by both historical exploration and exploration and analysis conducted by Sirius to be present throughout the AOI albeit that it appears to thin to the west to the point that it would likely not be able to be mined and to become more intercalated with anhydrite to the south which would reduce the recovery of polyhalite in this area.

SRK has therefore divided up the AOI into various sub areas based on these two criteria and derived estimates of potential polyhalite tonnage for each. SRK has then determined the life of mine that this tonnage could support. In doing this, SRK has limited its assessment to the area to the north of the Silpho line given that this is the specific area Sirius has expressed interest

in. The areas defined by SRK in this manner have been termed the Ore Reserve, the Shelf Resource, the Basin Resource, the Whitby Enclave, the South Extension and the North Extension. The attached figure shows the extent of each of these areas and also the currently projected western limit to the potentially mineable polyhalite.

It should be noted that there is a distinction between the amount of polyhalite in the ground that has potential to be mined (often referred to as a Mineral Resource) and that which can be extracted (often referred to as an Ore Reserve). In determining the quantity of mineralisation required to support a 200 year mine life, SRK has assumed that the mine would extract 10 million tonnes (Mt) per year (as assumed in the SRK CPR) and so the ultimately the mine will require an Ore Reserve of some 2 billion tonnes (Bt). It should be noted that Sirius has indicated that annual production levels could go above 10Mtpa and up to 20Mtpa in which case the life of mine estimates in this memo would be reduced accordingly.

2.2 Ore Reserve

This area is simply the areal extent of the polyhalite Ore Reserve reported by SRK in the SRK CPR and is naturally centred around the Woodsmith Mine shaft

The JORC Code, which is the most internationally accepted code for reporting Mineral Resources and Ore Reserves, and is the code used by SRK to report its Ore Reserve estimate in the CPR, defines an Ore Reserve as *"the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at the Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified."*

The Ore Reserve reported by SRK in the SRK CPR of some 280Mt therefore already accounts for all losses during mining and so this is the tonnage assumed by SRK for this area for the purpose of the analysis presented here. Clearly assuming a mining rate of 10mtpa this supports a mine life of some 28 years.

2.3 Shelf Resource

The Shelf Resource area is simply the extension to the same horizon of polyhalite mineralisation which forms the above Ore Reserve but which has been explored on a wider drillhole spacing and which in SRK's opinion would need additional data before the mining of it could be planned to the same level of detail as the Ore Reserve. SRK reported this as an Inferred Mineral Resource in its CPR. The JORC Code defines a Mineral Resource as a "*concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction".*

The Inferred Mineral Resource so reported by SRK in the SRK CPR was 840Mt. This however comprises the amount of polyhalite in situ and not the amount of polyhalite that would be extracted in practice. As shown in the SRK Polyhalite Potential Report, the extraction ratio for the Ore Reserve is some 30% while that proposed for the Whitby Enclave, which is commented upon more below, was some 18%. The reason for the difference is simply that the polyhalite that forms the basis of the Ore Reserve is much thicker than that to the north and also the

Whitby Enclave is expected to be more faulted (disturbed). Given this, for the purpose of the analysis presented here SRK has assumed an extraction ratio of 25% for the Shelf Resource. While SRK is not expecting additional faulting in this area, the mineralisation is certainly much thinner in here and potentially less continuous than in the Ore Reserve.

Given this, SRK suggests that the Shelf Resource of 840Mt would likely support a mineable equivalent of some 210Mt which could support an additional mine life of some 21 years.

2.4 Basin Resource

The exploration work undertaken by Sirius identified the presence of a second seam of polyhalite underlying the Shelf Seam which was termed the Basin Seam. This is not marked on the attached figure abut it overlaps the South Extension to the east of the SRK Shelf Resource and Ore Reserve.

The Inferred Mineral Resource reported by SRK for this in the SRK CPR was 1000 Mt which on the same basis as presented above for the Shelf Resource would convert to a mineable equivalent of some 250 Mt and give another 25 years of mine life.

2.5 Whitby Enclave

The Whitby Enclave is an area immediately to the north of the Ore Reserve and is separated from this by a major east-west striking fault termed the Donovan Fault and bounded to the north by the Boulby Mine boundary, to the west by the projected limit of the Shelf Seam and to the east by the Whitby Fault.

No formal Mineral Resource or Ore Reserve estimates have been produced for this area by SRK, as there is no recent drilling and simply three historical holes. SRK did however assess the potential of this area in its Polyhalite Potential Report. In this report SRK estimated this area to have potential to contain between 220 and 440Mt of in situ polyhalite and between 40 and 80Mt of potentially mineable polyhalite.

For the purpose of this analysis SRK has therefore assumed this has potential to host another 60Mt of potentially mineable polyhalite which would be sufficient to support another six years of mining.

2.6 North and South Extension

The North Extension and South Extension areas defined by SRK simply represent the remaining extent of the AOI where the Shelf Seam is expected to be present.

It should be noted that while the presence of polyhalite in these areas is supported by historical drilling further exploration from underground as planned by Sirius will be required before SRK could consider deriving a Mineral Resource for these as defined by the JORC Code or indeed to know the likely thickness of mineralisation in these areas.

Based on the historical drilling that is available however, and which is presented in SRK's Polyhalite Potential Report, SRK has assumed a thickness of 10m and on this basis, and assuming an extraction ratio of 25%, SRK has derived in situ tonnage estimates of 170 and 4,700 Mt for the North and South areas respectively and mineable tonnage estimates of 40 and 1,180Mt respectively. Together therefore these areas have the potential to support an additional mine life of some 122 years.

2.7 Summary

In summary, and notwithstanding the fact that only a small portion of the AOI has been assessed to a sufficient level to date to form the basis of the reporting of Mineral Resources and Ore Reserves as defined by internationally accepted reporting codes, in SRK's opinion:

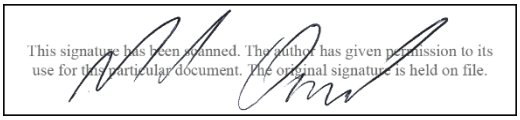
- The Ore Reserve Area is sufficient to support a mine life of 28 years;
- The Shelf Resource has potential to support an additional mine life of some 21 years;
- The Basin Resource has potential to support a further mine life of 25 years;
- The Whitby Enclave has potential to support 6 years of mining;
- The North and South extensions have potential should the continuity of the polyhalite be confirmed to support another 122 years; and
- All areas combined have potential to support a mine life of just over 200 years at an annual production rate of 10Mtpa but would reduce to circa 100 years should the annual rate increase to 20Mtpa as Sirius have indicated is their plan.

3 CONCLUDING REMARKS

SRK has historically reported an Ore Reserve and a Mineral Resource for the Woodsmith Mine which together have the potential to support a mine life of just over 70 years assuming a production rate of 10 Mt per year and assuming that the continuity of the Inferred Mineral Resource is confirmed following additional drilling planned to be undertaken once the mine is established.

In addition to the above, it is known from historical drilling that polyhalite is present throughout most of the AOI albeit that the continuity of this is at present uncertain. Notwithstanding this, if the Woodsmith mining operation was ongoing for some 200 years then even if the polyhalite is continuous and averages some 10M in thickness, it is likely that the workings would ultimately need to extend as far south as the Silpho Line and as far north as the Boulby Mine boundary.

For and on behalf of SRK Consulting (UK) Ltd



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