

Consulting Geologists
Minerals Industry Advisers

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DRAFT
REPORT
ON
THE
RMC/LAPORTE
LONGSTONE EDGE (INCLUDING BACKDALE)
ENVIRONMENT ACT 1995 SUBMISSION
FOR
THE
PEAK DISTRICT NATIONAL PARK AUTHORITY

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RMC/LAPORTE LONGSTONE EDGE (INCLUDING BACKDALE) ENVIRONMENT ACT 1995 SUBMISSION1.0 TERMS OF REFERENCE

The investigations covered by this report relating to the proposals of RMC for the Backdale Quarry have been conducted in accordance with a confirmatory appointment letter, dated 11 September 1997, from the Peak District National Park Authority encompassing the terms of reference given below.

- 1.1 Collect geological information for the area covered by the 1952 permission reference 1898/9/69 (in particular, the working area phases 1-6 identified in the Environment Act 1995 submission, dated March 1997), especially its vein mineral structure, extent, and content from all available sources, such as BGS published material, local sources, visual surveys, application documents, etc.
- 1.2 From available information, provide an estimate (with supporting evidence) on the quantity of vein mineral that could potentially be available within the identified working area phases 1-6 of the 1952 permission area.
- 1.3 Critically assess the Environment Act 1995 submission, in particular its geological section and the proposed method of working identified in phases 1-6, and advise whether the extraction, crushing and sale of limestone on the scale proposed is reasonably necessary to facilitate access to the vein structures.
- 1.4 In conjunction with item 3, provide an opinion on the interpretation of the 1952 permission, drawing on an extensive working knowledge of the site.
- 1.5 Report to the Authority in a format to be agreed on 30 September 1997 or such later date as may be agreed in relation to the requested further information being supplied satisfactorily and in a timely manner by RMC.

2.0 MANNING AND METHODOLOGY

The required investigations and complete preparation of this report have been undertaken by Dr. B. Hodge, based on specialist expertise developed over a period of some 40 years since initial graduation from the University of Durham, where BSc and PhD degrees in Geology were gained. Specific experience and comprehensive knowledge of the mineral deposits and operations in the Derbyshire

for the activity covered by the statement that "The presence of the veins at surface has been confirmed by a trial trenching operation...".

It must also be noted that careful fieldwork and study of the aerial photographs taken on 9 July 1997 has revealed little evidence of trenching on the veins within the phases 1-6 quarry extension area. Although it would not be unreasonable to expect a trial trenching operation to provide much more than just the basic positions of the main veins shown on drawing number L01/8 (and L01/8/1), which were available in any case long ago from BGS and other sources, it is also significant to note that no other useful findings are reflected by the very elementary and limited nature of the data on the geology and mineralisation presented by RMC. This situation is compounded by there being no reflection of expert knowledge and input based on "...information supplied by Laporte Minerals, and through geological investigation in the field", with reference to the contents of section 4.0 above serving to emphasise the inadequacies.

6.0 CONCLUSIONS

In dealing with background matters for substantiation purposes, various detailed conclusions have been drawn or are implicit in the foregoing text, but it is not intended to repeat them here. Thus, although these detailed conclusions also include important factors challenging the legitimacy of the area covered by the planning permission, etc., this section is being restricted to dealing with the specific question raised in the terms of reference concerning "...the proposed method of working identified in phases 1-6, and advise whether the extraction, crushing and sale of limestone on the scale proposed is reasonably necessary to facilitate access to the vein structures." Critical but impartial assessment of the overall situation yields an indubitable negative answer to this question.

This answer is based on all the available evidence leading to the unequivocal conclusion that the potential for fluorspar-barytes-lead vein mineral within phases 1-6 is insignificant in relation to the large amount of limestone to be quarried, with the quantity of 12 million tonnes quoted verbally by RMC accepted for present purposes, although there are grounds suggesting that the figure may be significantly understated. Thus, there is insufficient vein mineral to justify the proposed limestone extraction, crushing and sale, even if limestone was covered by the "...any other minerals..." description of the planning permission, which it is not. Furthermore, even if it could be established that such coverage did exist, the working of limestone would be and already is in

contravention of the planning permission because the grant stipulates "...in the course of..." and not for the purpose of working the named vein minerals.

Quantification of the amount of vein mineral remaining to be won is impossible in a duly responsible professional manner because of the available data being inadequate to fulfil the strict code of practice operative within the minerals industry. However, it could not be denied that the quarry extension would yield a certain amount of useful vein mineral, but there is no doubt that the quantity would be insignificant in relation to the 12 million tonnes of limestone to be quarried and quite insufficient to justify the same. By analogy with the ratio for limestone to vein mineral of 1:1 relating to Moor Farm and 1:3 relating to Tearsall Farm stipulated by the Secretary of State for the Environment in handing down decisions of an enforcement notice appeal inquiry, this means that either 12 or 36 million tonnes of vein mineral would be required to justify the proposed limestone extraction.

Such tonnages do not even bear consideration in view of the relatively minor nature of the mineralisation, its extensive previous working for fluorspar and other adverse factors. Indeed, based on an assessment of all available evidence and further to earlier reference to an order of magnitude adverse difference being expected to remain in force or even increase in relation to the ratios stipulated for Moor Farm and Tearsall Farm, there appears very little likelihood of bettering a limestone to vein mineral ratio of 30:1, which would require 400,000 tonnes of vein mineral, and a much higher ratio may well arise for phases 1-6.

In order to place the above tonnages in context, it is pertinent to note that, in a paper entitled "The UK fluorspar industry and its basis", which was published in the April 1970 issue of "Industrial Minerals", the author of this report put forward figures for potential reserves of fluorspar ore in the whole of the Derbyshire (Southern Pennine) Orefield totalling 20 million tonnes. This total was substantially in excess of any previous estimate and open to question since much exploration and development was and still is required to consummate the full potential. To be more specific concerning immediate considerations, it is estimated that the total production of fluorspar ore from the Longstone Edge property amounts to around 4 million tonnes since Laporte commenced large-scale operations thereon during the early 1960s. This embraces all surface and underground activity along the 5 kilometres length of the Deep Rake-High Rake-Watersaw Rake vein system and branches, which include Red Rake, the Beeches and Black Plantation.

In comparison to the length and width of the main components comprising the Longstone Edge vein system, together with the areal extent and intensity of the mineralisation on other parts of the property, the "...four main vein structures along with numerous minor veins..." of phases 1-6 are small in all respects. Thus, bearing in mind the other defined limitations, it will be very fortunate if these so-called main and minor veins yield anything approaching the 400,000 tonnes (that is to say, 10 per cent of the above-mentioned total won from elsewhere on the extensive Longstone Edge property) of vein mineral required even to achieve a limestone to vein mineral ratio of 30:1.

In order to yield 400,000 tonnes of vein mineral at an acceptable quality for fluorspar processing, a volume of about 135,000 cubic metres would be required. At an assessed average depth of 60 metres for the phases 1-6 quarry extension, this would require an average intact width of some 1.45 metres for the whole 1,550 metres length of the four main vein structures and their branches depicted on RMC drawing number L01/8 and lying within the completed quarry perimeter. On a similar basis, an average intact width of around 1 metre would be required by adding 620 metres of length to cover other veins, including 320 metres for the northern branch of Deep Rake, although it must be noted that a large proportion of the 60 metres average depth has already been quarried away in this case.

The latter and the fact that even an average vein width of 1 metre is evidently unsustainable are of obvious adverse impact. Also of adverse impact in relation to intactness is the fact that Dog Rake, Catlow Rake and Gospel Rake have been extensively worked for fluorspar either to far below or close to the quarry extension floor level. This is coupled with the fact that the whole or sections of Dog Rake, Catlow Rake, Camm Rake, Gospel Rake and some of their branches are situated within the quarry extension walls, so that they would not be fully worked even if there were any useful vein mineral left in them to exploit. In addition, Camm Rake and its branches evidently contain calcite-rich material and only minor fluorite, thus rendering them of questionable value in any case.

The above facts place into context and substantiate the conclusion that there appears to be very little likelihood of bettering a limestone to vein mineral ratio of 30:1 and a much higher ratio may well arise for phases 1-6. Indeed, the available evidence indicates a much higher ratio rather than the reverse, with the opposite situation resting on it being specifically demonstrated that as yet unidentified intact vein widths of substantial size and replacement/flat/pipe-type deposits on a large-scale do actually exist, bearing in mind the limitation of the 190 metres AOD level of the quarry extension floor.

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