Rocky Gap Quarry, Rocky Gap, Virginia

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Signature

Introduction

This report is an evaluation and associated review of the Rocky Gap Quarry, Bland County, Virginia. This report is based on information provided by the United States Department of Justice, the Rocky Gap Quarry currently owned and operated by the Pounding Mill Quarry Corporation and their associated consultants and the scientific literature. I have been a Certified Professional Geologist in Virginia (1578) since May 10, 2004, received my doctorate in Geology with a Geochemistry emphasis from the Department of Geosciences at Virginia Tech in December 1989 and have more than 20 years of experience working on mining-related issues. For the past six years I have been an Associate Professor of Practice in the Department of Geosciences at Virginia Tech.

I began my discussions and review of information starting on January 5, 2017 and I conducted a Rocky Gap Quarry site visit with Rocky Gap Quarry personnel and associated consultants on January 16, 2017. Pertinent information used in this report will be included as appendices (1 through 8). The scope of work for this report is broken into five main sections, 1) Reserve Estimation, 2) Accessibility of the Reserves, 3) West Virginia Department of Transportation Certification - Present, Past and Future, 4) Safety, and 5) Permitting and Land Ownership.

Reserve Estimation

The Rocky Gap Quarry is an operational quarry currently owned and operated by the Pounding Mill Quarry Corporation. Figure 1 is a Google Earth picture of the quarry and includes the location of the recent RGQ-05 through RGQ-09 core holes. This quarry is currently mining limestone and dolomite from the Knox Group.

Part of my investigation and analysis was to confirm reserve estimates for the Rocky Gap Quarry. This analysis was done by using information provided by the United States Department of Justice, Rocky Gap Quarry personnel and their consultants, a January 16, 2017 site visit, and information from the scientific literature.

In order to estimate reserves at the Rocky Gap quarry it is important to estimate the quantity and understand the quality of the limestone/dolomitic material from the Knox Group. Pertinent information used in this determination are included as Appendices (1 through 8).

To estimate the quantity and quality of the reserves at the Rocky Gap quarry a core drilling program was designed and conducted in December 2016 through January 2017. Location of drill holes RGQ-05, RGQ-06, RGQ-07, RGQ-08, and RGQ-09 are shown in Figure 1 and results of the core drilling are described and summarized in Appendix 1

(Potesta Engineers and Environmental Consultants (Potesta), Feb 3, 2017, Revised Summary of Preliminary Reserve Assessment). Table 1 shows the 5 borings, surface elevation in feet, location as described as latitude and longitude, drilling depth in feet, bottom elevation in feet and general location relative to current site conditions.

Boring	Surface Elevation, feet	Latitude	Longitude		General Location
RGQ-5	2224	N 37º 14' 04"	W 81º 05' 19"		Pit Floor
RGQ-6	2495	N 37º 13' 56"	W 81º 05' 18"		South side top
RGQ-7	2444	N 37º 14' 11"	W 81º 05' 32"		North side top
RGQ-8	2380	N 37º 15' 58"	W 81º 05' 24"		South side mid
RGQ-9	2257	N 37º 14' 07"	W 81º 05' 30"		North side mid

Table 1

Note - This table is based on information provided in Appendix 1

Detailed drilling logs for these 5 borings are given in Appendix C of the Potesta memorandum (Appendix 1) and the information from these borings was used to estimate reserves.



The Appendix 1, Potesta memorandum uses the boring results and available site specific information to estimate reserves. The reserve estimates evaluated here will focus on their Phase 1 and 2 quarry expansion details and are shown in Figures 4a & 4b. These figures summarize phase 1 and 2 preliminary mine planning, show cross section delineations, show spoil (waste rock) and overburden volume estimates and provide reserve assessment at the 15% and 30% applied reject rate. To remain

conservative in the reserve estimation I think it is appropriate to use the 30% applied reject rate but a 15% applied reject rate may be representative considering the boring results show highly competent material.

A visual representation of the reserve estimate combined with boring results were used to develop two approximately North-South cross sections, A - A' and C-C' and one West-East cross section, B - B' as shown in Figures 5a, b, and c. These cross sections show the existing ground configuration at the Rocky Gap quarry, the boring results, and the proposed mine configuration and give a visual representation of the future material to be mined.

Reserves at the Rocky Gap quarry were also estimated by Stan Johnson and Rodney Wolford using geometric methods and their estimate and methods are described in Appendix B which includes their calculations and map interpretations. Results of their analysis assuming a conservative 30% rate of loss of material was and is generally consistent with the Potesta's Phase 1 and 2 estimate.

Accessibility of the Reserves

An aspect to evaluate in the reserve assessment of the Rocky Gap Quarry is the accessibility of the material as represented by the ratio of overburden to aggregate when compared to current operations at the Rocky Gap Quarry and other Pounding Mill Quarries. Appendix 3 is a Potesta memorandum developed after discussions with Pounding Mill Quarry personnel titled, Comparison of Historical Extraction Ratios – Active Quarry Sites. This memorandum discusses the recent Rocky Gap quarry overburden to aggregate ratio as compared to the Bluefield and Mercer Quarries and then compares these ratios to the projected 30% recovery reserve estimates. This information shows that the Potesta reserve estimate is projected to have

as compared to 2012 – 2016 values for the Rocky Gap, Bluefield and Mercer quarries and is primarily projected to be

Appendix 4 is a Potesta memorandum estimating the volume of material in the existing Northern spoil pile (shown in figure 4a as the Northern and western "waste area") and a cost estimate for it's removal.

considered in the Potesta accessibility calculations.

<u>West Virginia Division of Highways (WVDOH) Certification – Past, Present, and</u> <u>Future</u>

Another aspect of my investigation and analysis was to evaluate and confirm past, present, and future WVDOH certification for construction grade aggregates from the Rocky Gap Quarry. Appendices 5 & 6 are memos prepared by Potesta and are titled, 1) WVDOH – Summary of Current Stone Certification at the Rocky Gap Quarry Site and 2) Revised Summary of Rock Testing Result. These memos provide documentation that materials mined previously and currently meet the WVDOH chemical and physical testing criteria and testing results of materials from borings RGQ-5 through RGQ-9 will continue to meet WVDOH criteria in the future. A short summary of the information in Appendices 5 and 6 will be described here.

Dolomite and/or limestone rich material from the Rocky Gap quarry must meet regulatory requirements to be sold as construction aggregate in West Virginia (WVDOH) and Virginia (Virginia Department of Transportation, VDOT). Appendix 5 describes the WVDOH commercial source requirements and how materials from the Rocky Gap Quarry have historically met and currently meet WVDOH aggregate certification standards and that the Rocky Gap Quarry is on the WVDOH's "list of commercial sources", which was renewed on January 31, 2017 for both fine and coarse stone aggregate. WVDOH annually also obtains samples and runs laboratory testing on various stone products from the Rocky Gap Quarry and positive testing results are described by WVDOH personal in Appendix 5.

Results from the chemical and physical testing of material from borings RGQ-05 through RGQ-09 are provided in Appendix 6 and shown here in Figures 6a & b. In Figure 6a there are three tables, one showing the laboratory results of sodium sulfate (Na₂SO₄) and magnesium sulfate (MgSO₄) chemical testing and two tables with the WVDOH and VDOT quality requirements. Figure 6a shows weighted losses after 5 cycles from RGQ-05 through RGQ-09 well below the percent loss maximum criteria.

Physical testing results as represented by results from the Los Angeles Abrasion test are shown in Figure 6b and show borings RGQ-5, RGQ-6, RGQ-7, RGQ-8, RGQ-9 (2 samples). These composite samples show percent total loss after

Safety

Mine safety is an important aspect of mine operations and the United States Department of Labor's Mine Safety and Health Administration (MSHA) is the regulating body in the US in regards to safety and health at the Rocky Gap Quarry. Site interactions with MSHA and a summary of activities are provided by Potesta in Appendix 7 which is titled, Mine Safety and Health Administration Inspection History, Rocky Gap Quarry, Rocky Gap, Virginia. MSHA conducts periodic scheduled and unscheduled inspections of many different aspects of mining operations to help ensure protection of human health and examples include high wall conditions, equipment safety, training frequency and compliance, etc. Over the past 5 years the site has had two minor violations related to loose rock accumulation on safety benches as reported by MSHA which were remediated and closed quickly as described in Appendix 7. Overall the rock material currently being mined and mining method used is based on the nature of the rock which is highly competent. High wall and bench geometry are designed using this rock specific information to assure best management practices are being implemented. Rock testing results as described earlier indicate that future reserves have a similar competent nature and the Quarry can continue to use similar mining methods and associated best management practices.

Permitting and Land Ownership

The Rocky Gap Quarry mining, air and water discharge permits are all current and further details can be found in Table 2 of Appendix 1 written by Potesta. Copies of the corresponding permits are provided in Appendix 8, Rocky Gap Quarry applicable permits.

Confirmation of current and future land ownership of the Pounding Mill Quarry properties owned and leased in the Rocky Gap District, Rocky Gap, Virginia is shown in Figure 7 (Appalachian Engineering & Surveying, Inc.) and is shown in an aerial view in Figure 8 (SGR - Subhorizon Geologic Resources). These figures provide confirmation of Pounding Mill Quarry ownership of the land necessary for current and future mine development.

Concluding Statement

Based on my independent review and analysis of the information from The Rocky Gap Quarry, Bland County, Virginia, I

The reserves are accessible, can meet WVDOH certification criteria based on chemical and physical testing results, can be mined to meet MSHA safety requirements and are within currently leased or owned land and currently have the necessary permits to continue operations.