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Confidential

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OFFICE OF THE
EUREKA CONSOLIDATED MINING CO.

EUREKA, NEVADA, June 21, 1871.

TO THE RICHMOND MINING CO.

HEREWITH please find the results of my
Examination of the properties of the Richmond Mining Company;
also some incidental remarks on the Geology and Lithology of
Ruby Hill.

Sincerely,

Your obedient servant,

W. S. KEYES, M.E.

Graduate School of Mines in Saxony,
Dep. of U. S. Min. Land Comm., and
Superintendent of Eureka Consolidated Mining Co.

RICHMOND MINING COMPANY,

AN Incorporation under the Laws of the State of Nevada, is the owner of three mines, as follows, viz. :—

- (1.) The Virginia, 1400 feet in length.
- (2.) The Richmond, 700 feet in length; and
- (3.) The Colorado, 1400 feet in length.

All are situated in the northerly end of Ruby Hill, district of Eureka, State of Nevada, and are immediately adjoining the well-known mines of the Eureka Consolidated Mining Company.

They have been "located" parallel with one another, at a distance of 200 feet, so that it is impossible for opposing claimants to find room to make any new "locations" between them.

The formation is very simple, viz. :—A quartzite foot wall, with a clean clay selvage from two to four feet thick; then the vein matter and gangue, extending from the quartzite (broken only by occasional intercalations from the "cap" or hanging wall), a distance of 250 to 300 feet quite to the surface of the ridge.

Superimposed upon the vein matter and gangue, we find a thin shell of metamorphosed limestone, which seldom exceeds 8 or 10 feet in thickness, and in many places is altogether wanting.

This class of ore deposit has been, by the Germans, appropriately designated a "Lager-gang," or "bed-vein," and their permanence is to be judged from the character of the foot wall or rock on which they rest, and ~~not~~ from that of the subsequently-deposited "cap" or shell.

I speak with the greater confidence of the formation of Ruby Hill, since nearly six months of vigorous development, under my own direction, has sufficed to establish with almost mathematical accuracy the following points, viz.:—

(A) The regular quartzite foot wall, with clean clay selvage.

(B) The 250 to 300 feet of vein matter; a large portion naturally unfit to be worked at present rates of labour and material; and

(C) Ten different ore-bearing stratas;

Each differing in its physical qualities, as well as in its assay value in gold, silver, and lead. These strata vary in thickness, from a span up to 30 and 45 feet. In general terms, the ore strata near the quartzite are highly silicious; carry little lead, but much gold and silver; the intermediate strata are highly ferruginous, rich in gold and silver, and with a sufficiency of lead for working purposes; while the upper strata, near to the lime cap, are very rich in lead, moderately valuable in silver, and comparatively poor in gold.

The ore body now opened on the Richmond, which I denominate an intermediate stratum, is rich in gold and silver, and with a sufficiency of lead for working purposes. The remaining strata, observable in the adjoining mines of the Eureka Consolidated Mining Company, only need to be looked for and they will doubtless be found. The ore stratum of the Richmond, developed as it now is, can furnish 60 tons per day for an indefinite period.

The best test of the working yield can be obtained from an examination of the appended results for the months of April, May and June of 1871. (*See Furnace Reports.*)

The ore body in the main opening may be approximately estimated as follows, viz.:—125 feet in length from the bottom of the shaft to the southerly end of southerly drift; 30 feet in thickness, nearly all workable ore; and speaking moderately, 50 feet on the vein in depth. Allowing now 20 per cent. for waste (low grade ore), and 8 cubic feet per ton standing, we have in sight a body of ore containing nearly 20,000 tons.

I beg to refer to the returns of the Eureka Consolidated Mining Company, for the year now nearly past, to show what is being done by the adjoining Company. That company began with two small furnaces in July last; in the month of October they built a third somewhat larger; and recently, under my own administration, they have erected two large furnaces of a capacity of 35 to 40 tons of ore per day each. As the result of ten months' working, with limited smelting capacity, the two new furnaces having been in blast only during the present month, they have divided among the shareholders 125,000 dols. coin; have on hand and paid for a lot of coal, wood, and ore of the

value of 225,000 dols.; have made improvements, as shafts, tunnels, etc., at the mines; new boiler, new buildings, new furnaces, etc., to the value of 75,000 dols., and have on the way bullion to the value of over 100,000 dols. Thus earning in ten months nearly half a million in American gold, without the expenditure of a single dollar other than the original purchase-money of the properties. These earnings should have been at least 10 per cent. greater had the owners had sufficient capital and patience to have waited until the bullion should have been converted in a better market than that of San Francisco. Of late the bullion has been shipped to New York. The costs of mining, including timbers, at the mines of the Eureka Consolidated Mining Company have varied from 2.81 dols. to 3.25 dols. per ton of ore; cost of hauling to the furnace, 1.87½ to 2.00 dols. per ton; costs of reducing from 15 dols. to 18.50 dols. per ton in the smaller furnaces, and in the new, large, and improved furnaces have been brought down as low as 11.50 dols. per ton. Transport of bullion to San Francisco 28.50 dols. to 35.50 dols., according to the season of the year; thence to New York, 15 dols. (all figures in U.S. gold coin).

There is not now and never has been a drop of water in any of the mines. The gross value of the bullion produced I estimate at an average of 230 dols. in gold and silver, and in lead at 6 cents. per lb. 120 dols., although the price obtained for the unrefined lead in San Francisco has only been 90 dols. per ton of 2000lbs.

The production of the present month to date, with only three furnaces, running the greater portion of the time, has been 276 tons of bullion—average assay 256.38 dols. in gold and silver; estimating the lead at 120 dols. per ton we have a gross value produced in 21 days of 103,880.88 dols. Five furnaces could and would have been running had there been a sufficiency of water to have supplied all the tuyeres; this will be remedied the present week by putting in a large pump in order to return the water to the tuyere supply tanks.

The Reduction Works of the Richmond Company are situated at the town of Eureka. They consist of one smelting furnace; one cupell hearth; one large lead calcining pan; rock breaker pulverizers, etc., etc., for sampling ores—in fine, a complete apparatus for reducing the ores and refining the bullion. (*See map.*)

I would advise that two large furnaces be built immediately. Also, that a tunnel be driven into the hill to cut the remaining strata already developed in the adjoining mines. This being done, the Richmond will take rank with the Eureka Consolidated.

W. S. KEYES, M.E., etc., etc., etc.

Eureka, Nev., June 22nd, 1871.

LETTER FROM PROFESSOR J. E. CLAYTON.

To the Richmond Mining Company.

In compliance with your request, I have read with care, and much interest, the report made by W. S. Keyes, Mining Engineer, &c., upon the properties belonging to the Richmond Mining Company, and situated in the westerly end of Ruby Hill, Eureka District, Nevada, and immediately

adjoining the mines owned by the Eureka Consolidated Co., of which Mr. Keyes is the able and energetic superintendent. I know in a general way that the facts stated in the report as to the extent and character of the ore deposits, are correct. The statistics given of what is *actually being done* with the same class of property immediately adjoining the Richmond properties, are of especial value, and worth more as an endorsement of the value of the mines than the opinion merely of any expert. The facts given in the report by Mr. Keyes, *weigh tons*, that represent *tangible values*, easily comprehended by business men.

I also know Mr. Keyes to be a thoroughly educated and capable man in his profession, and cheerfully indorse both the report and him as worthy of full confidence.

Very truly, your obedient servant,

J. E. CLAYTON.

Eureka, June 23, 1871.