|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1.** Analyses of samples taken from El Boquerón mine, October 6, 2016..   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | EC161a | EC161b | EC162a | EC162b | EC163 | EC164 | EC165 | EC166 | EC167 | TW61 | | Au (0.003) | 0.006 | 0.006 | 0.005 | 0.006 | 0.005 | 0.004 | na | 0.004 | na | – | | Ag (0.2) | 2.4 | 1.5 | 0.7 | 0.8 | 0.7 | 0.3 | 0.4 | 0.4 | 0.3 | – | | As (2.0) | 75 | 45 | 46 | 43 | 19 | 9 | 8 | 14 | 4 | 1 | | Ca (1.0) | 23067 | 1870 | 24190 | 13707 | 188563 | 2243 | 11342 | 229571 | 5379 | 39100 | | Cu (1.0) | 89 | 90 | 98 | 96 | 52 | 53 | 71 | 97 | 66 | – | | Fe (10) | 55813 | 57171 | 65646 | 78533 | 55718 | 15762 | 42341 | 52120 | 32532 | 9800 | | Hg (0.5) | 31.1 | 33.1 | 39.2 | 11.8 | 4.8 | 113.3 | 0.9 | 1.3 | <1 | 0.03 | | Mo (1.0) | 3 | 14 | 7 | 14 | 10 | <1 | <1 | <1 | <1 | – | | Pb (3.0) | 220 | 143 | 85 | 87 | 60 | 44 | 13 | 46 | 12 | 7 | | S (10) | 7262 | 878 | 741 | 417 | 270 | 182 | 289 | 180 | 276 | 240 | | Sb (0.3) | 54 | 34 | 22 | 21 | 15 | 10 | <1 | 12 | <1 | – | | U (8) | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | <8 | 0.45 | | Zn (1.0) | 371 | 263 | 249 | 228 | 132 | 70 | 105 | 112 | 117 | – |   Multi-element ICP analyses (parts per million; detection limit given to right of element, in parentheses; na- not analyzed; American Assay, Sparks, NV, (SP0117075).  *Sample Descriptions*  EC161a [741836/9696463 UTM] area sample inside lowest adit cut into NS striking vein, in rusty hematite altered sandstone, adit is ~20 m, entrance is ~2.2 m by 1.9 m, light comes in at end of adit from a llumbrera. EC161b [741836/9696463] spot sample at entrance, vertical shearing. EC162a [741645/9696954] area sample ~1-2 m within lumbrera, steep >40°, stair-cut, ~1.5 by 2 m, yellow alteration, jarosite? and hematite, following NS vein. EC162b [741645/9696954] spot sample at entrance, vertical shearing. EC163 [741651/9696968] grab sample away from adit, minor quartz vein, limonite and hematite staining. EC164 [741615/9696928] south side of road, grab sample, on strike with NS vein and lowest adit, in road cut, quartz veins, white altered clay, rhyolite? EC165 [741343/9696968] soil sample, north side of road, from small terrace with broken tiles, wood. EC166 [741482/9696908] on terrace, sample of “float” with yellow stain, goethite/hematite, and cross-hatched, cm-sized, Fe-altered pattern. EC167 [741654/9696898] soil sample, south side of road, dark, 3-4 cm deep.  TW61, background distribution of elements in sandstone, in ppm; –, not available (Turekian and Wedepohl, 1961) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 2.**Question 28 of the questionnaire published as*Relaciones Geográficas de Indias* by don Gaspar de Gallegos, parish priest of San Francisco Peleusí de Azogues plus an accurate English translation.    |  |  | | --- | --- | | Es tierra esta y su comarca de muchos metales. Háse hallado media legua de aquí una mina de azogue, de donde se sacó gran cantidad de azogue. Hay minas y vetas de plomo descubiertas; y hay una veta de alumbre; y hay mucha noticia de que hay mocho oro en esta comarca, y plata, que por falta de servicio no se saca y de hombres, que no se dan a ello. Hay en este “pueblo muy buen barro para loza, y hácese respecto desto mucha loza, así de tinajas, jarros y ollas y cántaros y otras vasijas para el servicio de los españoles y naturales. Es una loza muy colorado que se tiene en mucho; y así están los olleros aquí de muy antiguos tiempos, que desde el tiempo del Inga hay muy bien oficiales deste oficios aquí en este pueblo, aunque no son naturales, sino traspuestos aquí por respecto del buen arejo que hay para la dicha loza; y hácese tan buena y tan pulida, que de muchas partes envían aquí por loza. Y hay mucho bolarménicoˡ con que estos indios hacen la loza muy colorada con un matiz que es casi como de vidrio, que le dan con el dicho bolarménico. Tiénese en mucho esta loza y es muy nombrada en todo este distrito (Gaspar de Gallegos [Jiminez de la Espada]: 277.1965). | This land and its region is of many metals. Half a league from here has been found a mercury mine, from which a great quantity of mercury was taken. Mines and veins of lead have been discovered; and there is a vein of alum; and there is much news that there is much gold. There is in this town very good clay for crockery, and they make much crockery with it, large jars [tinajas], jars, pots [ollas] and water jars [cántaros] for use by Spaniards and Indians. It is a very red crockery which is held in high esteem; and it is thus that the potters are here since very ancient times, and since the time of the Inga there are in this town very good experts of this craft, although they are not natives, but relocated here in regard to the good [or proper] preparation of said crockery; and they make it so well and so polished that from many places they send here for crockery. And there is much Armenian bole with which these Indians make the crockery very red with an appearance almost like glass, which they give with the said Armenian bole. They hold this crockery in high esteem and it is much mentioned in this entire district. (Translation: Deborah Truhan, Paul Amaroli) | | This is the response to the twenty-eighth question in the survey reported the survey known (*in toto*) as the *Relaciones Geográficas de Indias,* sent out to the Spanish colonies between 1579 and 1585. The respondent was Gaspar de Gallegos, the local priest, and it refers to the presence of several minerals in the Azogues area. He mentions cinnabar and then he mentions fine ceramic clay; the two are separated by references to lead, alum, gold and silver. There is no suggestion in his response that the red cinnabar and the red clay are the same mineral, or are found in the same location, and indeed they are not. Cinnabar was found in Guashon (Guazhún), specifically high up the San Marcos quebrada; the red clay (that Gallegos called *bolarémico*) was accessible from the ceramics production site of Chuquivita, downhill from the colonial and modern town of Olleros which, with Jatunpamba, are located in the parish of San Miguel de Porotos, Cantón Azogues. All are still ceramics making villages.  Armenian bol (the contemporary spelling of the material) is a soft clayey bright red earth found chiefly in Armenia and Tuscany and used as a coloring material. Probably what Don Gaspar meant was red ochre, as that is what is used today in the surviving potting villages of the Azogues area to give a bright red color to the exteriors of their vessels.  Gallegos also mentions that the descendents of *mitmaqkuna* were the colonial potters; he refers to the “*olleros de Sigsig,*” specifically of Duma *parcialidad,* who were reduced to Azogues by the 1570s. At least one of these families was relocated to Chuquibita around 1529 by the Incas. One might add that the reply to this question by the cura of Cuenca, although much briefer, also attests to the Loma Guashon mines as being for the extraction of cinnabar, not for ceramics clay as averred by Burger *et al.* (Hernando Pablos 1965:II:268). | | |

 :