**Supplemental Note 2. An Extended Discussion on Integrating INAA and Petrographic Data**

In our efforts to integrate these two data sets, we assumed that INAA provided information on the chemical composition of both clay and aplastic inclusions for a specific suite of elements (primarily trace elements). We assumed that the petrographic analysis yielded data on the mineral composition of aplastic inclusions, which provides indirect information on a different suite of elements (oxides consisting of bulk elements). Petrography also provided information on the texture (sizes of aplastic inclusions) of the ceramic paste or fabric.

Given that chemical and mechanical erosion determine the composition of clays and aplastic inclusions (natural or temper), we also assumed that samples with large amounts of mafic minerals—rich in large heavy elements, such as Fe and Mg—should be derived from more primitive bedrock sources (like oceanic crust), which appear as mafic-rich enclaves in the local bedrock (see Blatt and Tracy 1996). Alternatively, we reasoned that samples poor in mafic minerals should be derived from more evolved sources (like continental crust) and be richer in elements such as Si, Al, K, and Na (see Blatt and Tracy 1996), which corresponds with the local bulk petrology. Furthermore, the more primitive sources should contain much higher proportions of the heavy elements used in the INAA classification (e.g., Cs, Rb, Sc, Zn, Cr, and Fe), whereas the more evolved sources will have relatively lower concentrations of these elements. Thus, we expected that samples rich in biotite and other mafic aplastic inclusions would have elemental compositions that are relatively richer in heavy elements. Conversely, samples poor in these aplastic inclusions will correspond with elemental compositions that are relatively poorer in heavy elements.

These expectations hold for INAA Groups 1, 2, 4, 5, and 6, and Petrography Groups HP1, HP2, HFJ, LFJ, LP1, LP2, LC1, and LC2 (see Table 5; Figures 7, 8; Supplemental Figures

2–4). These correlations indicate that the clay and temper were probably taken from the same or similar geological sources (in the case of coarse wares) or that clay bodies were not tempered or only “lightly tempered” with sand from the same geological source (in the case of fine wares).

These expectations do not hold for INAA Group 3. This group is slightly richer in heavy elements (especially Fe and Zn) in comparison to Groups 4, 5, and 6, but the aplastic inclusions come from sources both higher in mafics (e.g., HFJ, HP1) and lower in mafics (e.g., LC2, LP2). The correlation between the samples richer in mafics and heavy elements that were assigned to this INAA group indicates that the source of aplastic inclusions was similar to the clay source. Conversely, the samples assigned to this group, which were poorer in mafic inclusions but richer in heavier elements, represents a compositional break. Such breaks suggest that the clay and aplastic inclusions were drawn from distinct geological sources or clays (with natural aplastic inclusions) from distinct sources were mixed. In general, the aplastic inclusions did not heavily impact the INAA classification in these samples because they lack the trace elements (if clays were mixed, the same holds true for the clay from the more felsic source), which were central to the INAA grouping. Thus, in these cases the petrography is providing information on the composition of material larger than clay-sized and the INAA is providing information on the composition of clay-sized material. However, the INAA appears to have detected the “divergent” temper to some degree because this group showed higher concentrations of Ca and Na and these elements are key components of the plagioclase [$(NaCa)Al_{1-2}Si_{2-3}O_8$] inclusions detected by the petrography (especially in samples TAP 05-2, 05-33, and 05-63).

Our data also indicates that coarse wares were produced with clays and aplastic inclusions relatively poor in mafics (with the exception of samples TAP 05-57, 05-62, and 05-64). Because the temper is virtually devoid of mafic minerals, the key elements used in the

INAA classification, including Sc, Zn, Cr, and Fe, as well as the other relatively heavy elements measured, are basically absent from the aplastic inclusions. We can draw this conclusion because quartz and plagioclase are extremely "clean" minerals, meaning that their structures generally do not permit the substitution of other cations (e.g., Sc, Zn, Cr, Fe) for Si, Al, Na, Ca without a change in mineral species. Consequently the very low volume of other minerals (e.g., spinel, pyroxene, biotite) made the temper essentially "invisible" in the INAA analysis. Consistent with this conclusion, INAA left a number of coarse wares unassigned (TAP 38, 39, 44, and 48) and these samples tend to fall in the lower left sector of the bivariate plots used in the INAA analysis (see Figure 8).

Thus, our compositional studies indicate that the materials used to produce vessels in INAA Groups 5 and 6, as well as a number of the unassigned samples (e.g., TAP 38, 39, 48, and 49) were derived from the Río Grande Pluton and, accordingly, mined in the Río San Francisco Valley maybe 2–5 km from the eastern edge of Tututepec (see Figure 6). The raw material for Group 4, the largest group, showed a mixture of material from the Progreso and Río Grande plutons, indicating that it was most likely mined within 1–2 km of the east-southeast edge of the site. The source location of Group 4 places it close to the site yet in a highly accessible alluvial context that would have provided relatively fine clays (few and small inclusions) for potting. Thus, it is not surprising that this was the most important compositional group. Analysis of INAA Group 3 reveals differences in the mineralogy of samples but similar chemistry, suggesting this clay may have been mined from two different locales within a single geological source located somewhere near Group 4 sources, about 1–2 km from the site. Finally, Groups 1 and 2 were produced with materials derived from mafic enclaves in the Progreso pluton, which places them 0–2 km to the west-southwest of the site. Although these clays were probably available closer to the site and thus to the residences of potters, these may have come from residual deposits in the piedmont and have been comparatively coarse, which would have made them less attractive for fine ware production than Group 4 clays. Furthermore, they would have eroded off the Progreso pluton, which has relatively large crystals and, thus, will produce clays with larger aplastic inclusions. These clays probably require more processing—sifting or levigating—before use in fine ware production.

In regard to pottery temper, integrating the INAA and petrographic data also provided more detailed information on coarse and fine wares. Potters appear to have made these from a mix of clays and tempers selected from a range of distinct sources. These include a minimum of five distinct clay beds (INAA Groups 3, 4, 5, 6, and unassigned) and 4 temper sources (LC1, LC2, HC1, HC2). Moreover, the sands used for the LC1 and LC2 tempers were probably eroded primarily from the Río Grande pluton or from felsic enclaves in the Progreso pluton, whereas the sands used for HC1 and HC2 may have been from mafic enclaves in the Progreso pluton. In regard to fine ware pottery, for the most part, compositional breaks between clay and aplastic inclusions are rare (except in Group 3), suggesting that natural clays for fine wares were not tempered or only “lightly tempered” with sand derived from the same geological source as the clay.