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Diatremes of the Hopi Buttes, Arizona: Chemical and statistical analyses

By

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ABSTRACT

Lacustrine sediments deposited in maar lakes of the Hopi Buttes diatremes are hosts for uranium mineralization of as much as 1500 ppm. The monchiquites and limburgite tuffs erupted from the diatremes are distinguished from normal alkalic basalts of the Colorado Plateau by their extreme silica undersaturation and high water, TiO_2, and P_2O_5 contents. Many trace elements are also unusually abundant, including Ag, As, Ba, Be, Ce, Dy, Eu, F, Gd, Hf, La, Nd, Pb, Rb, Se, Sm, Sn, Sr, Ta, Tb, Th, U, V, Zn, and Zr.

The lacustrine sediments, which consist predominantly of travertine and clastic rocks, are the hosts for syngenetic and epigenetic uranium mineralization of as much as 1500 ppm uranium. Fission track maps show the uranium to be disseminated within the travertine and clastic rocks, and although microprobe analyses have not, as yet, revealed discrete uranium-bearing phases, the clastic rocks show a correlation of high Fe, Ti, and P with areas of high U. Correlation coefficients show that for the travertines, clastics, and limburgite tuffs, Mo, As, Sr, Co, and V appear to have the most consistent and strongest correlations with uranium. Many elements, including many of the rare-earth elements, that are high in these three rocks are also high in the monchiquites, as compared to the average crustal abundance for the respective rock type. This similar suite of anomalous elements, which includes such immobile elements as the rare earths, suggests that fluids which deposited the travertines were related to the monchiquitic magma. The similar age of about 5 m.y. for both the lake beds and the monchiquites also appears to support this source for the mineralizing fluids.

INTRODUCTION

This is a data report for an ongoing study. Uranium occurrences in lacustrine sediments within diatremes of the Hopi Buttes have been known since the work of Shoemaker (1956). This present report presents chemical analyses and statistical evaluations of rock samples collected from the lake beds and associated volcanic rocks. Rock samples were collected from each diatreme where the γ-radiation exceeded twice background. Separate data, statistical summaries, and tables of correlation coefficients are provided for each of the four rock types associated with the diatremes. Scatter plots are provided for those elements which correlate most closely with uranium. Water and stream-sediment samples were also collected within and outside of the diatremes; their chemical analyses and evaluation have been presented in Wenrich-Verbeek and others (1980).

Diatremes, with travertine-bearing lake beds preserved and exposed, were mapped by Wenrich and Mascarenas (1982). Data from aerial and ground γ-ray surveys, and water, stream-sediment, and rock geochemical surveys for uranium

are also presented on the same map.

GEOLOGIC BACKGROUND

The Hopi Buttes dominate the landscape north of Holbrook, Arizona, commonly rising to heights of 180 m above the surrounding countryside. The buttes are underlain by individual diatremes or, in some cases, by a complex of diatremes. Some sediment-filled diatremes crop out as inconspicuous low hills, and some may even be buried beneath alluvium. The diatremes of the Hopi Buttes are unusual in that they, along with few others, most notably the Miocene diatremes of the Schwabian Alb, Germany, formed maars in which lacustrine sediments accumulated. The diatremes erupted into the late Miocene-early Pliocene Hopi Lake. No region in the world is known to contain a greater density of diatremes than the Hopi Buttes, where more than 300 diatremes occur within about 2500 km^2. The lacustrine sediments of the Hopi Buttes were the hosts of syngenetic uranium mineralization. The funnel-shaped vents are filled with limburgite tuff and tuff breccia; agglomerate; monchiquite dikes, necks, and flows; fine-grained clastics and travertines; and blocks of older sedimentary rocks, especially the Wingate Sandstone, derived from the vent walls. A detailed description of the geology of the Hopi Buttes is presented by Shoemaker and others (1962).

Not all diatremes contain mineralized rock, although almost all diatremes filled with travertine have uranium concentrations greater than background in their clastics, limburgite tuffs, and (or) travertines. Although the monchiquites are not mineralized, uranium concentrations are anomalously high for ultrabasic rocks. About 25 percent of the approximately 300 diatremes in the area have lacustrine sediments preserved within them. Most of these diatremes occur within the northern half of the area where erosion has not been as extensive as in the southern half (Wenrich and Mascarenas, 1982).

The volcanic rocks of the diatremes are limburgite tuffs and monchiquite, which are distinguished from normal alkalic basalts of the Colorado Plateau by their extreme silica undersaturation and high water, TiO_2, and P_2O_5 contents. Many trace elements are also unusually abundant, including Ag, As, Ba, Be, Ce, Dy, Eu, F, Gd, Hf, La, Nd, Pb, Rb, Se, Sm, Sn, Sr, Ta, Tb, Th, U, V, Zn, and Zr. The monchiquites occur as massive unaltered flows capping many of the mesas in the area. The limburgite tuffs are generally water-laid, although some are air-fall tuffs. Both the monchiquites and limburgites contain augite, olivine, and biotite phenocrysts. The monchiquite groundmass contains plagioclase, pyroxene and equant opaque microphenocrysts. The limburgite tuffs are composed essentially of volcanic rock clasts and minor phenocrysts of augite, biotite, and olivine in a glassy to devitrified glassy, calcite, or rarely analcime-rich matrix with plagioclase microlites. Many samples also have abundant calcite cement in the interstices.

Many of the diatremes were once filled by maar-lake travertine, siltstone, and water-laid tuff deposits, which locally are interbedded with minor thin layers of gypsum and chert. The aggregate thickness of the lake beds preserved in some diatremes exceeds 300 m (Sutton, 1974, p. 661). The travertine is believed to have been deposited from rising thermal waters, whereas the interbedded clastic rocks were derived from sediment washing into the lake

from the maar rim, from eolian debris, and from ejecta from adjacent diatremes. Although the clastic rocks do contain a volcanic component, they are dominantly composed of quartz fragments with sparse feldspar and mafic minerals in a fine-grained clastic or calcite matrix. Over half of the samples analyzed are travertines. These samples are chemical precipitates and are very fine grained relative to the clastics. X-ray diffraction studies have shown the travertines to contain primarily calcite and dolomite with minor amounts of quartz and goethite. Essentially no clay was identified despite the argillaceous appearance of many specimens; even x-ray analyses of samples soaked in hydrochloric acid to remove all calcite and dolomite showed no kaolinite, montmorillonite, or sericite; very small amounts of illite may be present in one sample. The travertines and clastics were the hosts for syngenetic uranium mineralization, as well as unusually high concentrations of SO_4, P_2O_5, Ag, As, Ba, Be, Co, Cs, Eu, F, Fe, Hf, Li, Mo, Mn, Nd, Ni, Rb, Sc, Se, Sr, Ta, Th, V, Zn, and Zr.

Within each diatreme the highest uranium concentrations are in the limestones and clastic rocks, whereas lower uranium concentrations occur in limburgite tuffs and monchiquite flows. No uranium minerals were observed in any of the rock types of the Hopi Buttes. Those tuffaceous sandstones and other clastics within diatremes containing no travertine deposits do not contain γ-radioactivity above background. Within the travertine deposits, drilling has shown the highest concentrations of uranium to be near the top of the deposit with a generally subsidiary high near the base just above the contact with the limburgite tuffs. Fission track maps show the uranium to be disseminated in all the lacustrine sediments, mimicking the sedimentary structures to the extent that it is difficult at a glance to distinguish the thin section from the fission track map. Some uranium is concentrated in opaque rims of clasts within the clastic rocks. Electron microprobe studies have not, as yet, been able to isolate discrete mineral phases which have concentrated the uranium, but areas in the clastic rocks with uranium concentrations as high as 8 percent U_3O_8 have concentrations, in percent, of FeO equal to about 26, $TiO_2 \approx 19$, $SiO_2 \approx 7$, $Al_2O_3 \approx 7$, $P_2O_5 \approx 5$, and $MgO \approx 2$; CaO, MnO, K_2O, BaO, and SrO were each less than 1 percent. No other elements were observed by qualitative energy dispersive x-ray analysis.

The lacustrine sediments within most diatremes show evidence of abundant organic activity in the lake. Thin laminations in many travertines are indicative of depositional control by algal mats which in some places have stromatolitic form. Thin sections reveal that pelmicrites are common in the lake beds. A thin layer of organic-rich material was initially deposited at the bottom of a number of lakes as evidenced by its location immediately above the limburgite tuff and below all other lacustrine sediments. Epigenetic uranium mineralization occurred at this contact on the crests and flanks of small anticlinal folds. Chalcedony and opal fill fractures within the travertine and also appear to have replaced organic material within the travertine beds. Slumping and collapse of volcanic rocks and sediments into the central vent usually occurred, both prior to and after deposition of the lake-bed sediments.

CHEMICAL ANALYSES

Rocks from the Hopi Buttes diatremes have been divided into 4 types: (A) monchiquites, (B) limburgite tuffs, (C) clastics, and (D) travertines. The above letters, A through D, correspond to the appropriate subtable of table 1 for each rock type.

Chemical analyses of the four rock types are presented in tables 1A, 1B, 1C, and 1D. The first 3 digits of the sample number correspond to the diatreme numbers shown in sheets 1 and 2 of Wenrich and Mascarenas (1982). The next character in the sample number, an alpha character, represents the locality within the diatreme. In some instances this fourth digit is an "R" (the other 3 digits are displaced to the left by one digit, only allowing 2 digits for the sample number) which identifies the sample as a replicate of another sample with an otherwise identical number. The last two digits indicate the year of collection. The method of analysis for each determined element is indicated above the particular column by one of the following symbols:

X = X-ray fluorescence
AA = Atomic absorption
S = Semi-quantitative emission spectroscopy
NA = Neutron activation analysis
DN = Delayed neutron analysis

Data are shown in adjacent columns for those elements determined by more than one method.

The analytical results for some elements included qualified values. A "less-than" qualified value, coded with an "L", indicates the element concentration was less than the limit of detection, shown on the table adjacent to the qualified value. For those elements determined by semi-quantitative emission spectroscopy some data are coded with an "N", this means the element was not detected at all as opposed to an "L", which means the element produced an emission line but represented a concentration less than the limit of detection. Where the element was greater than the upper detection limit, a code of "G" is used. A code of "B" or "H", which is always adjacent to a value of 0.0000, indicates the element was not determined for that sample (B) or there were interferences from other elements (H).

The following elements are not shown in table 1A-1D because all samples determined for them were less than their respective detection limit (shown in parentheses): Pt ppm-S (4.6 ppm), Ta ppm-S (460 ppm), Gd ppm-S (15 ppm), Er ppm-S (10 ppm), Tm ppm-S (4.6 ppm), Lu ppm-S (15 ppm), Ir ppm-S (15 ppm), Os ppm-S (22 ppm), Rh ppm-S (2.2 ppm), Ru ppm-S (2.2 ppm).

STATISTICAL ANALYSIS

Many elements were determined by more than one analytical method. Where multiple results were present the most accurate method of analysis was chosen and each element was used only once in the statistical analysis. For example, X-ray fluorescence data were deemed most accurate for the major elements, and neutron activation (with the exception of uranium where delayed neutron analysis was used) was favored for the trace elements. Atomic absorption was

always preferred over semi-quantitative emission spectroscopy.

Frequency distributions in the form of histograms were plotted for each element. Because this represented over 150 pages of data, the histograms have not been included in this report, but they are available from the authors upon request. Instead, summary tables, tables 2A, 2B, 2C, and 2D, have been included which list the maximum and minimum value for each element as well as the mean and standard deviation. Histograms of most variables exhibited greater unimodal symmetry when the logarithms of the data were used than when they were not. Thus, the populations indicated in tables 2A-D under "transformation" as "log" were judged to be lognormal, and, therefore, the logarithms of the data were used in statistical calculations. In this case the geometric mean and geometric standard deviations (the anti-log of the arithmetic mean and standard deviation, respectively, of the log transformed data) are shown in tables 2A-D.

Most of the trace elements are represented by singly-censored populations; that is, some of the data are below or above a single detection limit. In this case, Cohen's (1959) method was used to estimate the mean and standard deviation from the frequency distribution of the data. Other trace elements are represented by multiply-censored data. This situation occurred when samples were collected over a period of years, during which time the analytical laboratory improved their semi-quantitative spectrographic method and the lower limits of detection were decreased. Tables 2A-D show the percent of data that were qualified (represented by singly-censored data) or that had to be assigned (multiply-censored data) in which case Cohen's method was not applicable. In this latter case the "replacement method", discussed below, was used.

Because of the uncertainty of any method that deals with censored data, any element which had more than 60 percent censored data was eliminated from the statistical analysis. Although 60 percent is an unusually high cut-off, this was justified for many elements because scatter plots of the unqualified data showed good correlations (see figures 2-S or 2-T for example) suggesting that valuable information might be lost if too low a cut-off is placed on the data. This simply means, though, that results for elements with greater than 20 percent qualified data should be studied very carefully (scatter plots should be looked at). This problem only applies to between 6 and 8 elements depending on the rock type. The remainder of the elements have less than 20 percent qualified data (see tables 2A-D). The percent of censored data varied with rock type for each element, and so the statistical analysis of each rock type is composed of different elements; the monchiquites had the largest number of elements present in concentrations exceeding the detection limit for the required percentage of the data. Unfortunately, this disparity in elements used for the statistical analysis presents a problem in determining geochemical similarities between rock types.

Cohen's method of dealing with censored populations is not applicable for correlation analysis, and consequently for factor analysis; therefore, for both of these statistical analyses the "replacement" method was used. This method assigns an arbitrary number to each censored value. The "G", "L", and "N" values were assigned 1 1/4, 3/4, and 1/2 of their corresponding detection

limits, respectively.

Tables 3A-D show correlation matrices of the elements determined for each rock type. Only elements listed in tables 2A-D were used in the correlation matrix. The correlation coefficient (r) is listed first for each element with the number of sample pairs (n) in parentheses to the right. Due to the cost of such techniques as neutron activation, the number of sample pairs varies because not all samples were analyzed for all the elements. An "*" indicates that the log data were used in correlation.

R-mode factor analyses were made on each of the four rock types. On the basis of the eigenvalues, the fourth factor rotation was determined to best group the data for all four rock types. The four factor groups with the factor scores are shown in tables 4A-D. Secondary element associations with each group are shown in parentheses.

DATA INTERPRETATION

Average chemical compositions of 15 monchiquites from 11 diatremes within the Hopi Buttes show that many elements are significantly above the average crustal abundance for ultrabasic rocks (Turekian and Wedepohl, 1961). Those elements which are greater than two times the average crustal abundance are shown in table 5. It might be noted in Table 1A that the CaO content of the monchiquites is high as compared to most volcanic rocks, and volcanic rocks with high CaO do not typically have high U. With the exception of Ti and CO_2, all of the elements which are abnormally high in these monchiquites are elements which are more typically concentrated within silicic igneous rocks than in ultrabasic igneous rocks. It is possible that the uranium and other incompatible element enrichment in these rocks is due to contamination by the underlying Precambrian granite. Although granitic xenoliths are sparse in most diatremes of the Hopi Buttes they are abundant in some, most notably diatreme #205 (Wenrich and Mascarenas, 1982). Nevertheless, a mixing model requires that the original magma contained significantly less than 40 wt. percent SiO_2, which is considered improbable. The incompatible element association and the peculiarly high uranium concentration may indicate a magmatic process associated with a unique mantle inhomogeneity. Wyllie (1979) has shown that CO_2 and H_2O cause incipient melting of the mantle, and the presence of a small proportion of CO_2 is sufficient to generate dolomite and buffer the magma composition to subsilicic, alkalic compositions. These CO_2-rich magmas would also be enriched in incompatible elements (Wyllie, 1979). Wyllie also believes that CO_2 and H_2O are locally concentrated, from time to time beneath continental shields. The anomalous CO_2 and H_2O contents, as well as the incompatible elements of the monchiquites, certainly suggest such an origin. Hence, because these magmas have higher CO_2 and H_2O contents than most basaltic and ultrabasic magmas, they would be expected to contain greater than normal concentrations of uranium, which they do.

The anomalous rare-earth-element concentrations in the 10 monchiquites for which data are available were normalized by the appropriate chondrite values for each element and plotted against increasing atomic number (figure 1). The data for all the monchiquites form essentially identical trends: A strong light rare-earth-element enrichment with no Eu anomaly. Not surpris-

ingly, this trend suggests that the magma probably did not reside for any appreciable length of time at depths of less than about 50 km, because the absence of an Eu anomaly indicates no plagioclase fractionation. Partial melting of a garnet source rock would provide the light-rare-earth element enrichment (Hanson, 1980). The limburgite tuffs have essentially identical rare-earth-element/chondrite patterns, suggesting, not surprisingly, a similar source rock.

Many elements which are high in the monchiquites are also high in the other three rock types: Ag, As, Ba, F, Se, Sr, U, and V (table 5). In addition, many of the rare-earth and other incompatible elements such as Eu, Hf, Nd, Rb, Ta, Zr, and Th that are high in the monchiquites are also high in the travertines. This similar suite of anomalous elements suggests that fluids which deposited the lacustrine sediments were related to the monchiquitic magma: perhaps as late stage hydrothermal solutions. The similar age of about 5 m.y. (Wenrich-Verbeek and others, 1980 p. 67) for both the lake beds and the monchiquites also support this source for the mineralizing fluids.

The R-mode factor analyses (tables 4A-D) group together elements that behave similarly. Table 4A, the monchiquites, shows the rare-earth elements and other incompatible elements forming one group in a negative relationship with SiO_2, which is unusual for normal magmatic processes, but is what is normally observed for kimberlites and lamprophyres. A negative relationship also exists with CO_2, which is consistent with Wyllie's (1979) explanation for the anomalous incompatible element concentrations for such silica-undersaturated magmas. Interestingly, uranium is isolated from the other rare-earth elements into group 4 along with the larger alkali and alkaline earth elements that it frequently correlates with in volcanic rocks. These element associations are normal for magmatic processes associated with lamprophyres; the factor groups suggest no secondary alteration, and this conclusion is supported by the fresh appearance of the monchiquites in the field.

The factor groups for the clastics (table 4C) and the travertines (table 4D) are very similar; the major differences are a result of some elements missing from each factor analysis because of greater than 60 percent qualified data. This similarity in factor groups suggests that although the clastics contain considerable eolian contamination, this external debris (primarily quartz) does not control the behavior of most elements; rather, most elements were probably controlled by the same fluids entering the lake that precipitated the travertines. Factor group 3 for both rock types includes U, As, Mo, and Sr.

Except for the U-As-Mo association in factor group 3, the limburgite tuffs have different element associations from the clastics and travertines. This difference may in part be due to the large volcanic component in the limburgite tuffs with only a minor influence by a small amount of calcareous matrix which was probably precipitated from the lake water.

The correlation coefficients give a better insight into what correlates directly with uranium and the degree of correlation. The following is a

summary of elements that correlate with uranium, listed in decreasing order of correlation:

Monchiquites	Limburgite tuffs	Clastics	Travertine
Ba**	As**	As**	Sr**
K*	Se**	Mo**	Mo**
Sr+	Mo**	Sr**	-Na**
-Co+	-Mg*	Be**	Carbonate C*
-Cs+	Ni*	V**	Co*
Sb+	Co*	Co**	V*
$-CO_2$+	S+	P+	Mn*
La+	-F+	Sc+	Ca+
Sm+	-Zn+	Zn+	
Lu+	Ni+	Zr+	
Rb+		Fe+	

** Significant at the 99 percent confidence limit.

* Significant at the 95 percent confidence limit.

+ Significant at the 90 percent confidence limit.

- Negative correlation.

Scatter plots are shown in figure 2-A to 2-V for those elements having significant correlations with uranium at or better than the 95 percent confidence limit. For most elements the travertines were plotted on a separate diagram to prevent clutter arising from the large number of samples. Unfortunately, the scatter plots do not have the qualified data plotted, which in essence is truncating the lower end of the frequency distribution; in most cases this results in a plot that appears to have a correlation less significant than it actually is. Regression lines have been plotted for each element that displays a significant correlation with uranium in a particular rock type. Among the travertines, clastics, and limburgite tuffs, Mo, As, Sr, Co, and V (figs. 2-A to 2-I) appear to have the most consistent and strongest correlations with uranium. Other elements with significant correlations with U for only one rock type are: Be, Se, Na, Mg, Ni, K, Mn, and Ba (figs. 2-J to 2-Q). No significant correlations exist between organic C and U for any of the rock types, yet there is a significant correlation between carbonate C and U for the travertines (fig. 2-R). Also, only 9 clastic samples have C analyses (table 1C), but all 9 show an obvious (but not significant at the 95 percent confidence limit due to the small number of samples) positive correlation between uranium and carbonate C ("□" on figure 2-R). Two elements

with too few samples above the detection limit for statistical analysis, but with obvious negative correlations with uranium on the scatter diagrams for the travertines are B (fig. 2-S) and Th (fig. 2-T). Scatter diagrams for the other three rock types show a nonsignificant positive correlation between U and Th (fig. 2-U). Although only 9 travertine samples were analyzed by neutron activation, every rare-earth element shows essentially the same distinct negative correlation with uranium (see Eu, for example, fig. 2-V).

In the travertines the negative correlations between uranium and the incompatible elements such as the rare-earth elements (which normally associate with uranium during magmatic processes) and positive correlations between uranium and such elements as Sr, carbonate C, and Mn (elements commonly precipitated in hot spring environments) suggest such fluids as the source for the uranium. The V and Co correlation with uranium is not as readily explained. It might be pointed out, that the As (although As has a positive correlation with uranium in the travertines it is not significant at the 99 percent confidence limit as it is in the limburgite tuffs and clastics), V, Mo, U correlation is a classical Colorado Plateau, low temperature, ground-water deposit association. However, a low-temperature origin is not believed to be the case here due to the lack of a reductant (no correlation with organic carbon), the presence of travertine, the dissemination of uranium throughout the travertine beds, and the similarity between the monchiquites and travertines in elements with high concentration for the rock type.

The clastics show element associations similar to the travertines, except that in the clastics U also shows a correlation at the 90 percent confidence limit with P and Fe. If indeed uranium is present in opaque rims around clasts which are high in Fe, Ti, and P, then this would be expected to show up in the correlations. Although Ti does not show a significant correlation, it barely misses the 90 percent confidence limit. The uranium in the clastics is not only disseminated throughout the matrix and within the clasts, as in the travertines, but is also concentrated by secondary enrichment along the clast boundaries.

Perhaps a modern analogy to the travertine beds of the Hopi Buttes are the modern travertine beds north of Ojo Caliente near La Madera, New Mexico. The Ojo Caliente travertines contain uranium concentrations of 25 ppm, and warm springs (14-27^{o}C) presently precipitating travertine contain highly anomalous uranium concentrations of from 23 to 150 ppb. These waters show significant positive correlations (at the 99 percent confidence limit) between uranium and As, B, bicarbonate, inorganic C, Ca, Cl, Co, Cr, Cu, F, K, Mg, Mo, Na, Ni, Pb, SiO_2, SO_4, Sr, Ti, and V (Wenrich-Verbeek and Suits, 1979). Although only limited trace element analyses of the travertines are available (Wenrich, unpubl. data, 1978), As, Ba, Be, Mo, Se, Th, U, and Zn are anomalous as compared to average crustal abundances for carbonates; of these only Zn was not anomalous in the Hopi Buttes travertines. (Be data are not available for the Hopi Buttes). Although the uranium concentration in the Ojo Caliente travertines is not as high as in the Hopi Buttes travertines, nor is the environment a lacustrine one as in the Hopi Buttes, the uranium concentration in both travertines is highly anomalous for carbonates, and the similar suite of anomalous elements suggests a similar origin.

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Table 1A.--Chemical analyses of Hopi Buttes monchiquites

SAMPLE	LATITUDE	LONGITUDE	Ag ppm-S	Al2O3%-X	Al%-S	As ppmAA	As ppm-S	Au ppm-S	B ppm-S	Ba ppmNA
3AR-D79	35.3736	110.0547	3.40	11.90	6.00	21.00	200.00L	10.00L	21.00	0.00B
3A-D79	35.3736	110.0547	3.10	12.10	5.70	27.00	200.00L	10.00L	16.00	0.00B
15B-D79	35.3269	110.3233	0.10L	10.60	3.10	3.60	150.00L	10.00L	11.00	832.00
15D-D79	35.3264	110.3247	0.10L	0.00B	4.30	15.00	150.00L	10.00L	4.60L	0.00B
36E-D80	35.4514	110.3344	0.10L	12.50	5.20	2.20	150.00L	10.00L	6.80L	988.00
40B-D80	35.4894	110.3317	0.10L	10.00	3.20	1.40	150.00L	10.00L	6.80L	809.00
41B-D80	35.5075	110.3567	0.10L	0.00B	2.80	2.60	150.00L	10.00L	4.60L	0.00B
41C-D80	35.5072	110.3553	0.10L	0.00B	6.80	8.40	150.00L	10.00L	6.80L	0.00B
41D-D80	35.5072	110.3556	0.10L	0.00B	5.30	1.70	150.00L	10.00L	6.80L	945.00
81A-D80	35.4842	110.3325	0.10L	11.60	4.20	1.80	150.00L	10.00L	6.80L	941.00
83A-D80	35.3406	109.9978	0.10L	11.00	4.40	20.00	150.00L	10.00L	14.00	1150.00
92B-D80	35.5281	109.9569	0.10L	11.40	5.40	2.10	150.00L	10.00L	6.80L	976.00
93D-D80	35.5264	109.9131	0.10L	11.00	2.90	16.00	150.00L	10.00L	4.60L	821.00
113C-D80	35.5189	110.3356	0.10L	12.50	4.20	1.10	150.00L	10.00L	6.80L	1250.00
117A-D80	35.5472	110.2922	0.10L	10.70	2.90	7.20	150.00L	10.00L	6.80L	1490.00

Table 1A.--Monchiquites-continued

SAMPLE	Ba ppm-S	Be ppm-S	Bi ppm-S	CaO%-X	Ca%-S	CO2%	Cbt C%AA	Org C%AA	T-C%-AA	Cd ppm-S
3AR-D79	1000.00	4.10	10.00L	13.50	9.00	0.00B	0.00B	0.00B	0.00B	2.00L
3A-D79	960.00	3.70	10.00L	13.20	9.10	0.00B	0.00B	0.00B	0.00B	2.00L
15B-D79	480.00	1.60	10.00L	12.40	3.80	0.84	0.00B	0.00B	0.00B	32.00L
15D-D79	1100.00	2.00	10.00L	0.00B	6.50	0.00B	0.06	0.07	0.13	32.00L
36E-D80	710.00	1.90	10.00L	12.30	5.80	1.00	0.00B	0.00B	0.00B	32.00L
40B-D80	500.00	1.40	10.00L	10.40	3.80	4.97	0.00B	0.00B	0.00B	32.00L
41B-D80	360.00	1.80	10.00L	0.00B	4.10	0.00B	1.05	0.37	1.42	32.00L
41C-D80	810.00	2.50	10.00L	0.00B	8.40	0.00B	0.15	0.24	0.39	32.00L
41D-D80	670.00	1.70	10.00L	0.00B	7.60	0.00B	0.08	0.19	0.27	32.00L
81A-D80	680.00	2.00	10.00L	11.50	6.20	1.14	0.00B	0.00B	0.00B	32.00L
83A-D80	780.00	2.90	10.00L	13.60	6.40	2.30	0.00B	0.00B	0.00B	32.00L
92B-D80	810.00	3.50	10.00L	11.60	6.80	0.58	0.00B	0.00B	0.00B	32.00L
93D-D80	420.00	2.30	10.00L	12.60	3.70	1.35	0.00B	0.00B	0.00B	32.00L
113C-D80	840.00	2.60	10.00L	10.40	4.60	0.05	0.00B	0.00B	0.00B	32.00L
117A-D80	640.00	1.70	10.00L	11.80	3.60	0.67	0.00B	0.00B	0.00B	32.00L

Table 1A.--Monchiquites-continued

SAMPLE	Ce ppmNA	Ce ppm-S	Co ppmNA	Co ppm-S	Cr ppmNA	Cr ppm-S	Cs ppmNA	Cs ppmAA	Cu ppm-S	Dy ppmNA
3AR-D79	0.00B	320.00	0.00B	28.00	0.00B	240.00	2.00	0.00B	44.00	0.00B
3A-D79	0.00B	240.00	0.00B	27.00	0.00B	210.00	2.00	0.00B	43.00	0.00B
15B-D79	154.00	100.00	53.10	49.00	264.00	240.00	5.79	6.00	74.00	6.96
15D-D79	0.00B	96.00	0.00B	28.00	0.00B	220.00	0.00B	0.00B	34.00	0.00B
36E-D80	150.00	110.00	39.30	38.00	197.00	220.00	0.76	1.00	46.00	7.21
40B-D80	133.00	54.00	51.20	42.00	370.00	300.00	1.15	1.00	74.00	5.23
41B-D80	0.00B	63.00L	0.00B	29.00	0.00B	230.00	0.00B	0.00B	48.00	0.00B
41C-D80	0.00B	130.00	0.00B	51.00	0.00B	370.00	0.00B	0.00B	71.00	0.00B
41D-D80	158.00	130.00	52.50	47.00	347.00	330.00	69.80	71.00	76.00	6.80
81A-D80	180.00	100.00	45.30	39.00	160.00	150.00	0.72	1.00	70.00	7.73
83A-D80	233.00	170.00	40.40	40.00	116.00	110.00	0.76	1.00	49.00	9.46
92B-D80	236.00	230.00	45.40	52.00	84.70	110.00	1.15	1.00	61.00	10.50
93D-D80	245.00	67.00	44.00	32.00	86.30	52.00	2.13	2.00	33.00	9.66
113C-D80	268.00	170.00	39.60	30.00	25.00	17.00	1.04	1.00	48.00	10.00
117A-D80	196.00	70.00	46.90	36.00	396.00	300.00	0.57	1.00	77.00	8.22

Table 1A.--Monchiquites-continued

SAMPLE	Eu ppmNA	Eu ppm-S	F%-AA	FeO%	T-Fe203%	Fe%-NA	Fe%-S	Ga ppm-S	Gd ppmNA	Ge ppm-S
3AR-D79	0.008	0.008	0.15	0.008	8.93	0.008	6.10	25.00	0.008	0.008
3A-D79	0.008	0.008	0.15	0.008	9.61	0.008	5.80	25.00	0.008	0.008
15B-D79	4.18	2.20	0.14	6.78	13.40	8.87	8.60	17.00	11.70	1.50L
15D-D79	0.008	2.20L	0.008	0.008	0.008	0.008	5.00	18.00	0.008	1.50L
36E-D80	4.08	3.40	0.15	2.66	13.30	8.97	8.50	22.00	11.30	1.50L
40B-D80	3.23	2.20L	0.10	7.55	12.10	8.00	7.20	16.00	8.37	1.50L
41B-D80	0.008	2.20L	0.008	0.008	0.008	0.008	5.20	17.00	0.008	1.50L
41C-D80	0.008	4.30	0.008	0.008	0.008	0.008	9.70	18.00	0.008	1.50L
41D-D80	4.19	3.90	0.12	0.008	0.008	8.19	7.50	20.00	11.50	1.50L
81A-D80	4.41	2.70	0.13	5.44	13.60	9.14	8.10	24.00	12.10	1.50L
83A-D80	5.43	3.50	0.14	4.33	13.30	9.00	6.60	19.00	13.00	1.50L
92B-D80	6.02	6.30	0.15	7.07	15.20	10.40	13.00	23.00	17.80	1.50L
93D-D80	5.70	2.20L	0.16	6.21	14.70	10.20	7.60	21.00	15.00	1.50L
113C-D80	6.01	4.10	0.14	5.97	14.80	10.00	7.00	29.00	15.40	1.50L
117A-D80	4.74	2.20L	0.12	6.59	12.10	8.24	6.00	23.00	12.90	1.50L

Table 1A.--Monchiquites-continued

SAMPLE	H20+%	H20-%	Hf ppmNA	Hf ppm-S	Hg ppmAA	Hg ppm-S	In ppm-S	K20%-X	K%-NA	K%-S
3AR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	2.14	0.00B	1.90
3A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	2.12	0.00B	1.20
15B-D79	2.12	0.64	8.42	15.00L	0.00B	0.00B	6.80L	1.36	1.13	1.10
15D-D79	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.72
36E-D80	1.51	0.67	8.06	15.00L	0.00B	0.00B	6.80L	1.66	1.47	1.70
40B-D80	1.01	0.29	6.12	15.00L	0.00B	0.00B	6.80L	0.69	0.51	0.45
41B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.56
41C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.48
41D-D80	0.00B	0.00B	8.95	15.00L	0.00B	0.00B	6.80L	0.00B	0.66	0.49
81A-D80	2.54	0.77	8.49	15.00L	0.00B	0.00B	6.80L	1.07	0.91	1.00
83A-D80	2.94	1.28	10.20	15.00L	0.00B	0.00B	6.80L	1.23	1.11	0.77
92B-D80	2.04	0.81	12.30	15.00L	0.00B	0.00B	6.80L	1.36	1.06	0.93
93D-D80	3.15	1.30	12.00	15.00L	0.00B	0.00B	6.80L	0.78	0.72	0.53
113C-D80	2.50	0.79	11.20	15.00L	0.00B	0.00B	6.80L	1.46	1.10	1.70
117A-D80	2.31	1.13	10.10	15.00L	0.00B	0.00B	6.80L	1.98	1.68	2.60

Table 1A.--Monchiquites-continued

SAMPLE	La ppmNA	La ppm-S	Li ppmAA	Li ppm-S	Lu ppmNA	MgO%-X	Mg%-S	MnO%-X	Mn ppmNA	Mn ppm-S
3AR-D79	0.008	150.00	19.00	50.00L	0.008	6.09	3.30	0.12	0.008	930.00
3A-D79	0.008	130.00	18.00	50.00L	0.008	6.12	3.50	0.13	0.008	740.00
15B-D79	73.20	51.00	23.00	68.00L	0.23	10.10	4.70	0.18	1310.00	1800.00
15D-D79	0.008	61.00	0.008	68.00L	0.008	0.008	3.50	0.008	0.008	1000.00
36E-D80	70.80	61.00	10.00	68.00L	0.24	6.34	3.20	0.14	1090.00	1500.00
40B-D80	68.00	50.00	15.00	68.00L	0.19	11.60	5.10	0.15	1080.00	1700.00
41B-D80	0.008	39.00	0.008	68.00L	0.008	0.008	3.50	0.008	0.008	1900.00
41C-D80	0.008	86.00	0.008	68.00L	0.008	0.008	4.40	0.008	0.008	1600.00
41D-D80	78.10	54.00	12.00	68.00L	0.22	0.008	3.70	0.008	1580.00	2100.00
81A-D80	85.10	64.00	28.00	68.00L	0.27	8.37	4.20	0.18	1360.00	2000.00
83A-D80	116.00	110.00	47.00	68.00L	0.33	6.70	3.30	0.21	1680.00	2100.00
92B-D80	113.00	130.00	28.00	68.00L	0.32	7.40	3.70	0.22	1680.00	2200.00
93D-D80	111.00	64.00	21.00	68.00L	0.32	5.98	3.10	0.19	1510.00	2000.00
113C-D80	140.00	99.00	27.00	68.00L	0.36	6.81	3.40	0.23	1680.00	2500.00
117A-D80	95.60	52.00	22.00	68.00L	0.27	9.10	4.50	0.17	1360.00	2200.00

Table 1A.--Monchiquites-continued

SAMPLE	Mo ppm-S	Na2O%-X	Na%-NA	Na%-S	Nb ppm-S	Nd ppmNA	Nd ppm-S	Ni ppm-S	P2O5%-X	P%-S
3AR-D79	20.00	2.30	0.00B	1.70	92.00	0.00B	0.00B	47.00	1.60	0.45G
3A-D79	34.00	2.40	0.00B	1.70	95.00	0.00B	0.00B	53.00	1.60	0.45G
15B-D79	12.00	3.20	2.23	2.40	45.00	74.60	37.00	200.00	1.20	0.61
15D-D79	8.80	0.00B	0.00B	2.00	37.00	0.00B	53.00	81.00	0.00B	0.55
36E-D80	1.80	2.70	2.02	2.40	44.00	76.80	32.00L	90.00	1.20	0.60
40B-D80	1.00L	3.40	2.31	2.50	35.00	65.50	32.00L	210.00	0.86	0.41
41B-D80	1.00L	0.00B	0.00B	2.30	33.00	0.00B	32.00L	120.00	0.00B	0.41
41C-D80	1.30	0.00B	0.00B	2.40	60.00	0.00B	32.00L	130.00	0.00B	0.66
41D-D80	1.00L	0.00B	1.91	2.10	30.00	78.70	32.00L	180.00	0.00B	0.52
81A-D80	3.50	3.10	2.31	2.70	47.00	88.80	38.00	98.00	1.30	0.68
83A-D80	6.30	3.10	2.36	2.10	89.00	112.00	86.00	76.00	2.00	0.92
92B-D80	3.00	4.00	2.97	3.00	69.00	119.00	82.00	90.00	2.00	0.99
93D-D80	1.00L	3.70	2.91	2.80	81.00	113.00	38.00	49.00	2.00	0.83
113C-D80	1.00L	4.00	2.93	3.90	79.00	123.00	65.00	24.00	2.00	0.84
117A-D80	1.20	2.70	2.02	2.50	48.00	93.50	32.00L	150.00	1.40	0.59

Table 1A.--Monchiquites-continued

SAMPLE	Pb ppm-S	Pd ppm-S	Pr ppm-S	Rb ppmNA	Rb ppmAA	Re ppm-S	T-S%-AA	Sb ppmNA	Sb ppm-S	Sc ppmNA
3AR-D79	20.00	0.00B	0.00B	29.00	0.00B	50.00L	0.08	0.00B	100.00L	0.00B
3A-D79	10.00L	0.00B	0.00B	28.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
15B-D79	10.00	1.00L	68.00L	10.30	5.00L	10.00L	0.09	0.09	32.00L	20.80
15D-D79	7.70	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
36E-D80	6.80L	1.00L	68.00L	10.00L	5.00L	10.00L	0.05	0.00B	32.00L	20.10
40B-D80	7.60	1.00L	68.00L	10.00L	5.00L	10.00L	0.02	0.15	32.00L	19.60
41B-D80	7.40	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
41C-D80	9.70	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	0.00B	0.00B
41D-D80	9.70	1.00L	68.00L	10.20	10.00	10.00L	0.01	0.10	32.00L	21.90
81A-D80	11.00	1.00L	68.00L	14.70	5.00	10.00L	0.02	0.07L	32.00L	18.70
83A-D80	10.00	1.00L	68.00L	10.00L	5.00L	10.00L	0.04	0.27	32.00L	15.50
92B-D80	17.00	1.00L	68.00L	10.00L	5.00L	10.00L	0.03	0.10	32.00L	16.50
93D-D80	9.70	1.00L	68.00L	22.00	5.00L	10.00L	0.02	0.22	32.00L	16.30
113C-D80	14.00	1.00L	68.00L	20.00	5.00L	10.00L	0.02	0.17	32.00L	14.10
117A-D80	14.00	1.00L	68.00L	41.00	30.00	10.00L	0.02	0.23	32.00L	20.00

Table 1A.--Monchiquites-continued

SAMPLE	Sc ppm-S	Se ppm-X	Se ppm-S	SiO2%-X	Si%-S	Sm ppmNA	Sm ppm-S	Sn ppm-S	Sr ppmNA	Sr ppm-S
3AR-D79	26.00	0.10L	200.00L	42.60	21.00	0.00B	0.00B	10.00L	0.00B	2700.00
3A-D79	23.00	0.10L	200.00L	42.60	14.00	0.00B	0.00B	10.00L	0.00B	2200.00
15B-D79	14.00	0.10L	0.00B	39.90	15.00	15.10	10.00L	3.00	1620.00	1300.00
15D-D79	18.00	0.70	0.00B	0.00B	15.00	0.00B	10.00L	1.50L	0.00B	1500.00
36E-D80	18.00	0.20	0.00B	41.10	15.00	13.90	10.00L	3.30	1580.00	1600.00
40B-D80	14.00	0.10L	0.00B	40.70	14.00	12.00	10.00L	1.50L	994.00	900.00
41B-D80	11.00	0.10L	0.00B	0.00B	13.00	0.00B	10.00L	1.50L	0.00B	930.00
41C-D80	25.00	2.10	0.00B	0.00B	19.00	0.00B	10.00L	1.50L	0.00B	2000.00
41D-D80	17.00	0.10L	0.00B	0.00B	16.00	13.80	10.00L	1.50L	1370.00	1300.00
81A-D80	15.00	0.10L	0.00B	39.40	14.00	14.80	10.00L	2.30	1410.00	1400.00
83A-D80	15.00	0.10L	0.00B	38.10	13.00	20.40	12.00	4.60	2200.00	2000.00
92B-D80	20.00	0.10L	0.00B	38.50	14.00	22.60	15.00	1.50L	1970.00	2200.00
93D-D80	9.60	0.10L	0.00B	38.50	13.00	20.00	10.00L	3.40	1870.00	1300.00
113C-D80	12.00	0.50	0.00B	39.60	15.00	22.20	11.00	2.50	2250.00	1700.00
117A-D80	11.00	0.10L	0.00B	41.10	14.00	17.50	10.00L	3.00	2140.00	1300.00

Table 1A.--Monchiquites-continued

SAMPLE	Ta ppmNA	Tb ppmNA	Tb ppm-S	Te ppm-S	Th ppmNA**	TiO2%-X	Ti%-S	Tl ppm-S	Tm ppmNA	U ppmDN
3AR-D79	0.008	0.008	0.008	50.00L	13.00	4.47	1.50G	10.00L	0.008	3.78
3A-D79	0.008	0.008	0.008	50.00L	16.40	4.48	1.50G	10.00L	0.008	3.62
15B-D79	5.82	1.35	32.00L	0.008	7.77*	4.15	0.59	4.60L	0.008	3.05
15D-D79	0.008	0.008	32.00L	0.008	11.10	0.008	0.57	4.60L	0.008	3.69
36E-D80	5.46	1.17	32.00L	0.008	7.29*	4.32	0.67	4.60L	0.008	4.80
40B-D80	4.13	1.05	32.00L	0.008	8.43*	3.27	0.51	4.60L	0.008	3.58
41B-D80	0.008	0.008	32.00L	0.008	8.10	0.008	0.39	4.60L	0.008	3.95
41C-D80	0.008	0.008	32.00L	0.008	6.40L	0.008	1.30	4.60L	0.008	9.00
41D-D80	5.11	1.35	32.00L	0.008	8.28*	0.008	0.62	4.60L	0.008	3.18
81A-D80	5.92	1.35	32.00L	0.008	7.90*	3.91	0.60	4.60L	0.008	2.98
83A-D80	7.68	1.80	32.00L	0.008	13.80*	3.45	0.65	4.60L	0.008	4.82
92B-D80	8.89	1.95	32.00L	0.008	12.40*	4.33	1.50	4.60L	0.008	4.25
93D-D80	8.90	1.79	32.00L	0.008	12.40*	4.20	0.53	4.60L	0.008	2.57
113C-D80	9.03	1.92	32.00L	0.008	17.00*	3.99	0.59	4.60L	0.008	5.66
117A-D80	6.65	1.52	32.00L	0.008	11.10*	3.72	0.45	4.60L	0.008	6.74

**Th data indicated by a "*" was determined by neutron activation; all other Th data were determined by neutron activation analysis.

Table 1A.--Monchiquites-continued

SAMPLE	V ppm-S	W ppm-S	Y ppm-S	Yb ppmNA	Yb ppm-S	Zn ppmAA	Zn ppm-S	Zr ppmNA	Zr ppm-S
3AR-D79	220.00	100.00L	49.00	0.00B	0.00B	0.00B	320.00	0.00B	710.00
3A-D79	190.00	100.00L	42.00	0.00B	0.00B	0.00B	290.00	0.00B	710.00
15B-D79	140.00	10.00L	15.00	1.59	1.00	137.00	170.00	360.00	190.00
15D-D79	120.00	10.00L	17.00	0.00B	1.40	0.00B	150.00	0.00B	180.00
36E-D80	150.00	10.00L	17.00	1.55	1.20	133.00	170.00	367.00	170.00
40B-D80	110.00	10.00L	13.00	1.34	0.71	124.00	140.00	256.00	150.00
41B-D80	95.00	10.00L	9.80	0.00B	0.60	0.00B	94.00	0.00B	200.00
41C-D80	190.00	10.00L	21.00	0.00B	1.30	0.00B	170.00	0.00B	330.00
41D-D80	130.00	10.00L	13.00	1.70	1.00	125.00	160.00	370.00	150.00
81A-D80	120.00	10.00L	18.00	1.75	1.20	153.00	170.00	393.00	200.00
83A-D80	170.00	10.00L	26.00	2.35	1.90	170.00	170.00	446.00	360.00
92B-D80	170.00	10.00L	34.00	2.44	1.80	192.00	220.00	588.00	350.00
93D-D80	120.00	10.00L	18.00	2.21	1.30	183.00	250.00	575.00	300.00
113C-D80	100.00	10.00L	22.00	2.47	1.60	232.00	190.00	501.00	410.00
117A-D80	110.00	10.00L	11.00	1.83	0.72	151.00	140.00	460.00	180.00

Table 1B.--Hopi Buttes limburgites

SAMPLE	LATITUDE	LONGITUDE	Ag ppm-S	Al2O3%-X	Al%-S	As ppmAA	As ppm-S	Au ppm-S	B ppm-S	Ba ppmNA
1B-D79	35.4714	110.0411	2.10	0.008	5.00	0.008	200.00L	10.00L	34.00	0.008
1BR-D79	35.4714	110.0411	2.50	0.008	6.30	110.00	200.00L	10.00L	36.00	0.008
1C-D79	35.4714	110.0411	1.00L	0.008	3.00	0.008	200.00L	10.00L	130.00	0.008
1H-D79	35.4675	110.0406	0.50N	0.008	2.00	400.00	200.00N	10.00N	10.00N	0.008
1I-D79	35.4675	110.0406	0.50N	0.008	5.00	64.00	200.00N	10.00N	10.00N	0.008
1K-D79	35.4697	110.0497	0.50N	0.008	5.00	1.50	200.00N	10.00N	10.00N	0.008
1L-D79	35.4700	110.0492	0.50N	0.008	5.00	14.00	200.00N	10.00N	10.00L	0.008
2A-D78	35.4722	110.0428	1.00L	0.008	0.91	0.008	200.00L	10.00L	10.00L	0.008
2AR-D79	35.3822	110.0619	3.00	11.70	5.40	3.00	200.00L	10.00L	10.00L	0.008
6A-D79	35.4225	110.0572	1.50	0.008	2.80	21.00	200.00L	10.00L	10.00L	0.008
6D-D79	35.4208	110.0567	2.20	0.008	4.00	0.008	200.00L	10.00L	54.00	0.008
6E1D80	35.4206	110.0564	0.50N	6.36	3.00	0.008	200.00N	10.00N	10.00N	100.00L
7A-D79	35.6219	110.1389	2.10	0.008	4.50	0.008	200.00L	10.00L	14.00	0.008
7H-D79	35.6222	110.1472	2.00	11.40	5.30	15.00	200.00L	10.00L	15.00	0.008
7L-D80	35.6283	110.1325	0.10L	0.008	2.30	13.00	150.00L	10.00L	4.60L	0.008
9D-D79	35.5403	110.0375	1.70	8.14	4.50	150.00	200.00L	10.00L	11.00	0.008
13D-D79	35.3708	110.1150	1.60	11.10	5.40	6.60	200.00L	10.00L	85.00	0.008
17B-D79	35.3933	110.1981	1.00L	0.008	0.61	2.80	200.00L	10.00L	10.00L	0.008
18A-D79	35.3897	110.1744	1.00L	3.40	1.50	2.50	200.00L	10.00L	10.00L	0.008
18AR-D79	35.3897	110.1744	1.00L	0.008	1.60	0.008	200.00L	10.00L	10.00L	0.008
21A-D79	35.5742	110.1083	2.50	10.40	6.00	34.00	200.00L	10.00L	66.00	0.008
21B-D79	35.5750	110.1078	2.30	9.69	5.80	63.00	200.00L	10.00L	10.00L	0.008
23E-D79	35.5125	110.1350	0.10L	0.008	0.05L	720.00	610.00	10.00L	4.60L	0.008
27A-D79	35.4581	110.0228	2.00	8.27	4.60	490.00	200.00L	10.00L	78.00	0.008
27D-D79	35.4586	110.0231	1.50	0.008	5.30	0.008	200.00L	10.00L	61.00	0.008
33D-D80	35.4647	110.3803	0.10L	0.008	2.00	1.30	150.00L	10.00L	4.60L	0.008
34A-D79	35.3583	110.4875	1.80	10.70	5.00	6.20	200.00L	10.00L	19.00	617.00
37C-D79	35.3992	110.2514	2.10	12.50	6.70	2.10	200.00L	10.00L	46.00	1020.00
89A-D80	35.5281	109.9569	0.10L	0.008	2.80	35.00	150.00L	10.00L	4.60L	0.008
96B-D80	35.6256	110.1219	0.10L	0.008	3.20	57.00	150.00L	10.00L	20.00	724.00
106E-D80	35.3347	110.1172	0.10L	0.008	5.40	39.00	150.00L	10.00L	21.00	0.008
118A-D80	35.5108	110.3286	0.10L	0.008	2.10	3.20	150.00L	10.00L	43.00	0.008

Table 18.--Limburgites-continued

SAMPLE	Ba ppm-S	Be ppm-S	Bi ppm-S	CaO%-X	Ca%-S	CO2%	Cbt C%AA	Org C%AA	T-C%-AA	Cd ppm-S
1B-D79	410.00	4.50	10.00L	0.00B	2.00	0.00B	0.00B	0.00B	0.00B	2.00L
1BR-D79	800.00	4.40	12.00	0.00B	3.30	0.00B	0.00B	0.00B	0.00B	2.00L
1C-D79	130.00	6.70	10.00L	0.00B	0.33	0.00B	0.00B	0.00B	0.00B	2.00L
1H-D79	500.00	1.00L	10.00N	0.00B	7.00	0.00B	0.00B	0.00B	0.00B	2.00N
1I-D79	1000.00	1.00L	10.00N	0.00B	2.00	0.00B	0.00B	0.00B	0.00B	2.00N
1K-D79	1000.00	1.00L	10.00N	0.00B	10.00G	0.00B	0.00B	0.00B	0.00B	2.00N
1L-D79	1000.00	1.00L	10.00N	0.00B	5.00	0.00B	0.00B	0.00B	0.00B	2.00N
2A-D78	350.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
2AR-D79	3000.00	3.00	10.00L	12.30	8.70	0.00B	0.00B	0.00B	0.00B	2.00L
6A-D79	470.00	1.00L	10.00L	0.00B	17.00	0.00B	0.00B	0.00B	0.00B	2.00L
6D-D79	1900.00	1.60	10.00L	0.00B	11.00	0.00B	0.00B	0.00B	0.00B	2.00L
6E1D80	150.00	1.00L	10.00N	19.80	10.00G	0.00B	0.00B	0.00B	0.00B	2.00N
7A-D79	1100.00	4.90	10.00L	0.00B	8.50	0.00B	0.00B	0.00B	0.00B	2.00L
7H-D79	430.00	5.50	10.00L	12.10	8.50	0.00B	0.00B	0.00B	0.00B	2.00L
7L-D80	490.00	3.00	10.00L	0.00B	2.80	0.00B	0.27	0.10	0.37	32.00L
9D-D79	1200.00	1.90	10.00L	22.40	17.00	0.00B	0.00B	0.00B	0.00B	2.00L
13D-D79	2300.00	2.80	10.00L	9.22	6.30	0.00B	0.00B	0.00B	0.00B	2.00L
17B-D79	53.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
18A-D79	1400.00	1.00L	10.00L	41.60	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
18AR-D79	1500.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
21A-D79	1300.00	2.90	10.00L	6.19	4.70	0.00B	0.00B	0.00B	0.00B	2.00L
21B-D79	860.00	3.30	10.00L	14.40	5.60	0.00B	0.00B	0.00B	0.00B	2.00L
23E-D79	46.00	1.00L	10.00L	0.00B	17.00	0.00B	6.62	1.54	8.16	32.00L
27A-D79	1100.00	2.20	10.00L	2.03	1.50	0.00B	0.00B	0.00B	0.00B	2.00L
27D-D79	1200.00	1.80	10.00L	0.00B	1.30	0.00B	0.00B	0.00B	0.00B	2.00L
33D-D80	910.00	1.50	10.00L	0.00B	16.00	0.00B	5.33	0.49	5.82	32.00L
34A-D79	620.00	2.00	10.00L	8.56	9.90	0.00B	0.00B	0.00B	0.00B	2.00L
37C-D79	980.00	4.30	10.00L	10.40	8.30	0.00B	0.00B	0.00B	0.00B	2.00L
89A-D80	810.00	1.60	10.00L	0.00B	9.10	0.00B	2.42	0.84	3.26	32.00L
96B-D80	530.00	1.50	10.00L	0.00B	9.50	0.00B	2.77	0.63	3.40	32.00L
106E-D80	740.00	2.30	10.00L	0.00B	6.00	0.00B	0.16	0.30	0.46	32.00L
118A-D80	350.00	1.00L	10.00L	0.00B	7.70	0.00B	5.10	1.12	6.22	32.00L

Table 18.--Limburgites-continued

SAMPLE	Ce ppmNA	Ce ppm-S	Co ppmNA	Co ppm-S	Cr ppmNA	Cr ppm-S	Cs ppmNA	Cs ppmAA	Cu ppm-S	Dy ppmNA
1B-D79	0.00B	280.00	0.00B	210.00	0.00B	21.00	0.00B	0.00B	32.00	0.00B
1BR-D79	0.00B	380.00	0.00B	45.00	0.00B	24.00	3.00	0.00B	35.00	0.00B
1C-D79	0.00B	100.00L	0.00B	210.00	0.00B	14.00	0.00B	0.00B	20.00	0.00B
1H-D79	0.00B	500.00N	0.00B	150.00	0.00B	70.00	0.00B	0.00B	50.00	0.00B
1I-D79	0.00B	100.00L	0.00B	30.00	0.00B	150.00	0.00B	0.00B	70.00	0.00B
1K-D79	0.00B	500.00N	0.00B	20.00	0.00B	100.00	0.00B	0.00B	30.00	0.00B
1L-D79	0.00B	100.00L	0.00B	30.00	0.00B	100.00	0.00B	0.00B	50.00	0.00B
2A-D78	0.00B	0.00H	0.00B	11.00	0.00B	15.00	0.00B	0.00B	5.80	0.00B
2AR-D79	0.00B	480.00	0.00B	36.00	0.00B	53.00	20.00	0.00B	15.00	0.00B
6A-D79	0.00B	120.00	0.00B	32.00	0.00B	310.00	1.00L	0.00B	35.00	0.00B
6D-D79	0.00B	200.00	0.00B	44.00	0.00B	200.00	0.00B	0.00B	42.00	0.00B
6E1D80	20.20	100.00N	37.00	30.00	1060.00	1500.00	0.23	1.00L	7.00	3.33
7A-D79	0.00B	510.00	0.00B	31.00	0.00B	60.00	0.00B	0.00B	24.00	0.00B
7H-D79	0.00B	460.00	0.00B	28.00	0.00B	58.00	46.00	0.00B	18.00	0.00B
7L-D80	0.00B	170.00	0.00B	15.00	0.00B	8.40	0.00B	0.00B	22.00	0.00B
9D-D79	0.00B	190.00	0.00B	31.00	0.00B	86.00	2.00	0.00B	41.00	0.00B
13D-D79	0.00B	140.00	0.00B	31.00	0.00B	140.00	6.00	0.00B	36.00	0.00B
17B-D79	0.00B	0.00H	0.00B	11.00	0.00B	15.00	1.00L	0.00B	4.20	0.00B
18A-D79	0.00B	100.00L	0.00B	12.00	0.00B	18.00	8.00	0.00B	7.20	0.00B
18AR-D79	0.00B	0.00H	0.00B	12.00	0.00B	18.00	0.00B	0.00B	7.00	0.00B
21A-D79	0.00B	190.00	0.00B	29.00	0.00B	200.00	2.00	0.00B	49.00	0.00B
21B-D79	0.00B	200.00	0.00B	43.00	0.00B	180.00	1.00L	0.00B	45.00	0.00B
23E-D79	0.00B	63.00L	0.00B	20.00	0.00B	1.60	0.00B	0.00B	4.60	0.00B
27A-D79	0.00B	100.00L	0.00B	20.00	0.00B	40.00	9.00	0.00B	23.00	0.00B
27D-D79	0.00B	100.00L	0.00B	8.50	0.00B	50.00	0.00B	0.00B	18.00	0.00B
33D-D80	0.00B	81.00	0.00B	17.00	0.00B	84.00	0.00B	0.00B	31.00	0.00B
34A-D79	118.00	230.00	36.90	37.00	241.00	230.00	8.09	1.00L	47.00	5.41
37C-D79	236.00	340.00	40.60	44.00	83.30	84.00	0.72	1.00L	33.00	9.92
89A-D80	0.00B	120.00	0.00B	25.00	0.00B	25.00	0.00B	0.00B	31.00	0.00B
96B-D80	116.00	63.00L	31.20	26.00	324.00	260.00	3.59	4.00	52.00	4.48
106E-D80	0.00B	97.00	0.00B	50.00	0.00B	170.00	0.00B	0.00B	51.00	0.00B
118A-D80	0.00B	63.00L	0.00B	18.00	0.00B	41.00	0.00B	0.00B	37.00	0.00B

Table 18.--Limburgites--continued

SAMPLE	Eu ppmNA	Eu ppm-S	F%-AA	FeO%	T-Fe2O3%	Fe%-NA	Fe%-S	Ga ppm-S	Gd ppmNA	Ge ppm-S
1B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	8.70	27.00	0.00B	0.00B
1BR-D79	0.00B	0.00B	0.12	0.00B	0.00B	0.00B	6.40	24.00	0.00B	0.00B
1C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	20.00G	17.00	0.00B	0.00B
1H-D79	0.00B	100.00N	0.00B	0.00B	0.00B	0.00B	7.00	10.00	0.00B	1.50N
1I-D79	0.00B	100.00N	0.00B	0.00B	0.00B	0.00B	7.00	20.00	0.00B	1.50N
1K-D79	0.00B	100.00N	0.00B	0.00B	0.00B	0.00B	5.00	15.00	0.00B	1.50N
1L-D79	0.00B	100.00N	0.00B	0.00B	0.00B	0.00B	7.00	15.00	0.00B	1.50N
2A-D78	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.00	10.00L	0.00B	0.00B
2AR-D79	0.00B	0.00B	0.19	0.00B	8.70	0.00B	5.60	21.00	0.00B	0.00B
6A-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	4.80	11.00	0.00B	0.00B
6D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	4.30	10.00	0.00B	0.00B
6E1D80	1.57	0.00B	0.00B	0.00B	7.55	5.29	5.00	15.00	4.14	1.50N
7A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	9.40	27.00	0.00B	0.00B
7H-D79	0.00B	0.00B	0.19	0.00B	11.80	0.00B	8.20	24.00	0.00B	0.00B
7L-D80	0.00B	4.20	0.00B	0.00B	0.00B	0.00B	5.00	16.00	0.00B	1.50L
9D-D79	0.00B	0.00B	0.12	0.00B	7.27	0.00B	5.20	15.00	0.00B	0.00B
13D-D79	0.00B	0.00B	0.14	0.00B	7.04	0.00B	4.90	21.00	0.00B	0.00B
17B-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	0.66	10.00L	0.00B	0.00B
18A-D79	0.00B	0.00B	0.06	0.00B	1.98	0.00B	1.30	10.00L	0.00B	0.00B
18AR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.20	10.00L	0.00B	0.00B
21A-D79	0.00B	0.00B	0.08	0.00B	9.59	0.00B	7.00	25.00	0.00B	0.00B
21B-D79	0.00B	0.00B	0.13	0.00B	9.29	0.00B	7.40	22.00	0.00B	0.00B
23E-D79	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	11.00	1.50L	0.00B	1.50L
27A-D79	0.00B	0.00B	0.06	0.00B	4.21	0.00B	3.10	14.00	0.00B	0.00B
27D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	2.70	13.00	0.00B	0.00B
33D-D80	0.00B	3.10	0.00B	0.00B	0.00B	0.00B	2.80	4.30	0.00B	1.50L
34A-D79	27.10	0.00B	0.09	0.00B	10.60	6.58	6.00	21.00	7.30	0.00B
37C-D79	5.55	0.00B	0.22	0.00B	14.10	9.75	9.50	30.00	15.10	0.00B
89A-D80	0.00B	3.00	0.00B	0.00B	0.00B	0.00B	4.70	10.00	0.00B	1.50L
96B-D80	2.42	2.20L	0.08	0.00B	0.00B	4.45	4.50	9.90	7.00	1.50L
106E-D80	0.00B	2.90	0.00B	0.00B	0.00B	0.00B	7.70	19.00	0.00B	1.50L
118A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.90	9.60	0.00B	1.50L

Table 18.--Limburgites-continued

SAMPLE	H2O+%	H2O-%	Hf ppmNA	Hf ppm-S	Hg ppmAA	Hg ppm-S	In ppm-S	K2O%-X	K%-NA	K%-S
1B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.00
1BR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	1.50
1C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.20
1H-D79	0.00B	0.00B	0.00B	15.00N	0.00B	0.00B	6.80N	0.00B	0.00B	2.00
1I-D79	0.00B	0.00B	0.00B	15.00N	0.00B	0.00B	6.80N	0.00B	0.00B	5.00
1K-D79	0.00B	0.00B	0.00B	15.00N	0.00B	0.00B	6.80N	0.00B	0.00B	3.00
1L-D79	0.00B	0.00B	0.00B	15.00N	0.00B	0.00B	6.80N	0.00B	0.00B	3.00
2A-D78	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.48
2AR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.03	0.00B	0.64
6A-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	0.00B	0.00B	0.79
6D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.60
6E1D80	0.00B	0.00B	2.80	15.00N	0.00B	0.00B	6.80N	0.17	0.50L	0.70N
7A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.52
7H-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.93	0.00B	0.58
7L-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.50
9D-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.75	0.00B	1.60
13D-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	2.18	0.00B	1.30
17B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.43
18A-D79	0.00B	0.00B	0.00B	0.00B	0.04	500.00L	0.00B	0.89	0.00B	0.81
18AR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.78
21A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.96	0.00B	1.60
21B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.76	0.00B	1.60
23E-D79	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.13
27A-D79	0.00B	0.00B	0.00B	0.00B	0.02	500.00L	0.00B	2.46	0.00B	1.80
27D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	2.00
33D-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.30
34A-D79	0.00B	0.00B	5.72	0.00B	0.01L	500.00L	0.00B	2.06	1.53	1.70
37C-D79	0.00B	0.00B	11.70	0.00B	0.01L	500.00L	0.00B	2.72	2.25	2.70
89A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.92
96B-D80	0.00B	0.00B	4.94	15.00L	0.00B	0.00B	6.80L	0.00B	1.08	1.10
106E-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.50
118A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.50

Table 1B.--Limburgites-continued

SAMPLE	La ppmNA	La ppm-S	Li ppmAA	Li ppm-S	Lu ppmNA	MgO%-X	Mg%-S	MnO%-X	Mn ppmNA	Mn ppm-S
1B-D79	0.00B	160.00	0.00B	50.00L	0.00B	0.00B	2.90	0.00B	0.00B	660.00
1BR-D79	0.00B	160.00	20.00	130.00	0.00B	0.00B	1.60	0.00B	0.00B	480.00
1C-D79	0.00B	20.00L	0.00B	50.00L	0.00B	0.00B	3.30	0.00B	0.00B	2900.00
1H-D79	0.00B	50.00	0.00B	50.00N	0.00B	0.00B	1.00	0.00B	0.00B	700.00
1I-D79	0.00B	150.00	0.00B	50.00N	0.00B	0.00B	0.70	0.00B	0.00B	200.00
1K-D79	0.00B	150.00	0.00B	50.00N	0.00B	0.00B	1.50	0.00B	0.00B	2000.00
1L-D79	0.00B	150.00	0.00B	50.00N	0.00B	0.00B	1.50	0.00B	0.00B	500.00
2A-D78	0.00B	91.00	0.00B	0.00H	0.00B	0.00B	0.50	0.00B	0.00B	2500.00
2AR-D79	0.00B	310.00	10.00	50.00L	0.00B	4.70	2.60	0.12	0.00B	740.00
6A-D79	0.00B	65.00	15.00	50.00L	0.00B	0.00B	3.80	0.00B	0.00B	1000.00
6D-D79	0.00B	92.00	0.00B	73.00	0.00B	0.00B	2.40	0.00B	0.00B	850.00
6E1D80	6.76	20.00N	5.00	50.00N	0.11	14.20	10.00	0.11	926.00	700.00
7A-D79	0.00B	270.00	0.00B	54.00	0.00B	0.00B	2.90	0.00B	0.00B	1200.00
7H-D79	0.00B	250.00	33.00	73.00	0.00B	5.00	2.70	0.24	0.00B	1200.00
7L-D80	0.00B	97.00	0.00B	68.00L	0.00B	0.00B	1.90	0.00B	0.00B	1700.00
9D-D79	0.00B	100.00	26.00	63.00	0.00B	3.70	2.10	0.18	0.00B	1400.00
13D-D79	0.00B	85.00	77.00	75.00	0.00B	4.80	2.60	0.07	0.00B	450.00
17B-D79	0.00B	66.00	17.00	50.00L	0.00B	0.00B	0.86	0.00B	0.00B	1300.00
18A-D79	0.00B	57.00	15.00	50.00L	0.00B	1.20	0.67	0.12	0.00B	1000.00
18AR-D79	0.00B	60.00	0.00B	50.00L	0.00B	0.00B	0.64	0.00B	0.00B	980.00
21A-D79	0.00B	100.00	40.00	94.00	0.00B	3.80	2.60	0.07	0.00B	670.00
21B-D79	0.00B	90.00	1.00	50.00L	0.00B	5.19	3.40	0.13	0.00B	830.00
23E-D79	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	3.00	0.00B	0.00B	6000.00
27A-D79	0.00B	20.00L	29.00	50.00L	0.00B	0.92	0.59	0.02L	0.00B	200.00L
27D-D79	0.00B	45.00	0.00B	50.00L	0.00B	0.00B	0.98	0.00B	0.00B	210.00
33D-D80	0.00B	82.00	0.00B	68.00L	0.00B	0.00B	3.00	0.00B	0.00B	5100.00
34A-D79	58.60	100.00	14.00	55.00	0.24	5.24	2.50	0.09	1100.00	1100.00
37C-D79	116.00	160.00	13.00	50.00L	0.36	5.47	3.10	0.18	1400.00	1500.00
89A-D80	0.00B	88.00	0.00B	68.00L	0.00B	0.00B	1.90	0.00B	0.00B	1800.00
96B-D80	63.80	63.00	21.00	68.00L	0.00B	0.00B	2.60	0.00B	964.00	1400.00
106E-D80	0.00B	73.00	0.00B	68.00L	0.00B	0.00B	3.40	0.00B	0.00B	1600.00
118A-D80	0.00B	26.00	0.00B	68.00L	0.00B	0.00B	5.20	0.00B	0.00B	1600.00

Table 18. Limburgites continued

SAMPLE	Mo ppm-S	Na2O%-X	Na%-NA	Na%-S	Nb ppm-S	Nd ppmNA	Nd ppm-S	Ni ppm-S	P2O5%-X	P%-S
1B-D79	18.00	0.00B	0.00B	1.90	98.00	0.00B	0.00B	410.00	0.00B	0.45G
1BR-D79	20.00	0.00B	0.00B	1.80	30.00	0.00B	0.00B	85.00	0.00B	0.45G
1C-D79	200.00	0.00B	0.00B	1.20	25.00L	0.00B	0.00B	940.00	0.00B	0.07
1H-D79	100.00	0.00B	0.00B	1.50	10.00	0.00B	70.00N	700.00	0.00B	0.02N
1I-D79	10.00N	0.00B	0.00B	3.00	30.00	0.00B	150.00	200.00	0.00B	0.02N
1K-D79	10.00L	0.00B	0.00B	3.00	20.00	0.00B	150.00	50.00	0.00B	0.02N
1L-D79	5.00	0.00B	0.00B	2.00	15.00	0.00B	100.00	70.00	0.00B	0.02N
2A-D78	100.00	0.00B	0.00B	0.17	25.00L	0.00B	0.00B	16.00	0.00B	0.02L
2AR-D79	48.00	3.10	0.00B	2.00	130.00	0.00B	0.00B	48.00	3.10	0.45G
6A-D79	10.00L	0.00B	0.00B	0.74	50.00L	0.00B	0.00B	150.00	0.00B	0.12
6D-D79	10.00L	0.00B	0.00B	0.85	57.00	0.00B	0.00B	220.00	0.00B	0.21
6E1D80	10.00N	1.00	0.77	0.50	25.00N	19.10	0.00B	150.00	0.10L	0.02N
7A-D79	10.00L	0.00B	0.00B	1.80	130.00	0.00B	0.00B	47.00	0.00B	0.45G
7H-D79	10.00L	3.00	0.00B	1.80	100.00	0.00B	0.00B	42.00	3.60	0.45G
7L-D80	1.00L	0.00B	0.00B	1.40	64.00	0.00B	98.00	9.30	0.00B	0.94
9D-D79	67.00	1.20	0.00B	1.20	50.00L	0.00B	0.00B	76.00	0.81	0.45G
13D-D79	10.00L	1.00	0.00B	0.84	56.00	0.00B	0.00B	220.00	0.88	0.45G
17B-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	49.00	0.00B	0.02L
18A-D79	10.00L	0.20L	0.00B	0.16	25.00L	0.00B	0.00B	43.00	0.10L	0.02L
18AR-D79	10.00L	0.00B	0.00B	0.15	25.00L	0.00B	0.00B	45.00	0.00B	0.02L
21A-D79	33.00	1.10	0.00B	1.20	82.00	0.00B	0.00B	87.00	0.79	0.45G
21B-D79	21.00	1.80	0.00B	0.91	50.00L	0.00B	0.00B	150.00	0.80	0.45G
23E-D79	570.00	0.00B	0.00B	0.12	3.20L	0.00B	32.00L	180.00	0.00B	0.07L
27A-D79	1600.00	0.90	0.00B	0.99	25.00L	0.00B	0.00B	75.00	0.10	0.05
27D-D79	12.00	0.00B	0.00B	1.50	25.00L	0.00B	0.00B	20.00	0.00B	0.16
33D-D80	1.00L	0.00B	0.00B	0.66	32.00	0.00B	110.00	31.00	0.00B	0.69
34A-D79	10.00L	1.00	1.61	1.60	53.00	57.30	0.00B	140.00	1.00	0.45G
37C-D79	10.00L	2.30	2.02	2.00	67.00	114.00	0.00B	73.00	1.90	0.45G
89A-D80	1.00	0.00B	0.00B	1.90	37.00	0.00B	96.00	48.00	0.00B	0.49
96B-D80	7.20	0.00B	0.81	1.20	29.00	49.00	35.00	140.00	0.00B	0.30
106E-D80	6.30	0.00B	0.00B	1.50	58.00	0.00B	48.00	140.00	0.00B	0.50
118A-D80	1.30	0.00B	0.00B	1.60	6.00	0.00B	32.00L	45.00	0.00B	0.25

Table 18.--Limburgites-continued

SAMPLE	Pb ppm-S	Pd ppm-S	Pr ppm-S	Rb ppmNA	Rb ppmAA	Re ppm-S	T-S%-AA	Sb ppmNA	Sb ppm-S	Sc ppmNA
1B-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
1BR-D79	10.00L	0.00B	0.00B	35.00	0.00B	50.00L	2.71	0.00B	100.00L	0.00B
1C-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
1H-D79	10.00N	1.00N	68.00N	0.00B	0.00B	50.00N	0.00B	0.00B	100.00N	0.00B
1I-D79	10.00N	1.00N	68.00N	0.00B	0.00B	50.00N	0.00B	0.00B	100.00N	0.00B
1K-D79	10.00N	1.00N	68.00N	0.00B	0.00B	50.00N	0.00B	0.00B	100.00N	0.00B
1L-D79	10.00N	1.00N	68.00N	0.00B	0.00B	50.00N	0.00B	0.00B	100.00N	0.00B
2A-D78	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
2AR-D79	10.00L	0.00B	0.00B	10.00	0.00B	50.00L	0.07	0.00B	100.00L	0.00B
6A-D79	10.00L	0.00B	0.00B	9.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
6D-D79	36.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
6E1D80	10.00N	1.00N	0.00B	10.00L	5.00	50.00N	0.00B	0.00B	100.00N	42.60
7A-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
7H-D79	10.00L	0.00B	0.00B	20.00	0.00B	50.00L	0.06	0.00B	100.00L	0.00B
7L-D80	8.30	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
9D-D79	10.00L	0.00B	0.00B	27.00	0.00B	50.00L	0.08	0.00B	100.00L	0.00B
13D-D79	10.00L	0.00B	0.00B	58.00	0.00B	50.00L	0.09	0.00B	100.00L	0.00B
17B-D79	10.00L	0.00B	0.00B	10.00	0.00B	50.00L	0.05	0.00B	100.00L	0.00B
18A-D79	10.00L	0.00B	0.00B	25.00	0.00B	50.00L	0.05	0.00B	100.00L	0.00B
18AR-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
21A-D79	10.00L	0.00B	0.00B	28.00	0.00B	50.00L	0.52	0.00B	100.00L	0.00B
21B-D79	10.00L	0.00B	0.00B	1.00L	0.00B	50.00L	0.02	0.00B	100.00L	0.00B
23E-D79	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
27A-D79	10.00L	0.00B	0.00B	73.00	0.00B	50.00L	0.17	0.00B	100.00L	0.00B
27D-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
33D-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
34A-D79	10.00L	0.00B	0.00B	48.00	33.00	50.00L	0.05	0.25	100.00L	17.50
37C-D79	10.00L	0.00B	0.00B	34.70	29.00	50.00L	0.02	0.18	100.00L	15.70
89A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
96B-D80	8.90	1.00L	68.00L	40.10	45.00	10.00L	0.05	0.26	32.00L	13.50
106E-D80	13.00	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
118A-D80	9.50	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B

Table 18. Limburgites continued

SAMPLE	Sc ppm-S	Se ppm-X	Se ppm-S	SiO2%-X	Si%-S	Sm ppmNA	Sm ppm-S	Sn ppm-S	Sr ppmNA	Sr ppm-S
1B-D79	15.00	0.00B	200.00L	0.00B	16.00	0.00B	0.00B	10.00L	0.00B	5000.00G
1BR-D79	15.00	0.10L	200.00L	0.00B	19.00	0.00B	0.00B	10.00L	0.00B	1500.00
1C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	0.00H	0.00B	260.00
1H-D79	7.00	5.80	0.00B	0.00B	7.00	0.00B	10.00N	10.00N	0.00B	700.00
1I-D79	20.00	32.00	0.00B	0.00B	10.00	0.00B	10.00N	10.00N	0.00B	2000.00
1K-D79	15.00	0.10L	0.00B	0.00B	7.00	0.00B	10.00N	10.00N	0.00B	1500.00
1L-D79	15.00	1.40	0.00B	0.00B	10.00	0.00B	10.00N	10.00N	0.00B	1500.00
2A-D78	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1000.00
2AR-D79	19.00	0.10L	200.00L	42.10	15.00	0.00B	0.00B	10.00L	0.00B	5000.00G
6A-D79	29.00	0.50	200.00L	0.00B	11.00	0.00B	0.00B	10.00L	0.00B	1500.00
6D-D79	22.00	0.00B	200.00L	0.00B	18.00	0.00B	0.00B	10.00L	0.00B	1200.00
6E1D80	70.00	0.10L	0.00B	47.40	10.00G	4.94	0.00B	10.00N	355.00	150.00
7A-D79	19.00	0.00B	200.00L	0.00B	11.00	0.00B	0.00B	10.00L	0.00B	5000.00G
7H-D79	16.00	6.40	200.00L	37.50	13.00	0.00B	0.00B	10.00L	0.00B	5000.00G
7L-D80	6.20	0.10L	0.00B	0.00B	11.00	0.00B	10.00	1.90	0.00B	1300.00
9D-D79	20.00	0.10L	200.00L	32.90	14.00	0.00B	0.00B	10.00L	0.00B	1800.00
13D-D79	16.00	0.10	200.00L	47.50	17.00	0.00B	0.00B	10.00L	0.00B	620.00
17B-D79	10.00L	0.40	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2000.00
18A-D79	10.00L	0.10L	200.00L	14.90	10.00L	0.00B	0.00B	10.00L	0.00B	1400.00
18AR-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1400.00
21A-D79	20.00	3.50	200.00L	52.70	24.00	0.00B	0.00B	10.00L	0.00B	2000.00
21B-D79	22.00	0.60	200.00L	43.30	23.00	0.00B	0.00B	10.00L	0.00B	1300.00
23E-D79	1.20	16.00	0.00B	0.00B	2.00	0.00B	10.00L	1.50L	0.00B	1600.00
27A-D79	10.00L	7.80	200.00L	65.30	30.00	0.00B	0.00B	10.00L	0.00B	1200.00
27D-D79	10.00L	0.00B	200.00L	0.00B	30.00	0.00B	0.00B	10.00L	0.00B	2100.00
33D-D80	15.00	0.10L	0.00B	0.00B	4.50	0.00B	10.00L	1.50L	0.00B	2800.00
34A-D79	22.00	0.10L	200.00L	45.90	20.00	10.20	0.00B	10.00L	1920.00	2400.00
37C-D79	21.00	0.50	200.00L	42.60	21.00	19.20	0.00B	10.00L	1770.00	2100.00
89A-D80	12.00	0.10	0.00B	0.00B	9.60	0.00B	11.00	1.50L	0.00B	1300.00
96B-D80	12.00	0.40	0.00B	0.00B	16.00	9.56	10.00L	1.80	4150.00	5000.00
106E-D80	21.00	0.10L	0.00B	0.00B	21.00	0.00B	10.00L	1.50L	0.00B	2400.00
118A-D80	5.00	0.10L	0.00B	0.00B	11.00	0.00B	10.00L	1.50L	0.00B	1100.00

Table 18. Limburgites-continued

SAMPLE	Ta ppmNA	Tb ppmNA	Tb ppm-S	Te ppm-S	Th ppmNA**	TiO2%-X	Ti%-S	Tl ppm-S	Tm ppmNA	U ppmDN
1B-D79	0.00B	0.00B	0.00B	50.00L	51.00L	0.00B	1.50G	10.00L	0.00B	196.00
1BR-D79	0.00B	0.00B	0.00B	50.00L	220.00L	0.00B	1.50G	10.00L	0.00B	594.00
1C-D79	0.00B	0.00B	0.00B	50.00L	130.00L	0.00B	0.13	10.00L	0.00B	314.00
1H-D79	0.00B	0.00B	0.00B	50.00N	400.00L	0.00B	0.30	10.00N	0.00B	1450.00
1I-D79	0.00B	0.00B	0.00B	50.00N	260.00L	0.00B	1.00	10.00N	0.00B	866.00
1K-D79	0.00B	0.00B	0.00B	50.00N	13.00L	0.00B	0.50	10.00N	0.00B	41.20
1L-D79	0.00B	0.00B	0.00B	50.00N	15.00L	0.00B	1.00	10.00N	0.00B	46.30
2A-D78	0.00B	0.00B	0.00B	50.00L	18.00L	0.00B	0.10	10.00L	0.00B	93.90
2AR-D79	0.00B	0.00B	0.00B	50.00L	52.00L	4.25	1.50G	67.00	0.00B	206.00
6A-D79	0.00B	0.00B	0.00B	50.00L	5.00L	0.00B	1.00	10.00L	0.00B	6.57
6D-D79	0.00B	0.00B	0.00B	50.00L	28.00L	0.00B	1.00	10.00L	0.00B	106.00
6E1D80	0.25	0.59	0.00B	50.00N	0.22*	1.67	0.70	10.00N	0.00B	1.85
7A-D79	0.00B	0.00B	0.00B	50.00L	25.90	0.00B	1.50G	10.00L	0.00B	13.40
7H-D79	0.00B	0.00B	0.00B	50.00L	17.10	3.65	1.50G	10.00L	0.00B	5.20
7L-D80	0.00B	0.00B	32.00L	0.00B	22.50	0.00B	0.27	4.60L	0.00B	5.92
9D-D79	0.00B	0.00B	0.00B	50.00L	110.00L	2.54	1.40	20.00L	0.00B	232.00
13D-D79	0.00B	0.00B	0.00B	50.00L	12.00L	2.18	1.00	10.00L	0.00B	26.80
17B-D79	0.00B	0.00B	0.00B	50.00L	21.00L	0.00B	0.04	10.00L	0.00B	67.10
18A-D79	Q.00B	0.00B	0.00B	50.00L	18.00L	0.15	0.08	10.00L	0.00B	59.20
18AR-D79	0.00B	0.00B	0.00B	50.00L	20.00L	0.00B	0.09	10.00L	0.00B	60.20
21A-D79	0.00B	0.00B	0.00B	50.00L	42.00L	2.90	1.50G	10.00L	0.00B	181.00
21B-D79	0.00B	0.00B	0.00B	50.00L	87.00L	2.37	1.50G	10.00L	0.00B	364.00
23E-D79	0.00B	0.00B	32.00L	0.00B	26.00L	0.00B	0.00L	4.60L	0.00B	91.50
27A-D79	0.00B	0.00B	0.00B	50.00L	33.00L	1.00	0.62	20.00L	0.00B	123.00
27D-D79	0.00B	0.00B	0.00B	50.00L	8.64	0.00B	0.71	10.00L	0.00B	4.58
33D-D80	0.00B	0.00B	32.00L	0.00B	11.00	0.00B	0.55	4.60L	0.00B	6.12
34A-D79	3.48	1.05	0.00B	50.00L	8.45*	3.36	1.40	10.00L	0.00B	2.82
37C-D79	7.66	1.91	0.00B	50.00L	11.90*	4.08	2.40	10.00L	0.00B	3.76
89A-D80	0.00B	0.00B	32.00L	0.00B	58.00L	0.00B	0.43	4.60L	0.00B	174.00
96B-D80	2.81	0.89	32.00L	0.00B	9.92*	0.00B	0.25	4.60L	0.00B	19.60
106E-D80	0.00B	0.00B	32.00L	0.00B	6.90L	0.00B	0.96	4.60L	0.00B	11.30
118A-D80	0.00B	0.00B	32.00L	0.00B	7.60	0.00B	0.21	4.60L	0.00B	3.37

** Th data indicated by a "*" was determined by neutron activation; all other Th data were determined by neutron activation analysis.

Table 18.--Limburgites--continued

SAMPLE	V ppm-S	W ppm-S	Y ppm-S	Yb ppmNA	Yb ppm-S	Zn ppmAA	Zn ppm-S	Zr ppmNA	Zr ppm-S
1B-D79	120.00	100.00L	84.00	0.00B	0.00B	0.00B	160.00	0.00B	840.00
1BR-D79	150.00	100.00L	37.00	0.00B	0.00B	0.00B	50.00L	0.00B	410.00
1C-D79	57.00	0.00H	23.00	0.00B	0.00B	0.00B	0.00H	0.00B	430.00
1H-D79	100.00	100.00N	30.00	0.00B	2.00	0.00B	50.00N	0.00B	150.00
1I-D79	150.00	100.00N	20.00	0.00B	2.00	0.00B	50.00N	0.00B	300.00
1K-D79	100.00	100.00N	20.00	0.00B	2.00	0.00B	50.00N	0.00B	150.00
1L-D79	150.00	100.00N	30.00	0.00B	3.00	0.00B	50.00N	0.00B	150.00
2A-D78	97.00	100.00L	13.00	0.00B	0.00B	0.00B	0.00H	0.00B	330.00
2AR-D79	110.00	100.00L	59.00	0.00B	0.00B	0.00B	230.00	0.00B	1000.00G
6A-D79	150.00	100.00L	26.00	0.00B	0.00B	0.00B	50.00L	0.00B	490.00
6D-D79	120.00	100.00L	36.00	0.00B	0.00B	0.00B	140.00	0.00B	670.00
6E1D80	200.00	100.00N	15.00	0.69	1.00	51.00	50.00N	69.30	70.00
7A-D79	110.00	100.00L	78.00	0.00B	0.00B	0.00B	200.00	0.00B	1000.00G
7H-D79	120.00	100.00L	68.00	0.00B	0.00B	0.00B	400.00	0.00B	1000.00G
7L-D80	50.00	10.00L	24.00	0.00B	1.80	0.00B	170.00	0.00B	420.00
9D-D79	170.00	100.00L	33.00	0.00B	0.00B	0.00B	50.00L	0.00B	740.00
13D-D79	120.00	100.00L	32.00	0.00B	0.00B	0.00B	75.00	0.00B	590.00
17B-D79	48.00	100.00L	13.00	0.00B	0.00B	0.00B	50.00L	0.00B	140.00
18A-D79	68.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00L	0.00B	190.00
18AR-D79	70.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00L	0.00B	280.00
21A-D79	210.00	100.00L	31.00	0.00B	0.00B	0.00B	50.00L	0.00B	580.00
21B-D79	180.00	100.00L	37.00	0.00B	0.00B	0.00B	150.00	0.00B	560.00
23E-D79	150.00	10.00L	1.50L	0.00B	0.15L	0.00B	150.00	0.00B	58.00
27A-D79	95.00	100.00L	19.00	0.00B	0.00B	0.00B	50.00L	0.00B	650.00
27D-D79	92.00	100.00L	23.00	0.00B	0.00B	0.00B	50.00L	0.00B	360.00
33D-D80	76.00	10.00L	23.00	0.00B	0.97	0.00B	150.00	0.00B	290.00
34A-D79	170.00	100.00L	35.00	1.61	0.00B	0.00B	98.00	260.00	510.00
37C-D79	220.00	100.00L	48.00	2.31	0.00B	0.00B	160.00	558.00	590.00
89A-D80	85.00	10.00L	19.00	0.00B	0.99	0.00B	120.00	0.00B	260.00
96B-D80	73.00	10.00L	15.00	1.44	1.30	79.00	140.00	160.00	150.00
106E-D80	130.00	10.00L	22.00	0.00B	1.30	0.00B	160.00	0.00B	330.00
118A-D80	43.00	10.00L	6.40	0.00B	0.15L	0.00B	140.00	0.00B	120.00

Table 1C.--Hopi Buttes clastics

SAMPLE	LATITUDE	LONGITUDE	Ag ppm-S	Al2O3%-X	Al%-S	As ppmAA	As ppm-S	Au ppm-S	B ppm-S	Ba ppmNA
1A-D79	35.4714	110.0411	1.20	0.00B	5.70	0.00B	200.00L	10.00L	85.00	0.00B
1F-D79	35.4714	110.0411	1.30	0.00B	3.70	0.00B	200.00L	10.00L	70.00	0.00B
1G-D79	35.4714	110.0411	2.80	0.00B	5.50	0.00B	400.00L	20.00L	20.00L	0.00B
1J-D79	35.4658	110.0486	1.00N	0.00B	3.00	14.00	200.00N	10.00N	10.00N	0.00B
2B-D78	35.4722	110.0428	2.00L	0.00B	2.60	0.00B	400.00L	20.00L	20.00L	0.00B
2BR-D79	35.3822	110.0619	1.70	0.00B	4.90	0.00B	200.00L	10.00L	140.00	0.00B
2C-D78	35.4722	110.0428	1.00L	0.00B	3.60	0.00B	200.00L	10.00L	42.00	0.00B
2CR-D79	35.3822	110.0619	1.00L	0.00B	0.78	0.00B	200.00L	10.00L	10.00L	0.00B
2D-D79	35.3822	110.0619	1.00L	0.00B	0.73	0.00B	200.00L	10.00L	10.00L	0.00B
2DR-D79	35.3822	110.0619	1.00L	0.00B	0.79	6.50	200.00L	10.00L	10.00L	0.00B
7C-D79	35.6222	110.1472	1.00L	0.00B	0.97	100.00	200.00L	10.00L	10.00L	0.00B
7G-D79	35.6222	110.1472	1.00L	0.00B	3.60	0.00B	200.00L	10.00L	0.00H	0.00B
7K-D80	35.6244	110.1492	0.10L	0.00B	1.80	32.00	150.00L	10.00L	6.80L	0.00B
8F-D79	35.4769	110.0878	1.00L	0.00B	0.26	14.00	200.00L	10.00L	10.00L	0.00B
8ER-D79	35.4769	110.0878	1.00L	0.00B	0.37	0.00B	200.00L	10.00L	10.00L	0.00B
8I-D79	35.4742	110.0875	1.60	8.23	4.60	4.80	200.00L	10.00L	30.00	0.00B
9C-D79	35.5403	110.0375	3.40	11.30	5.60	100.00	200.00L	10.00L	33.00	0.00B
12A-D79	35.3592	110.1119	1.80	0.00B	0.81	10.00	200.00L	10.00L	10.00L	0.00B
13A-D79	35.3706	110.1133	1.00L	0.00B	0.38	0.00B	200.00L	10.00L	10.00L	0.00B
13B-D79	35.3706	110.1125	1.00L	0.00B	3.30	0.00B	200.00L	10.00L	32.00	0.00B
13E-D79	35.3708	110.1139	1.50	0.00B	2.40	10.00	200.00L	10.00L	10.00L	0.00B
20B-D79	35.3908	110.1381	1.00L	5.09	2.10	2.20	200.00L	10.00L	19.00	0.00B
21C-D79	35.5747	110.1078	1.00L	0.00B	2.90	0.00B	200.00L	10.00L	10.00L	0.00B
22B-D79	35.5411	110.1208	1.20	3.80	1.60	28.00	200.00L	10.00L	10.00L	0.00B
26D-D79	35.3694	110.1375	1.90	7.62	5.60	60.00	200.00L	10.00L	110.00	0.00B
27E-D79	35.4625	110.0286	1.80	0.00B	5.60	0.00B	400.00L	10.00L	140.00	0.00B
83B-D80	35.4708	109.9936	0.33	0.00B	1.60	50.00	150.00L	10.00L	22.00	0.00B
87B-D80	35.5042	110.1189	0.10L	0.00B	1.60	24.00	150.00L	10.00L	4.60L	0.00B
88A-D80	35.5394	109.9589	0.10L	0.00B	1.70	120.00	170.00	10.00L	4.60L	0.00B
94C-D80	35.5344	109.9167	0.10L	0.00B	3.50	3.50	150.00L	10.00L	13.00	0.00B
96A-D80	35.6269	110.1219	3.30	0.00B	0.89	7.50	150.00L	10.00L	4.60L	0.00B
98A-D80	35.4939	110.2883	0.10L	0.00B	3.70	2.60	150.00L	10.00L	15.00	0.00B
103A-D80	35.4028	110.0564	0.10L	0.00B	7.20	5.70	150.00L	10.00L	73.00	0.00B
109A-D80	35.5994	110.0458	0.10L	0.00B	1.70	8.00	150.00L	10.00L	9.30	0.00B

Table 1C.--Clastics-continued

SAMPLE	Ba ppm-S	Be ppm-S	Bi ppm-S	CaO%-X	Ca%-S	CO2%	Cbt C%AA	Org C%AA	T-C%-AA	Cd ppm-S
1A-D79	670.00	3.40	10.00L	0.00B	0.53	0.00B	0.00B	0.00B	0.00B	2.00L
1F-D79	600.00	2.70	10.00L	0.00B	1.30	0.00B	0.00B	0.00B	0.00B	2.00L
1G-D79	800.00	7.80	20.00L	0.00B	3.50	0.00B	0.00B	0.00B	0.00B	4.00L
1J-D79	500.00	1.00N	10.00N	0.00B	7.00	0.00B	0.00B	0.00B	0.00B	2.00N
2B-D78	300.00	2.00L	20.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	4.00L
2BP-D79	1300.00	3.30	10.00L	0.00B	2.30	0.00B	0.00B	0.00B	0.00B	2.00L
2C-D78	170.00	1.40	10.00L	0.00B	0.21	0.00B	0.00B	0.00B	0.00B	2.00L
2CR-D79	60.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
2D-D79	65.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
2DP-D79	62.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7C-D79	59.00	2.00	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7G-D79	78.00	6.20	10.00L	0.00B	9.10	0.00B	0.00B	0.00B	0.00B	2.00L
7K-D80	190.00	2.80	10.00L	0.00B	2.90	0.00B	0.11	0.12	0.23	32.00L
8E-D79	39.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
8ER-D79	48.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
8I-D79	900.00	2.00	10.00L	14.00	8.80	0.00B	0.00B	0.00B	0.00B	2.00L
9C-D79	770.00	3.20	10.00L	8.04	5.10	0.00B	0.00B	0.00B	0.00B	2.00L
12A-D79	230.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
13A-D79	91.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
13B-D79	940.00	1.20	10.00L	0.00B	9.40	0.00B	0.00B	0.00B	0.00B	2.00L
13E-D79	970.00	1.00L	10.00L	0.00B	13.00	0.00B	0.00B	0.00B	0.00B	2.00L
20B-D79	200.00	1.00L	10.00L	18.70	12.00	0.00B	0.00B	0.00B	0.00B	2.00L
21C-D79	450.00	1.30	10.00L	0.00B	16.00	0.00B	0.00B	0.00B	0.00B	2.00L
22B-D79	630.00	1.00L	10.00L	26.90	14.70	0.00B	0.00B	0.00B	0.00B	2.00L
26D-D79	1700.00	2.50	10.00L	0.27	4.80	0.00B	0.00B	0.00B	0.00B	2.00L
27E-D79	1300.00	2.60	10.00L	0.00B	0.56	0.00B	0.00B	0.00B	0.00B	2.50
83B-D80	430.00	1.00L	10.00L	0.00B	13.00	0.00B	6.39	0.56	6.95	32.00L
87B-D80	350.00	1.00L	10.00L	0.00B	21.00	0.00B	8.57	0.84	9.41	32.00L
88A-D80	300.00	1.00L	10.00L	0.00B	27.00	0.00B	7.60	1.41	9.01	32.00L
94C-D80	620.00	1.00L	10.00L	0.00B	18.00	0.00B	4.46	0.28	4.74	32.00L
96A-D80	250.00	1.00L	10.00L	0.00B	11.00	0.00B	5.38	1.20	6.58	32.00L
98A-D80	770.00	1.00L	10.00L	0.00B	9.90	0.00B	2.90	0.65	3.55	32.00L
103A-D80	450.00	1.50	10.00L	0.00B	8.70	0.00B	0.26	0.55	0.81	32.00L
109A-D80	260.00	1.00L	10.00L	0.00B	7.50	0.00B	4.33	0.79	5.12	32.00L

Table 1C.--Clastics-continued

SAMPLE	Ce ppmNA	Ce ppm-S	Co ppmNA	Co ppm-S	Cr ppmNA	Cr ppm-S	Cs ppmNA	Cs ppmAA	Cu ppm-S	Dy ppmNA
1A-D79	0.00B	100.00L	0.00B	50.00	0.00B	37.00	0.00B	0.00B	21.00	0.00B
1F-D79	0.00B	100.00L	0.00B	15.00	0.00B	47.00	0.00B	0.00B	19.00	0.00B
1G-D79	0.00B	200.00	0.00B	200.00	0.00B	130.00	0.00B	0.00B	49.00	0.00B
1J-D79	0.00B	500.00N	0.00B	20.00	0.00B	150.00	0.00B	0.00B	50.00	0.00B
2B-D78	0.00B	200.00L	0.00B	9.20	0.00B	20.00	0.00B	0.00B	7.80	0.00B
2BR-D79	0.00B	350.00	0.00B	28.00	0.00B	31.00	0.00B	0.00B	18.00	0.00B
2C-D78	0.00B	100.00L	0.00B	4.50	0.00B	33.00	0.00B	0.00B	81.00	0.00B
2CR-D79	0.00B	0.00H	0.00B	12.00	0.00B	16.00	0.00B	0.00B	6.90	0.00B
2D-D79	0.00B	0.00H	0.00B	10.00	0.00B	16.00	0.00B	0.00B	5.70	0.00B
2DR-D79	0.00B	0.00H	0.00B	11.00	0.00B	16.00	4.00	0.00B	5.90	0.00B
7C-D79	0.00B	0.00H	0.00B	38.00	0.00B	17.00	3.00	0.00B	12.00	0.00B
7G-D79	0.00B	0.00H	0.00B	49.00	0.00B	29.00	0.00B	0.00B	26.00	0.00B
7K-D80	0.00B	200.00	0.00B	34.00	0.00B	19.00	0.00B	0.00B	30.00	0.00B
8E-D79	0.00B	100.00L	0.00B	12.00	0.00B	12.00	1.00L	0.00B	2.70	0.00B
8ER-D79	0.00B	100.00L	0.00B	9.70	0.00B	12.00	0.00B	0.00B	2.80	0.00B
8I-D79	0.00B	160.00	0.00B	15.00	0.00B	52.00	2.00	0.00B	18.00	0.00B
9C-D79	0.00B	190.00	0.00B	38.00	0.00B	95.00	2.00	0.00B	46.00	0.00B
12A-D79	0.00B	0.00H	0.00B	48.00	0.00B	19.00	1.00	0.00B	6.90	0.00B
13A-D79	0.00B	0.00H	0.00B	16.00	0.00B	15.00	0.00B	0.00B	6.40	0.00B
13B-D79	0.00B	100.00L	0.00B	11.00	0.00B	27.00	0.00B	0.00B	15.00	0.00B
13E-D79	0.00B	100.00L	0.00B	9.40	0.00B	35.00	0.00B	0.00B	12.00	0.00B
20B-D79	0.00B	100.00L	0.00B	13.00	0.00B	25.00	3.00	0.00B	8.60	0.00B
21C-D79	0.00B	100.00L	0.00B	8.70	0.00B	42.00	0.00B	0.00B	13.00	0.00B
22B-D79	0.00B	100.00L	0.00B	15.00	0.00B	33.00	1.00L	0.00B	44.00	0.00B
26D-D79	0.00B	140.00	0.00B	19.00	0.00B	49.00	7.00	0.00B	24.00	0.00B
27E-D79	0.00B	110.00	0.00B	41.00	0.00B	98.00	0.00B	0.00B	26.00	0.00B
83B-D80	0.00B	63.00L	0.00B	7.10	0.00B	11.00	0.00B	0.00B	14.00	0.00B
87B-D80	0.00B	63.00L	0.00B	19.00	0.00B	12.00	0.00B	0.00B	5.00	0.00B
88A-D80	0.00B	63.00L	0.00B	5.70	0.00B	8.20	0.00B	0.00B	5.00	0.00B
94C-D80	0.00B	63.00L	0.00B	10.00	0.00B	52.00	0.00B	0.00B	12.00	0.00B
96A-D80	0.00B	63.00L	0.00B	1.00L	0.00B	1.30	0.00B	0.00B	5.30	0.00B
98A-D80	0.00B	63.00L	0.00B	9.80	0.00B	20.00	0.00B	0.00B	15.00	0.00B
103A-D80	0.00B	63.00L	0.00B	8.80	0.00B	50.00	0.00B	0.00B	16.00	0.00B
109A-D80	0.00B	63.00L	0.00B	5.40	0.00B	37.00	0.00B	0.00B	13.00	0.00B

Table 1C.--Clastics-continued

SAMPLE	Eu ppmNA	Eu ppm-S	F%-AA	FeO%	T-Fe2O3%	Fe%-NA	Fe%-S	Ga ppm-S	Gd ppmNA	Ge ppm-S
1A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	6.40	15.00	0.00B	0.00B
1F-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	6.20	13.00	0.00B	0.00B
1G-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	6.40	20.00L	0.00B	0.00B
1J-D79	0.00B	2.20N	0.00B	0.00B	0.00B	0.00B	5.00	15.00	0.00B	1.50N
2B-D78	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.60	20.00L	0.00B	0.00B
2BR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	5.50	26.00	0.00B	0.00B
2C-D78	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.25	10.00L	0.00B	0.00B
2CR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.90	10.00L	0.00B	0.00B
2D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.50	10.00L	0.00B	0.00B
2DR-D79	0.00B	0.00B	0.04	0.00B	0.00B	0.00B	1.50	10.00L	0.00B	0.00B
7C-D79	0.00B	0.00B	1.30	0.00B	0.00B	0.00B	7.20	17.00	0.00B	0.00B
7G-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	20.00G	30.00	0.00B	0.00B
7K-D80	0.00B	2.90	0.00B	0.00B	0.00B	0.00B	15.00	18.00	0.00B	1.50L
8E-D79	0.00B	0.00B	0.08	0.00B	0.00B	0.00B	0.56	10.00L	0.00B	0.00B
8ER-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.61	10.00L	0.00B	0.00B
8I-D79	0.00B	0.00B	0.07	0.00B	4.46	0.00B	3.30	14.00	0.00B	0.00B
9C-D79	0.00B	0.00B	0.11	0.00B	10.50	0.00B	6.20	19.00	0.00B	0.00B
12A-D79	0.00B	0.00B	0.03	0.00B	0.00B	0.00B	0.52	10.00L	0.00B	0.00B
13A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.20	10.00L	0.00B	0.00B
13B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	2.80	10.00L	0.00B	0.00B
13E-D79	0.00B	0.00B	0.06	0.00B	0.00B	0.00B	2.00	10.00L	0.00B	0.00B
20B-D79	0.00B	0.00B	0.05	0.00B	3.47	0.00B	2.40	10.00L	0.00B	0.00B
21C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	2.40	10.00L	0.00B	0.00B
22B-D79	0.00B	0.00B	0.11	0.00B	2.81	0.00B	1.80	10.00L	0.00B	0.00B
26D-D79	0.00B	0.00B	0.10	0.00B	0.66	0.00B	2.30	13.00	0.00B	0.00B
27E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	5.60	19.00	0.00B	0.00B
83B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.10	3.20	0.00B	1.50L
87B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.97	1.50L	0.00B	1.50L
88A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.60	2.60	0.00B	1.50L
94C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.20	6.80	0.00B	1.50L
96A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.61	2.80	0.00B	1.50L
98A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.30	4.70	0.00B	1.50L
103A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.30	10.00	0.00B	1.50L
109A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.10	5.00	0.00B	1.50L

Table 1C.--Clastics-continued

SAMPLE	H2O+%	H2O-%	Hf ppmNA	Hf ppm-S	Hg ppmAA	Hg ppm-S	In ppm-S	K2O%-X	K%-NA	K%-S
1A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	2.10
1F-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.60
1G-D79	0.00B	0.00B	0.00B	0.00B	0.00B	1000.00L	0.00B	0.00B	0.00B	1.90
1J-D79	0.00B	0.00B	0.00B	15.00N	0.00B	0.00B	6.80N	0.00B	0.00B	2.00
2B-D78	0.00B	0.00B	0.00B	0.00B	0.00B	1000.00L	0.00B	0.00B	0.00B	2.50
2BR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.20
2C-D78	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.20
2CR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.38
2D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.44
2DR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.44
7C-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.32
7G-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.45
7K-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.20
8E-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.15
8ER-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.27
8I-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	2.28	0.00B	1.90
9C-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	2.24	0.00B	1.60
12A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.55
13A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.29
13B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.50
13E-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	1.10
20B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.44	0.00B	0.94
21C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.00
22B-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	0.81	0.00B	0.67
26D-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.32	0.00B	2.00
27E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	1.70
83B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.87
87B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.41
88A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.57
94C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.40
96A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.20
98A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.90
103A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	2.50
109A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.70

Table 1C.--Clastics--continued

SAMPLE	La ppmNA	La ppm-S	Li ppmAA	Li ppm-S	Lu ppmNA	MgO%-X	Mg%-S	MnO%-X	Mn ppmNA	Mn ppm-S
1A-D79	0.00B	20.00L	0.00B	50.00L	0.00B	0.00B	2.10	0.00B	0.00B	380.00
1F-D79	0.00B	24.00	0.00B	50.00L	0.00B	0.00B	1.40	0.00B	0.00B	400.00
1G-D79	0.00B	100.00	0.00B	100.00L	0.00B	0.00B	1.40	0.00B	0.00B	1400.00
1J-D79	0.00B	50.00	0.00B	50.00N	0.00B	0.00B	5.00	0.00B	0.00B	700.00
2B-D78	0.00B	72.00	0.00B	120.00	0.00B	0.00B	0.40	0.00B	0.00B	1700.00
2BR-D79	0.00B	200.00	0.00B	82.00	0.00B	0.00B	1.10	0.00B	0.00B	220.00
2C-D78	0.00B	29.00	0.00B	50.00L	0.00B	0.00B	0.12	0.00B	0.00B	200.00L
2CR-D79	0.00B	79.00	0.00B	50.00L	0.00B	0.00B	0.74	0.00B	0.00B	1700.00
2D-D79	0.00B	71.00	0.00B	50.00L	0.00B	0.00B	0.80	0.00B	0.00B	1000.00
2DR-D79	0.00B	72.00	11.00	50.00L	0.00B	0.00B	0.83	0.00B	0.00B	1100.00
7C-D79	0.00B	82.00	29.00	50.00L	0.00B	0.00B	1.40	0.00B	0.00B	2000.00
7G-D79	0.00B	140.00	0.00B	81.00	0.00B	0.00B	3.60	0.00B	0.00B	1700.00
7K-D80	0.00B	89.00	0.00B	68.00L	0.00B	0.00B	2.60	0.00B	0.00B	1900.00
8E-D79	0.00B	42.00	15.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	900.00
8ER-D79	0.00B	43.00	0.00B	50.00L	0.00B	0.00B	10.00	0.00B	0.00B	1100.00
8I-D79	0.00B	78.00	17.00	50.00L	0.00B	1.80	0.94	0.20	0.00B	1300.00
9C-D79	0.00B	88.00	41.00	0.00H	0.00B	4.40	2.40	0.11	0.00B	790.00
12A-D79	0.00B	170.00	20.00	0.00H	0.00B	0.00B	0.66	0.00B	0.00B	500.00
13A-D79	0.00B	69.00	0.00B	50.00L	0.00B	0.00B	3.40	0.00B	0.00B	1000.00
13B-D79	0.00B	45.00	0.00B	77.00	0.00B	0.00B	5.10	0.00B	0.00B	540.00
13E-D79	0.00B	43.00	0.00B	50.00L	0.00B	0.00B	5.60	0.00B	0.00B	390.00
20B-D79	0.00B	38.00	23.00	50.00L	0.00B	13.00	7.40	0.10	0.00B	620.00
21C-D79	0.00B	50.00	0.00B	50.00L	0.00B	0.00B	0.83	0.00B	0.00B	790.00
22B-D79	0.00B	52.00	29.00	50.00L	0.00B	11.10	5.70	0.23	0.00B	1500.00
26D-D79	0.00B	61.00	49.00	50.00L	0.00B	0.30	3.50	0.02L	0.00B	690.00
27E-D79	0.00B	61.00	0.00B	50.00L	0.00B	0.00B	0.61	0.00B	0.00B	300.00
83B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.97	0.00B	0.00B	480.00
87B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.10	0.00B	0.00B	540.00
88A-D80	0.00B	23.00	0.00B	68.00L	0.00B	0.00B	0.90	0.00B	0.00B	2200.00
94C-D80	0.00B	25.00	0.00B	68.00L	0.00B	0.00B	1.40	0.00B	0.00B	1500.00
96A-D80	0.00B	16.00	0.00B	68.00L	0.00B	0.00B	0.26	0.00B	0.00B	460.00
98A-D80	0.00B	35.00	0.00B	68.00L	0.00B	0.00B	0.86	0.00B	0.00B	840.00
103A-D80	0.00B	30.00	0.00B	68.00L	0.00B	0.00B	1.40	0.00B	0.00B	520.00
109A-D80	0.00B	16.00	0.00B	68.00L	0.00B	0.00B	0.55	0.00B	0.00B	640.00

Table 1C.--Clastics-continued

SAMPLE	Mo ppm-S	Na2O%-X	Na%-NA	Na%-S	Nb ppm-S	Nd ppmNA	Nd ppm-S	Ni ppm-S	P2O5%-X	P%-S
1A-D79	100.00	0.00B	0.00B	1.00	25.00L	0.00B	0.00B	130.00	0.00B	0.08
1F-D79	250.00	0.00B	0.00B	1.10	25.00L	0.00B	0.00B	43.00	0.00B	0.11
1G-D79	22.00	0.00B	0.00B	1.00	46.00	0.00B	0.00B	540.00	0.00B	0.36
1J-D79	100.00	0.00B	0.00B	3.00	10.00	0.00B	32.00N	100.00	0.00B	0.02N
2B-D78	84.00	0.00B	0.00B	0.30L	50.00L	0.00B	0.00B	15.00	0.00B	0.04L
2BR-D79	200.00	0.00B	0.00B	0.64	88.00	0.00B	0.00B	38.00	0.00B	0.45G
2C-D78	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	17.00	0.00B	0.03
2CR-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	23.00	0.00B	0.02L
2D-D79	0.00H	0.00B	0.00B	0.20	25.00L	0.00B	0.00B	19.00	0.00B	0.02L
2DR-D79	0.00H	0.00B	0.00B	0.22	25.00L	0.00B	0.00B	19.00	0.00B	0.02L
7C-D79	0.00H	0.00B	0.00B	1.00	130.00	0.00B	0.00B	53.00	0.00B	0.45G
7G-D79	0.00H	0.00B	0.00B	1.00	0.00H	0.00B	0.00B	61.00	0.00B	0.45G
7K-D80	20.00	0.00B	0.00B	0.54	88.00	0.00B	88.00	33.00	0.00B	1.60
8E-D79	2100.00	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	41.00	0.00B	0.02L
8ER-D79	71.00	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	37.00	0.00B	0.02L
8I-D79	10.00L	1.50	0.00B	1.10	34.00	0.00B	0.00B	49.00	0.56	0.18
9C-D79	12.00	1.10	0.00B	0.97	76.00	0.00B	0.00B	150.00	0.93	0.45G
12A-D79	10.00L	0.00B	0.00B	0.22	25.00L	0.00B	0.00B	370.00	0.00B	0.02L
13A-D79	10.00L	0.00B	0.00B	0.17	25.00L	0.00B	0.00B	61.00	0.00B	0.02L
13B-D79	21.00	0.00B	0.00B	0.81	25.00L	0.00B	0.00B	98.00	0.00B	0.09
13E-D79	10.00L	0.00B	0.00B	0.76	25.00L	0.00B	0.00B	34.00	0.00B	0.06
20B-D79	10.00L	0.50	0.00B	0.44	25.00L	0.00B	0.00B	48.00	0.20	0.03
21C-D79	10.00L	0.00B	0.00B	0.60	25.00L	0.00B	0.00B	31.00	0.00B	0.10
22B-D79	10.00L	0.70	0.00B	0.65	25.00L	0.00B	0.00B	42.00	0.40	0.10
26D-D79	10.00L	0.20L	0.00B	0.90	50.00L	0.00B	0.00B	48.00	0.10L	0.17
27E-D79	2000.00G	0.00B	0.00B	0.94	25.00L	0.00B	0.00B	110.00	0.00B	0.45G
83B-D80	37.00	0.00B	0.00B	0.60	3.90	0.00B	32.00L	18.00	0.00B	0.10
87B-D80	37.00	0.00B	0.00B	0.27	3.90	0.00B	32.00L	110.00	0.00B	0.07L
88A-D80	84.00	0.00B	0.00B	0.35	3.20L	0.00B	32.00L	12.00	0.00B	0.07L
94C-D80	1.10	0.00B	0.00B	1.30	7.10	0.00B	32.00L	30.00	0.00B	0.17
96A-D80	4.50	0.00B	0.00B	0.73	3.20L	0.00B	32.00L	6.60	0.00B	0.07L
98A-D80	1.00L	0.00B	0.00B	0.89	15.00	0.00B	32.00L	34.00	0.00B	0.12
103A-D80	1.00L	0.00B	0.00B	1.90	9.10	0.00B	32.00L	17.00	0.00B	0.09
109A-D80	5.60	0.00B	0.00B	1.20	3.20L	0.00B	32.00L	31.00	0.00B	0.10

Table 1C.--Clastics-continued

SAMPLE	Pb ppm-S	Pd ppm-S	Pr ppm-S	Rb ppmNA	Rb ppmAA	Re ppm-S	T-S%-AA	Sb ppmNA	Sb ppm-S	Sc ppmNA
1A-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
1F-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
1G-D79	20.00L	0.00B	0.00B	0.00B	0.00B	100.00L	0.00B	0.00B	200.00L	0.00B
1J-D79	10.00N	1.00N	68.00N	0.00B	0.00B	50.00N	0.00B	0.00B	100.00N	0.00B
2B-D78	20.00L	0.00B	0.00B	0.00B	0.00B	100.00L	0.00B	0.00B	200.00L	0.00B
2BR-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
2C-D78	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
2CR-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
2D-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
2DR-D79	10.00L	0.00B	0.00B	8.00	0.00B	50.00L	0.10	0.00B	100.00L	0.00B
7C-D79	10.00L	0.00B	0.00B	28.00	0.00B	50.00L	0.38	0.00B	100.00L	0.00B
7G-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
7K-D80	13.00	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
8E-D79	15.00	0.00B	0.00B	5.00L	0.00B	50.00L	0.05	0.00B	100.00L	0.00B
8ER-D79	20.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
8I-D79	10.00L	0.00B	0.00B	39.00	0.00B	50.00L	0.04	0.00B	100.00L	0.00B
9C-D79	10.00L	0.00B	0.00B	33.00	0.00B	50.00L	0.07	0.00B	100.00L	0.00B
12A-D79	30.00	0.00B	0.00B	8.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
13A-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
13B-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
13E-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.05	0.00B	100.00L	0.00B
20B-D79	11.00	0.00B	0.00B	33.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
21C-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
22B-D79	10.00L	0.00B	0.00B	12.00	0.00B	50.00L	0.02	0.00B	100.00L	0.00B
26D-D79	10.00L	0.00B	0.00B	49.00	0.00B	50.00L	0.02	0.00B	100.00L	0.00B
27E-D79	21.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
83B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
87B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
88A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
94C-D80	12.00	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
96A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
98A-D80	9.70	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
103A-D80	15.00	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
109A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B

Table 1C.--Clastics-continued

SAMPLE	Sc ppm-S	Se ppm-X	Se ppm-S	Si02%-X	Si%-S	Sm ppmNA	Sm ppm-S	Sn ppm-S	Sr ppmNA	Sr ppm-S
1A-079	10.00L	0.00B	200.00L	0.00B	30.00	0.00B	0.00B	10.00L	0.00B	1700.00
1F-079	10.00L	0.00B	200.00L	0.00B	30.00	0.00B	0.00B	10.00L	0.00B	1100.00
1G-079	20.00L	0.00B	400.00L	0.00B	19.00	0.00B	0.00B	20.00L	0.00B	1400.00
1J-079	7.00	0.10L	0.00B	0.00B	7.00	0.00B	10.00N	10.00N	0.00B	1000.00
2B-078	20.00L	0.00B	400.00L	0.00B	17.00	0.00B	0.00B	20.00L	0.00B	5000.00G
2BR-079	10.00L	0.00B	200.00L	0.00B	21.00	0.00B	0.00B	10.00L	0.00B	5000.00G
2C-078	10.00L	0.00B	200.00L	0.00B	40.00G	0.00B	0.00B	10.00L	0.00B	190.00
2CR-079	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1100.00
2D-079	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1300.00
2DR-079	10.00L	0.20	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1300.00
7C-079	10.00L	0.40	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	5000.00G
7G-079	13.00	0.00B	200.00L	0.00B	10.00	0.00B	0.00B	10.00L	0.00B	2700.00
7K-080	6.90	0.10L	0.00B	0.00B	9.20	0.00B	12.00	1.50L	0.00B	1300.00
8E-079	10.00L	0.50	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1600.00
8ER-079	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2000.00
8I-079	10.00	0.30	200.00L	51.90	25.00	0.00B	0.00B	10.00L	0.00B	720.00
9C-079	17.00	0.20	200.00L	47.90	20.00	0.00B	0.00B	10.00L	0.00B	2300.00
12A-079	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	5000.00G
13A-079	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	910.00
13B-079	10.00L	0.00B	200.00L	0.00B	14.00	0.00B	0.00B	10.00L	0.00B	940.00
13E-079	10.00L	0.10L	200.00L	0.00B	14.00	0.00B	0.00B	10.00L	0.00B	580.00
20B-079	10.00L	0.10L	200.00L	26.30	10.00L	0.00B	0.00B	10.00L	0.00B	830.00
21C-079	10.00L	0.00B	200.00L	0.00B	16.00	0.00B	0.00B	10.00L	0.00B	450.00
22B-079	10.00L	0.10L	200.00L	17.10	10.00L	0.00B	0.00B	10.00L	0.00B	1300.00
26D-079	11.00	0.50	200.00L	86.20	27.00	0.00B	0.00B	10.00L	0.00B	550.00
27E-079	14.00	0.00B	200.00L	0.00B	33.00	0.00B	0.00B	10.00L	0.00B	1500.00
83B-080	4.20	81.00	0.00B	0.00B	10.00	0.00B	10.00L	4.90	0.00B	1500.00
87B-080	4.60	0.10L	0.00B	0.00B	3.50	0.00B	10.00L	1.50L	0.00B	1700.00
88A-080	3.70	14.00	0.00B	0.00B	8.90	0.00B	10.00L	1.50L	0.00B	730.00
94C-080	7.30	5.30	0.00B	0.00B	23.00	0.00B	10.00L	1.50L	0.00B	970.00
96A-080	2.60	0.10L	0.00B	0.00B	9.80	0.00B	10.00L	1.50L	0.00B	540.00
98A-080	5.90	0.10L	0.00B	0.00B	23.00	0.00B	10.00L	1.50L	0.00B	870.00
103A-080	12.00	0.10L	0.00B	0.00B	34.00G	0.00B	10.00L	4.90	0.00B	310.00
109A-080	2.20	0.10L	0.00B	0.00B	14.00	0.00B	10.00L	1.60	0.00B	340.00

Table 1C.--Clastics-continued

SAMPLE	Ta ppmNA	Tb ppmNA	Tb ppm-S	Te ppm-S	Th ppmDN	TiO2%-X	Ti%-S	Tl ppm-S	Tm ppmNA	U ppmDN
1A-D79	0.00B	0.00B	0.00B	50.00L	73.00L	0.00B	0.47	10.00L	0.00B	331.00
1F-D79	0.00B	0.00B	0.00B	50.00L	170.00L	0.00B	0.78	20.00L	0.00B	358.00
1G-D79	0.00B	0.00B	0.00B	100.00L	460.00L	0.00B	1.40	20.00L	0.00B	1450.00
1J-D79	0.00B	0.00B	0.00B	50.00N	7.00L	0.00B	0.50	10.00N	0.00B	13.00
2B-D78	0.00B	0.00B	0.00B	100.00L	260.00L	0.00B	0.10	20.00L	0.00B	1070.00
2BR-D79	0.00B	0.00B	0.00B	50.00L	460.00L	0.00B	0.88	20.00L	0.00B	1460.00
2C-D78	0.00B	0.00B	0.00B	50.00L	5.50L	0.00B	0.22	10.00L	0.00B	19.10
2CR-D79	0.00B	0.00B	0.00B	50.00L	35.00L	0.00B	0.06	10.00L	0.00B	144.00
2D-D79	0.00B	0.00B	0.00B	50.00L	17.00L	0.00B	0.06	10.00L	0.00B	51.90
2DR-D79	0.00B	0.00B	0.00B	50.00L	17.00L	0.00B	0.06	10.00L	0.00B	52.90
7C-D79	0.00B	0.00B	0.00B	50.00L	86.00L	0.00B	0.24	10.00L	0.00B	347.00
7G-D79	0.00B	0.00B	0.00B	50.00L	33.00L	0.00B	0.83	10.00L	0.00B	127.00
7K-D80	0.00B	0.00B	32.00L	0.00B	25.00L	0.00B	0.26	4.60L	0.00B	68.00
8E-D79	0.00B	0.00B	0.00B	50.00L	27.00L	0.00B	0.04	10.00L	0.00B	111.00
8ER-D79	0.00B	0.00B	0.00B	50.00L	19.00L	0.00B	0.05	10.00L	0.00B	70.90
8I-D79	0.00B	0.00B	0.00B	50.00L	4.80L	1.31	0.71	10.00L	0.00B	7.16
9C-D79	0.00B	0.00B	0.00B	50.00L	140.00L	3.21	1.50G	0.00H	0.00B	293.00
12A-D79	0.00B	0.00B	0.00B	50.00L	11.00L	0.00B	0.09	10.00L	0.00B	27.80
13A-D79	0.00B	0.00B	0.00B	50.00L	10.00L	0.00B	0.03	10.00L	0.00B	27.40
13B-D79	0.00B	0.00B	0.00B	50.00L	6.50L	0.00B	0.25	10.00L	0.00B	11.30
13E-D79	0.00B	0.00B	0.00B	50.00L	4.00L	0.00B	0.26	10.00L	0.00B	5.63
20B-D79	0.00B	0.00B	0.00B	50.00L	6.10	0.44	0.23	10.00L	0.00B	3.28
21C-D79	0.00B	0.00B	0.00B	50.00L	13.00L	0.00B	0.33	10.00L	0.00B	37.40
22B-D79	0.00B	0.00B	0.00B	50.00L	21.00L	0.86	0.40	10.00L	0.00B	65.60
26D-D79	0.00B	0.00B	0.00B	50.00L	22.00L	0.45	0.77	10.00L	0.00B	71.70
27E-D79	0.00B	0.00B	0.00B	50.00L	190.00L	0.00B	0.81	20.00L	0.00B	500.00
83B-D80	0.00B	0.00B	32.00L	0.00B	100.00L	0.00B	0.07	20.00	0.00B	348.00
87B-D80	0.00B	0.00B	32.00L	0.00B	40.00L	0.00B	0.08	4.60L	0.00B	107.00
88A-D80	0.00B	0.00B	32.00L	0.00B	22.00L	0.00B	0.05	4.60L	0.00B	79.10
94C-D80	0.00B	0.00B	32.00L	0.00B	9.70L	0.00B	0.23	4.60L	0.00B	23.60
96A-D80	0.00B	0.00B	32.00L	0.00B	9.50L	0.00B	0.02	4.60L	0.00B	16.50
98A-D80	0.00B	0.00B	32.00L	0.00B	5.00L	0.00B	0.25	4.60L	0.00B	6.13
103A-D80	0.00B	0.00B	32.00L	0.00B	11.00	0.00B	0.28	4.60L	0.00B	2.74
109A-D80	0.00B	0.00B	32.00L	0.00B	7.90L	0.00B	0.04	4.60L	0.00B	13.00

Table 1C.--Clastics-continued

SAMPLE	V ppm-S	W ppm-S	Y ppm-S	Yb ppmNA	Yb ppm-S	Zn ppmAA	Zn ppm-S	Zr ppmNA	Zr ppm-S
1A-D79	71.00	100.00L	16.00	0.00B	0.00B	0.00B	230.00	0.00B	480.00
1F-D79	72.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00L	0.00B	560.00
1G-D79	130.00	200.00L	64.00	0.00B	0.00B	0.00B	100.00L	0.00B	500.00
1J-D79	100.00	100.00N	15.00	0.00B	1.00	0.00B	50.00N	0.00B	100.00
2B-D78	110.00	200.00L	20.00L	0.00B	0.00B	0.00B	100.00L	0.00B	200.00
2BR-D79	78.00	100.00L	35.00	0.00B	0.00B	0.00B	50.00L	0.00B	880.00
2C-D78	30.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00L	0.00B	430.00
2CR-D79	29.00	100.00L	18.00	0.00B	0.00B	0.00B	0.00H	0.00B	320.00
2D-D79	25.00	100.00L	15.00	0.00B	0.00B	0.00B	0.00H	0.00B	220.00
2DR-D79	25.00	100.00L	16.00	0.00B	0.00B	0.00B	0.00H	0.00B	250.00
7C-D79	41.00	100.00L	23.00	0.00B	0.00B	0.00B	50.00L	0.00B	1000.00G
7G-D79	120.00	100.00L	47.00	0.00B	0.00B	0.00B	0.00H	0.00B	1000.00G
7K-D80	61.00	10.00L	20.00	0.00B	1.60	0.00B	210.00	0.00B	570.00
8E-D79	52.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	120.00
8ER-D79	47.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	200.00
8I-D79	87.00	100.00L	28.00	0.00B	0.00B	0.00B	50.00L	0.00B	530.00
9C-D79	190.00	100.00L	33.00	0.00B	0.00B	0.00B	110.00	0.00B	600.00
12A-D79	41.00	100.00L	13.00	0.00B	0.00B	0.00B	0.00H	0.00B	160.00
13A-D79	44.00	100.00L	14.00	0.00B	0.00B	0.00B	0.00H	0.00B	100.00
13B-D79	72.00	100.00L	26.00	0.00B	0.00B	0.00B	50.00L	0.00B	290.00
13E-D79	46.00	100.00L	20.00	0.00B	0.00B	0.00B	50.00L	0.00B	280.00
20B-D79	34.00	100.00L	20.00	0.00B	0.00B	0.00B	50.00L	0.00B	330.00
21C-D79	38.00	100.00L	20.00	0.00B	0.00B	0.00B	50.00L	0.00B	340.00
22B-D79	120.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00L	0.00B	380.00
26D-D79	100.00	100.00L	29.00	0.00B	0.00B	0.00B	50.00L	0.00B	530.00
27E-D79	140.00	100.00L	20.00	0.00B	0.00B	0.00B	50.00L	0.00B	340.00
83B-D80	580.00	10.00L	5.50	0.00B	1.90	0.00B	100.00	0.00B	140.00
87B-D80	52.00	10.00L	5.80	0.00B	0.55	0.00B	51.00	0.00B	110.00
88A-D80	21.00	10.00L	6.40	0.00B	0.42	0.00B	15.00L	0.00B	61.00
94C-D80	58.00	10.00L	11.00	0.00B	0.76	0.00B	64.00	0.00B	100.00
96A-D80	8.50	10.00L	6.00	0.00B	0.29	0.00B	74.00	0.00B	40.00
98A-D80	45.00	10.00L	9.80	0.00B	0.84	0.00B	49.00	0.00B	130.00
103A-D80	35.00	10.00L	19.00	0.00B	2.80	0.00B	44.00	0.00B	310.00
109A-D80	24.00	10.00L	3.80	0.00B	0.43	0.00B	61.00	0.00B	38.00

Table 1D.--Hopi Buttes Travertines

SAMPLE	LATITUDE	LONGITUDE	Ag ppm-S	Al2O3%-X	Al%-S	As ppmAA	As ppm-S	Au ppm-S	B ppm-S	Ba ppmNA
1D-079	35.4714	110.0411	1.00L	0.008	0.32	0.008	200.00L	10.00L	10.00L	0.008
2E-079	35.3822	110.0619	1.00L	0.008	0.66	0.008	200.00L	10.00L	10.00L	0.008
6B-079	35.4206	110.0564	1.00L	0.008	1.80	48.00	200.00L	10.00L	10.00L	0.008
6C-079	35.4231	110.0603	0.00H	0.008	0.49	0.008	200.00L	10.00L	10.00L	0.008
7B-079	35.6222	110.1472	1.00L	0.008	0.29	120.00	200.00L	10.00L	10.00L	0.008
7D-079	35.6239	110.1494	1.00L	0.008	0.25L	0.008	200.00L	10.00L	10.00L	0.008
7F-079	35.6250	110.1422	1.50	0.008	3.50	0.008	200.00L	10.00L	15.00	0.008
7I-079	35.6222	110.1472	1.00L	0.008	0.27	50.00	200.00L	10.00L	10.00L	0.008
7IR-079	35.6222	110.1472	1.00L	0.008	0.25L	60.00	200.00L	10.00L	10.00L	0.008
7J-079	35.6211	110.1500	1.00L	0.008	0.25L	37.00	200.00L	10.00L	10.00L	0.008
8B-079	35.4714	110.0936	1.00L	0.008	0.55	0.008	200.00L	10.00L	10.00L	0.008
8C-079	35.4742	110.0875	1.00L	0.008	0.25L	0.008	200.00L	10.00L	10.00L	0.008
8D-079	35.4742	110.0875	1.00L	0.008	0.40	0.008	200.00L	10.00L	10.00L	0.008
8F-079	35.4764	110.0881	1.00L	0.008	0.56	34.00	200.00L	10.00L	10.00L	0.008
9A-079	35.5403	110.0389	1.00L	0.008	1.60	180.00	200.00L	10.00L	10.00L	0.008
10A-079	35.5078	110.1042	1.00L	0.008	1.90	9.20	200.00L	10.00L	12.00	0.008
10B-079	35.5042	110.1042	1.00L	0.008	0.31	0.008	200.00L	10.00L	10.00L	0.008
10C-079	35.5042	110.1042	1.00L	0.008	0.25L	0.008	200.00L	10.00L	10.00L	0.008
10D-079	35.5083	110.1042	1.00L	0.50	0.25L	3.20	200.00L	10.00L	10.00L	0.008
11B-079	35.4989	110.1114	1.00L	0.008	0.70	42.00	200.00L	10.00L	10.00L	0.008
11C-080	35.5000	110.1128	1.00L	0.008	0.61	5.00	200.00L	10.00L	10.00L	0.008
13C-079	35.3703	110.1150	1.00L	7.01	4.30	2.50	200.00L	10.00L	21.00	0.008
15A-079	39.3286	110.3233	1.00L	0.58	0.25L	11.00	200.00L	10.00L	92.00	0.008
15C-079	35.3286	110.3247	0.10L	0.008	0.40	93.00	150.00L	10.00L	4.60L	0.008
17A-079	35.3933	110.1986	1.00L	2.10	0.83	5.60	200.00L	10.00L	10.00L	0.008
17AR-079	35.3933	110.1986	1.00L	2.10	1.10	5.50	200.00L	10.00L	10.00L	0.008
20A-079	35.3886	110.1408	1.00L	0.008	0.65	19.00	200.00L	10.00L	10.00L	0.008
20C-079	35.3911	110.1353	1.00L	0.008	0.26	0.008	200.00L	10.00L	10.00L	0.008
22A-079	35.5389	110.1139	1.00L	0.008	0.48	3.40	200.00L	10.00L	10.00L	0.008
22C-079	35.5419	110.1200	1.00L	0.008	0.25L	0.008	200.00L	10.00L	10.00L	0.008
23A-079	35.5108	110.1339	1.00L	0.008	0.30	0.008	200.00L	10.00L	10.00L	0.008
23B-079	35.5106	110.1283	1.00L	0.008	0.25L	1.30	200.00L	10.00L	10.00L	0.008
23C-079	35.5122	110.1325	0.10L	0.008	0.28	140.00	150.00	10.00L	4.60L	100.00L
23CR-079	35.5117	110.1283	1.00L	1.20	0.43	7.00	200.00L	10.00L	10.00L	0.008
24A-079	35.5444	110.2417	1.00L	0.008	0.34	0.008	200.00L	10.00L	10.00L	0.008
24B-079	35.5386	110.2431	1.00L	0.008	0.50	0.008	200.00L	10.00L	10.00L	0.008
24C-079	35.5394	110.2419	1.00L	0.008	0.39	25.00	200.00L	10.00L	10.00L	0.008
24D-079	35.5436	110.2414	1.00L	0.008	0.40	10.00	200.00L	10.00L	10.00L	0.008
24E-079	35.5386	110.2419	1.00L	0.008	0.25L	0.008	200.00L	10.00L	10.00L	0.008
24F-079	35.5397	110.2419	1.00L	0.008	0.28	0.008	200.00L	10.00L	10.00L	0.008
26A-079	35.3694	110.1361	1.00L	0.008	1.30	0.008	200.00L	10.00L	10.00L	0.008
26B-079	35.3672	110.1375	1.00L	0.008	1.10	0.008	200.00L	10.00L	10.00L	0.008
26C-079	35.3692	110.1372	1.00L	0.008	1.10	6.20	200.00L	10.00L	10.00L	0.008
26E-079	35.3700	110.1369	1.00L	0.008	0.90	0.008	400.00L	10.00L	0.00H	0.008
27C-079	35.4583	110.0214	0.00H	0.008	0.25L	0.70	200.00L	10.00L	10.00L	0.008
27CR-079	35.4583	110.0214	0.00H	0.008	0.25L	0.70	200.00L	10.00L	10.00L	0.008
30A-079	35.3153	110.2322	0.19	0.008	0.38	11.00	150.00L	10.00L	4.60L	168.00
32A-079	35.4708	110.4042	1.00L	0.008	0.25L	38.00	200.00L	10.00L	10.00L	0.008
33A-079	35.4667	110.3811	1.00L	0.008	0.50	6.80	200.00L	10.00L	10.00L	0.008
33AR-079	35.4667	110.3811	1.00L	0.008	0.33	5.00	200.00L	10.00L	10.00L	0.008

Table 1D.--Travertines-continued

SAMPLE	LATITUDE	LONGITUDE	Ag ppm-S	Al2O3%-X	Al%-S	As ppmAA	As ppm-S	Au ppm-S	B ppm-S	Ba ppmNA
33B-080	35.4644	110.3853	0.10L	0.00B	0.32	3.70	150.00L	10.00L	48.00	0.00B
33C-080	35.4661	110.3814	0.10L	0.00B	0.41	8.00	150.00L	10.00L	4.60L	0.00B
33E-080	35.4647	110.3800	0.10L	0.00H	0.23	24.00	150.00L	10.00L	4.60L	0.00B
35A-079	35.4542	110.3694	1.60	0.00B	0.25	63.00	200.00L	10.00L	10.00L	0.00B
35AR-080	35.4558	110.3636	0.10L	0.00B	0.34	22.00	150.00L	10.00L	4.60L	0.00B
35B-079	35.4536	110.3681	0.00H	0.00B	0.25L	0.00B	200.00L	10.00L	10.00L	0.00B
35BR-080	35.4567	110.3636	0.10L	0.00B	0.24	25.00	150.00L	10.00L	4.60L	100.00L
35C-079	35.4536	110.3681	1.90	0.00B	0.25L	0.00B	200.00L	10.00L	10.00L	0.00B
35D-079	35.4544	110.3681	0.00H	0.00B	0.31	0.00B	200.00L	10.00L	10.00L	0.00B
36A-079	35.4531	110.3322	1.00L	0.40	0.25L	11.00	200.00L	10.00L	10.00L	100.00L
36B-079	35.4531	110.3314	1.00L	0.00B	0.25L	10.00	200.00L	10.00L	10.00L	0.00B
36C-079	35.4500	110.3314	1.00L	0.00B	0.65	21.00	200.00L	10.00L	10.00L	0.00B
36D-080	35.4506	110.3339	0.10L	0.00B	0.16	9.00	150.00L	10.00L	4.60L	0.00B
37A-079	35.3992	110.2514	1.00L	0.00B	6.80	6.00	200.00L	10.00L	53.00	0.00B
37D-079	35.3992	110.2514	1.00L	12.70	7.00	29.00	200.00L	10.00L	85.00	465.00
37DR-079	35.3992	110.2514	1.00L	0.00B	7.60	0.00B	200.00L	10.00L	81.00	0.00B
37E-080	35.3992	110.2514	0.10L	0.00B	4.30	7.20	150.00L	10.00L	79.00	408.00
39A-079	35.4981	110.3492	1.00L	0.40	0.25L	10.00	200.00L	10.00L	10.00L	100.00L
39B-079	35.4972	110.3517	1.10	0.00B	0.25L	13.00	200.00L	10.00L	10.00L	0.00B
39C-079	35.4967	110.3489	0.10L	0.00B	6.00	8.60	150.00L	10.00L	46.00	0.00B
40A-079	35.4875	110.3314	1.00L	0.76	0.25L	11.00	200.00L	10.00L	10.00L	100.00L
41A-079	35.5033	110.3569	1.00L	0.00B	0.25L	38.00	200.00L	10.00L	20.00L	0.00B
42A-079	35.5033	110.3861	1.00L	0.00B	0.25L	20.00	200.00L	10.00L	10.00L	0.00B
43A-079	35.3833	110.1231	1.00L	0.00B	1.20	10.00	200.00L	10.00L	10.00	0.00B
82A-080	35.4203	110.1217	0.10L	0.00B	0.07	6.00	150.00L	10.00L	4.60L	0.00B
84A-080	35.3961	109.9631	0.10L	0.00B	0.20	11.00	150.00L	10.00L	4.60L	0.00B
85A-080	35.4178	109.9703	0.10L	0.00B	0.06	71.00	150.00L	10.00L	4.60L	0.00B
86A-080	35.4700	110.3925	0.10L	0.00B	0.33	33.00	150.00L	10.00L	4.60L	100.00L
86B-080	35.4700	110.3928	0.10L	0.00B	0.26	4.80	150.00L	10.00L	4.60L	0.00B
87A-080	35.5039	110.2856	0.10L	0.00B	0.08	78.00	150.00L	10.00L	4.60L	0.00B
89B-080	35.5342	109.9644	0.10L	0.00B	0.78	5.50	150.00L	10.00L	4.60L	0.00B
90A-080	35.3167	109.9217	4.10	0.00B	1.70	8.00	150.00L	10.00L	47.00	0.00B
91A-080	35.4022	109.9336	0.94	0.00B	1.40	6.50	150.00L	10.00L	17.00	0.00B
92A-080	35.5367	109.9486	0.10L	0.00B	0.77	230.00	270.00	10.00L	4.60L	0.00B
93A-080	35.5311	109.9083	0.10L	0.00B	0.22	18.00	150.00L	10.00L	4.60L	100.00L
93B-080	35.5311	109.9097	0.10L	0.00B	0.05L	6.10	150.00L	10.00L	4.60L	0.00B
93C-080	35.5331	109.9069	0.15	0.00B	0.41	120.00	150.00L	10.00L	4.60L	0.00B
94A-080	35.5350	109.9169	0.10L	0.00B	0.56	38.00	150.00L	10.00L	4.60L	0.00B
94B-080	35.5422	109.9250	0.10L	0.00B	0.42	9.00	150.00L	10.00L	4.60L	0.00B
94D-080	35.5347	109.9167	0.10L	0.00B	0.33	20.00	150.00L	10.00L	4.60L	100.00L
95A-080	35.5058	110.0056	0.10L	0.00B	1.00	36.00	150.00L	10.00L	34.00	0.00B
97A-080	35.6033	110.1056	0.76	0.00B	1.10	500.00	530.00	10.00L	4.60L	0.00B
99A-080	35.4039	110.1314	0.10L	0.00B	0.05L	3.10	150.00L	10.00L	4.60L	0.00B
100A-080	35.4186	110.1514	0.10L	0.00B	1.10	71.00	150.00L	10.00L	4.60L	0.00B
100B-080	35.4217	110.1481	0.10L	0.00B	1.00	57.00	150.00L	10.00L	4.60L	0.00B
100C-080	35.4217	110.1483	0.34	0.00B	1.20	5.30	150.00L	10.00L	4.60L	0.00B
101A-080	35.4294	110.1578	0.39	0.00B	0.71	2.70	150.00L	10.00L	4.60L	0.00B
102A-080	35.4036	110.1467	0.10L	0.00B	1.40	1.30	150.00L	10.00L	24.00	0.00B
104A-080	35.3164	110.2411	0.10L	0.00B	1.20	9.50	150.00L	10.00L	13.00	0.00B
105A-080	35.3278	110.0931	0.10L	0.00B	1.90	7.60	150.00L	10.00L	45.00	100.00L

Table 1D.--Travertines-continued

SAMPLE	LATITUDE	LONGITUDE	Ag ppm-S	Al2O3%-X	Al%-S	As ppmAA	As ppm-S	Au ppm-S	B ppm-S	Ba ppmNA
106A-080	35.3328	110.1208	0.10L	0.008	1.40	39.00	150.00L	10.00L	21.00	100.00L
106B-080	35.3422	110.1214	0.10L	0.008	0.33	12.00	150.00L	10.00L	4.60L	0.008
106C-080	35.3339	110.1200	0.10L	0.008	0.06	12.00	150.00L	10.00L	6.80L	0.008
106D-080	35.3342	110.1192	0.10L	0.008	0.05	110.00	150.00L	10.00L	4.60L	0.008
107A-080	35.5067	110.0769	0.10L	0.008	1.20	5.60	150.00L	10.00L	14.00	0.008
107B-080	35.5078	110.0808	0.10L	0.008	0.90	75.00	150.00L	10.00L	4.60L	0.008
107C-080	35.5078	110.0767	0.10L	0.008	0.26	89.00	150.00L	10.00L	4.60L	0.008
107D-080	35.5083	110.0750	0.10L	0.008	0.74	72.00	150.00L	10.00L	11.00	0.008
107E-080	35.5033	110.0722	0.10L	0.008	0.07	2.20	150.00L	10.00L	4.60L	0.008
108A-080	35.6258	110.1228	0.10L	0.008	1.10	19.00	150.00L	10.00L	12.00	0.008
108B-080	35.6308	110.1272	0.10L	0.008	0.85	16.00	150.00L	10.00L	4.70	0.008
108C-080	35.6253	110.1225	0.10L	0.008	1.00	13.00	150.00L	10.00L	12.00	0.008
108D-080	35.6303	110.1225	0.10L	0.008	1.50	12.00	150.00L	10.00L	13.00	0.008
110A-080	35.6272	109.9736	1.30	0.008	1.10	51.00	150.00L	10.00L	4.60L	0.008
111A-080	35.5194	110.2811	0.10L	0.008	0.12	4.50	150.00L	10.00L	4.60L	100.00L
111B-080	35.5153	110.2842	0.10L	0.008	0.57	1.20	150.00L	10.00L	4.60L	0.008
112A-080	35.5297	110.3347	0.10L	0.008	0.05L	0.80	150.00L	10.00L	4.60L	0.008
113A-080	35.5142	110.3342	0.10L	0.008	0.09	5.00	150.00L	10.00L	4.60L	0.008
113B-080	35.5136	110.3386	0.10L	0.008	0.05L	10.00	150.00L	10.00L	4.60L	0.008
114A-080	35.5236	110.3294	0.10L	0.008	0.17	8.50	150.00L	10.00L	4.60L	0.008
115A-080	35.5353	110.3211	0.10L	0.008	0.28	4.20	150.00L	10.00L	4.60L	0.008
115B-080	35.5358	110.3111	0.10L	0.008	0.12	21.00	150.00L	10.00L	4.60L	0.008
115G-080	35.5328	110.3108	0.10L	0.008	0.74	24.00	150.00L	10.00L	4.60L	0.008
116A-080	35.5306	110.2906	0.10L	0.008	0.58	7.50	150.00L	10.00L	6.50	392.00
117B-080	35.5472	110.2947	0.10L	0.008	0.58	87.00	160.00	10.00L	8.60	0.008
117C-080	35.5472	110.2917	0.10L	0.008	0.17	41.00	150.00L	10.00L	4.60L	0.008
117D-080	35.5469	110.2944	0.10L	0.008	0.41	22.00	150.00L	10.00L	4.90	0.008

Table 10.--Travertines-continued

SAMPLE	Ba ppm-S	Be ppm-S	Bi ppm-S	CaO%-X	Ca%-S	CO2%	Cbt C%AA	Org C%AA	T-C%-AA	Cd ppm-S
1D-D79	120.00	1.00L	10.00L	0.00B	20.00	0.00B	0.00B	0.00B	0.00B	2.00L
2E-D79	89.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	17.00
6B-D79	130.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
6C-D79	71.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7B-D79	41.00	1.50	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7D-D79	32.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7F-D79	1000.00	1.80	10.00L	0.00B	14.00	0.00B	0.00B	0.00B	0.00B	2.00L
7I-D79	20.00L	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7IR-D79	27.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
7J-D79	71.00	2.40	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
8B-D79	180.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
8C-D79	24.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
8D-D79	55.00	1.00L	10.00L	0.00B	18.00	0.00B	0.00B	0.00B	0.00B	2.00L
8F-D79	52.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
9A-D79	490.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
10A-D79	130.00	1.00L	10.00L	0.00B	16.00	0.00B	0.00B	0.00B	0.00B	2.00L
10B-D79	43.00	1.00L	10.00L	0.00B	17.00	0.00B	0.00B	0.00B	0.00B	2.00L
10C-D79	20.00L	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
10D-D79	37.00	1.00L	10.00L	32.60	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
11B-D79	78.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
11C-D80	90.00	1.00L	10.00L	0.00B	18.00	0.00B	0.00B	0.00B	0.00B	2.00L
13C-D79	4800.00	1.60	10.00L	3.09	2.40	0.00B	0.00B	0.00B	0.00B	2.00L
15A-D79	160.00	1.00L	10.00L	31.60	2.60	0.00B	0.00B	0.00B	0.00B	2.00L
15C-D79	58.00	1.00L	10.00L	0.00B	32.00G	0.00B	11.09	0.11	11.20	32.00L
17A-D79	89.00	1.00L	10.00L	46.50	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
17AR-D79	85.00	1.00L	10.00L	46.70	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
20A-D79	130.00	1.00L	10.00L	0.00B	17.00	0.00B	0.00B	0.00B	0.00B	2.00L
20C-D79	23.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
22A-D79	68.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
22C-D79	40.00	1.00L	10.00L	0.00B	17.00	0.00B	0.00B	0.00B	0.00B	2.00L
23A-D79	130.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
23B-D79	20.00L	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
23C-D79	25.00	1.00L	10.00L	0.00B	29.00	0.00B	11.27	0.31	11.58	32.00L
23CR-D79	68.00	1.00L	10.00L	36.90	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
24A-D79	83.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
24B-D79	130.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
24C-D79	110.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
24D-D79	140.00	1.00L	10.00L	0.00B	18.00	0.00B	0.00B	0.00B	0.00B	2.00L
24E-D79	78.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
24F-D79	180.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
26A-D79	150.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
26B-D79	220.00	1.00L	10.00L	0.00B	12.00	0.00B	0.00B	0.00B	0.00B	2.00L
26C-D79	92.00	1.00L	10.00L	0.00B	15.00	0.00B	0.00B	0.00B	0.00B	7.00
26E-D79	440.00	9.00	0.00H	0.00B	2.00	0.00B	0.00B	0.00B	0.00B	2.00L
27C-D79	29.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
27CR-D79	33.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
30A-D79	180.00	1.00L	10.00L	0.00B	10.00	0.00B	10.95	0.09	11.04	32.00L
32A-D79	37.00	1.00L	12.00	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
33A-D79	120.00	1.00L	10.00L	0.00B	18.00	0.00B	0.00B	0.00B	0.00B	2.00L
33AR-D79	110.00	1.00L	10.00L	0.00B	17.00	0.00B	0.00B	0.00B	0.00B	2.00L

Table 1D.--Travertines-continued

SAMPLE	Ba ppm-S	Be ppm-S	Bi ppm-S	CaO%-X	Ca%-S	CO2%	Cbt C%AA	Org C%AA	T-C%-AA	Cd ppm-S
33B-D80	80.00	1.00L	10.00L	0.00B	3.90	0.00B	0.60	1.17	1.77	32.00L
33C-D80	240.00	1.00L	10.00L	0.00B	30.00	0.00B	10.99	0.40	11.39	32.00L
33E-D80	230.00	1.00L	10.00L	0.00B	24.00	0.00B	11.24	0.41	11.65	32.00L
35A-D79	190.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
35AR-D80	44.00	1.00L	10.00L	0.00B	21.00	0.00B	10.18	0.84	11.02	32.00L
35B-D79	40.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
35BR-D80	24.00	1.00L	10.00L	0.00B	28.00	0.00B	11.45	0.33	11.78	32.00L
35C-D79	49.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
35D-D79	61.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
36A-D79	21.00	1.00L	10.00L	32.40	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
36B-D79	61.00	1.00L	10.00L	0.00B	18.00	0.00B	0.00B	0.00B	0.00B	2.00L
36C-D79	170.00	1.00L	10.00L	0.00B	22.00	0.00B	0.00B	0.00B	0.00B	2.00L
36D-D80	24.00	1.00L	10.00L	0.00B	13.00	0.00B	11.55	0.94	12.49	32.00L
37A-D79	600.00	1.90	10.00L	0.00B	14.00	0.00B	0.00B	0.00B	0.00B	2.00L
37D-D79	490.00	2.40	10.00L	12.50	9.80	0.00B	0.00B	0.00B	0.00B	2.00L
37DR-D79	480.00	2.60	10.00L	0.00B	13.00	0.00B	0.00B	0.00B	0.00B	2.00L
37E-D80	340.00	1.10	10.00L	0.00B	10.00	0.00B	2.56	0.81	3.37	32.00L
39A-D79	110.00	1.00L	10.00L	4.82	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
39B-D79	67.00	1.00L	10.00L	0.00B	20.00	0.00B	0.00B	0.00B	0.00B	2.00L
39C-D79	490.00	1.20	10.00L	0.00B	13.00	0.00B	1.23	0.45	1.68	32.00L
40A-D79	62.00	1.00L	10.00L	30.60	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
41A-D79	130.00	6.80	10.00L	0.00B	22.00	0.00B	0.00B	0.00B	0.00B	2.00L
42A-D79	48.00	1.00L	10.00L	0.00B	19.00	0.00B	0.00B	0.00B	0.00B	2.00L
43A-D79	130.00	1.00L	10.00L	0.00B	20.00G	0.00B	0.00B	0.00B	0.00B	2.00L
82A-D80	14.00	1.00L	10.00L	0.00B	21.00	0.00B	11.15	1.08	12.23	32.00L
84A-D80	12.00	1.00L	10.00L	0.00B	20.00	0.00B	10.74	0.64	11.38	32.00L
85A-D80	13.00	1.00L	10.00L	0.00B	18.00	0.00B	11.20	0.01L	11.20	32.00L
86A-D80	110.00	1.00L	10.00L	0.00B	17.00	0.00B	10.92	1.03	11.95	32.00L
86B-D80	110.00	1.00L	10.00L	0.00B	19.00	0.00B	11.90	0.58	12.48	32.00L
87A-D80	81.00	1.00L	10.00L	0.00B	19.00	0.00B	11.60	0.01L	11.60	32.00L
89B-D80	73.00	1.00L	10.00L	0.00B	22.00	0.00B	9.34	1.26	10.60	32.00L
90A-D80	150.00	1.00L	10.00L	0.00B	12.00	0.00B	8.75	0.43	9.18	32.00L
91A-D80	470.00	1.00L	10.00L	0.00B	25.00	0.00B	8.89	0.45	9.34	32.00L
92A-D80	71.00	1.00L	10.00L	0.00B	32.00G	0.00B	11.08	0.37	11.45	32.00L
93A-D80	20.00	1.00L	10.00L	0.00B	25.00	0.00B	10.92	0.67	11.59	32.00L
93B-D80	21.00	1.00L	10.00L	0.00B	28.00	0.00B	11.88	0.02	11.90	32.00L
93C-D80	160.00	1.00L	10.00L	0.00B	22.00	0.00B	11.07	0.16	11.23	32.00L
94A-D80	19.00	1.00L	10.00L	0.00B	32.00G	0.00B	10.98	0.67	11.65	32.00L
94B-D80	54.00	1.00L	10.00L	0.00B	25.00	0.00B	10.37	0.33	10.70	32.00L
94D-D80	97.00	1.00L	10.00L	0.00B	32.00G	0.00B	11.50	0.21	11.71	32.00L
95A-D80	63.00	1.30	10.00L	0.00B	26.00	0.00B	8.02	0.60	8.62	32.00L
97A-D80	87.00	1.00L	10.00L	0.00B	32.00G	0.00B	10.40	0.66	11.06	32.00L
99A-D80	11.00	1.00L	10.00L	0.00B	6.80	0.00B	11.02	2.08	13.10	32.00L
100A-D80	290.00	1.00L	10.00L	0.00B	23.00	0.00B	9.76	0.44	10.20	32.00L
100B-D80	150.00	1.00L	10.00L	0.00B	24.00	0.00B	8.79	0.73	10.52	32.00L
100C-D80	160.00	1.00L	10.00L	0.00B	32.00G	0.00B	9.76	1.02	10.78	32.00L
101A-D80	76.00	1.00L	10.00L	0.00B	18.00	0.00B	10.10	0.77	10.87	32.00L
102A-D80	140.00	1.00L	10.00L	0.00B	19.00	0.00B	10.09	0.01L	10.09	32.00L
104A-D80	110.00	1.00L	10.00L	0.00B	32.00G	0.00B	9.74	0.71	10.45	32.00L
105A-D80	150.00	1.00L	10.00L	0.00B	11.00	0.00B	7.91	0.24	8.15	32.00L

Table 10.--Travertines-continued

SAMPLE	Ba ppm-S	Be ppm-S	Bi ppm-S	CaO%-X	Ca%-S	CO2%	Cbt C%AA	Org C%AA	T-C%-AA	Cd ppm-S
106A-D80	100.00	1.00L	10.00L	0.00B	24.00	0.00B	9.66	0.54	10.20	32.00L
106B-D80	31.00	1.00L	10.00L	0.00B	15.00	0.00B	11.16	0.45	11.61	32.00L
106C-D80	280.00	1.00L	10.00L	0.00B	25.00	0.00B	8.44	1.08	9.52	32.00L
106D-D80	54.00	1.00L	10.00L	0.00B	17.00	0.00B	11.04	0.20	11.24	32.00L
107A-D80	110.00	1.00L	10.00L	0.00B	19.00	0.00B	9.66	1.01	10.67	32.00L
107B-D80	30.00	1.00L	10.00L	0.00B	32.00G	0.00B	11.08	0.27	11.35	32.00L
107C-D80	65.00	1.00L	10.00L	0.00B	12.00	0.00B	11.07	0.50	11.57	32.00L
107D-D80	110.00	1.00L	10.00L	0.00B	18.00	0.00B	11.08	0.16	11.24	32.00L
107E-D80	11.00	1.00L	10.00L	0.00B	12.00	0.00B	11.66	0.83	12.49	32.00L
108A-D80	190.00	1.00L	10.00L	0.00B	30.00	0.00B	9.60	0.43	10.03	32.00L
108B-D80	130.00	1.00L	10.00L	0.00B	32.00G	0.00B	10.43	0.63	11.06	32.00L
108C-D80	200.00	1.00L	10.00L	0.00B	22.00	0.00B	8.58	1.16	9.74	32.00L
108D-D80	210.00	1.00L	10.00L	0.00B	21.00	0.00B	7.79	1.48	9.27	32.00L
110A-D80	130.00	1.00L	10.00L	0.00B	32.00G	0.00B	10.68	0.28	10.96	32.00L
111A-D80	21.00	1.00L	10.00L	0.00B	14.00	0.00B	12.17	0.01L	12.17	32.00L
111B-D80	100.00	1.00L	10.00L	0.00B	16.00	0.00B	10.39	0.28	11.67	32.00L
112A-D80	25.00	1.00L	10.00L	0.00B	15.00	0.00B	12.40	0.27	12.67	32.00L
113A-D80	17.00	1.00L	10.00L	0.00B	17.00	0.00B	11.46	0.91	12.37	32.00L
113B-D80	31.00	1.00L	10.00L	0.00B	17.00	0.00B	12.64	0.35	12.99	32.00L
114A-D80	20.00	1.00L	10.00L	0.00B	20.00	0.00B	11.29	1.07	12.36	32.00L
115A-D80	31.00	1.00L	10.00L	0.00B	15.00	0.00B	11.93	0.06	11.99	32.00L
115B-D80	21.00	1.00L	10.00L	0.00B	20.00	0.00B	11.52	0.71	12.23	32.00L
115G-D80	200.00	1.00L	10.00L	0.00B	12.00	0.00B	9.93	0.66	10.59	32.00L
116A-D80	280.00	1.00L	10.00L	0.00B	5.30	0.00B	8.09	1.10	9.19	32.00L
117B-D80	84.00	1.00L	10.00L	0.00B	20.00	0.00B	11.27	0.29	11.56	32.00L
117C-D80	14.00	1.00L	10.00L	0.00B	16.00	0.00B	12.10	0.40	12.50	32.00L
117D-D80	54.00	1.00L	10.00L	0.00B	16.00	0.00B	11.26	0.63	11.89	32.00L

Table 10.--Travertines-continued

SAMPLE	Ce ppmNA	Ce ppm-S	Co ppmNA	Co ppm-S	Cr ppmNA	Cr ppm-S	Cs ppmNA	Cs ppmAA	Cu ppm-S	Dy ppmNA
1D-D79	0.00B	100.00L	0.00B	5.20	0.00B	11.00	0.00B	0.00B	3.00	0.00B
2E-D79	0.00B	0.00H	0.00B	25.00	0.00B	16.00	0.00B	0.00B	4.90	0.00B
6B-D79	0.00B	100.00L	0.00B	11.00	0.00B	30.00	3.00	0.00B	6.90	0.00B
6C-D79	0.00B	0.00H	0.00B	18.00	0.00B	16.00	0.00B	0.00B	68.00	0.00B
7B-D79	0.00B	0.00H	0.00B	56.00	0.00B	13.00	4.00	0.00B	4.80	0.00B
7D-D79	0.00B	0.00H	0.00B	9.50	0.00B	13.00	0.00B	0.00B	6.50	0.00B
7F-D79	0.00B	170.00	0.00B	24.00	0.00B	130.00	0.00B	0.00B	27.00	0.00B
7I-D79	0.00B	0.00H	0.00B	18.00	0.00B	14.00	1.00L	0.00B	3.60	0.00B
7IR-D79	0.00B	200.00L	0.00B	18.00	0.00B	13.00	1.00L	0.00B	2.50	0.00B
7J-D79	0.00B	0.00H	0.00B	29.00	0.00B	13.00	1.00L	0.00B	5.70	0.00B
8B-D79	0.00B	100.00L	0.00B	32.00	0.00B	15.00	0.00B	0.00B	7.40	0.00B
8C-D79	0.00B	100.00L	0.00B	6.90	0.00B	11.00	0.00B	0.00B	5.00	0.00B
8D-D79	0.00B	100.00L	0.00B	28.00	0.00B	13.00	0.00B	0.00B	3.10	0.00B
8F-D79	0.00B	100.00L	0.00B	5.40	0.00B	13.00	1.00L	0.00B	4.30	0.00B
9A-D79	0.00B	100.00L	0.00B	12.00	0.00B	29.00	2.00	0.00B	14.00	0.00B
10A-D79	0.00B	110.00	0.00B	9.70	0.00B	23.00	2.00	0.00B	18.00	0.00B
10B-D79	0.00B	100.00L	0.00B	6.90	0.00B	11.00	0.00B	0.00B	3.60	0.00B
10C-D79	0.00B	100.00L	0.00B	12.00	0.00B	11.00	0.00B	0.00B	3.90	0.00B
10D-D79	0.00B	100.00L	0.00B	11.00	0.00B	11.00	1.00L	0.00B	19.00	0.00B
11B-D79	0.00B	0.00H	0.00B	11.00	0.00B	16.00	1.00L	0.00B	6.30	0.00B
11C-D80	0.00B	100.00L	0.00B	4.70	0.00B	12.00	1.00	0.00B	3.80	0.00B
13C-D79	0.00B	280.00	0.00B	95.00	0.00B	88.00	4.00	0.00B	21.00	0.00B
15A-D79	0.00B	100.00L	0.00B	4.30	0.00B	10.00L	2.00	0.00B	1.00L	0.00B
15C-D79	0.00B	63.00L	0.00B	8.60	0.00B	1.40	0.00B	0.00B	4.10	0.00B
17A-D79	0.00B	100.00L	0.00B	13.00	0.00B	17.00	2.00	0.00B	5.40	0.00B
17AR-D79	0.00B	0.00H	0.00B	15.00	0.00B	20.00	2.00	0.00B	6.30	0.00B
20A-D79	0.00B	100.00L	0.00B	6.80	0.00B	15.00	1.00L	0.00B	4.00	0.00B
20C-D79	0.00B	100.00L	0.00B	35.00	0.00B	11.00	0.00B	0.00B	4.40	0.00B
22A-D79	0.00B	100.00L	0.00B	9.20	0.00B	13.00	1.00L	0.00B	7.30	0.00B
22C-D79	0.00B	100.00L	0.00B	7.80	0.00B	10.00	0.00B	0.00B	11.00	0.00B
23A-D79	0.00B	100.00L	0.00B	12.00	0.00B	13.00	0.00B	0.00B	5.70	0.00B
23B-D79	0.00B	100.00L	0.00B	18.00	0.00B	11.00	1.00L	0.00B	13.00	0.00B
23C-D79	0.00B	63.00L	7.05	13.00	1.92	1.60	0.23	1.00L	32.00	0.21L
23CR-D79	0.00B	100.00L	0.00B	6.30	0.00B	12.00	1.00L	0.00B	3.00	0.00B
24A-D79	0.00B	100.00L	0.00B	5.60	0.00B	11.00	0.00B	0.00B	4.20	0.00B
24B-D79	0.00B	100.00L	0.00B	7.00	0.00B	12.00	0.00B	0.00B	4.20	0.00B
24C-D79	0.00B	100.00L	0.00B	6.10	0.00B	12.00	1.00L	0.00B	4.10	0.00B
24D-D79	0.00B	100.00L	0.00B	6.00	0.00B	11.00	1.00L	0.00B	4.00	0.00B
24E-D79	0.00B	100.00L	0.00B	5.50	0.00B	11.00	0.00B	0.00B	2.30	0.00B
24F-D79	0.00B	100.00L	0.00B	5.40	0.00B	12.00	0.00B	0.00B	3.00	0.00B
26A-D79	0.00B	100.00L	0.00B	23.00	0.00B	18.00	0.00B	0.00B	6.40	0.00B
26B-D79	0.00B	100.00L	0.00B	15.00	0.00B	23.00	0.00B	0.00B	9.20	0.00B
26C-D79	0.00B	100.00L	0.00B	42.00	0.00B	16.00	2.00	0.00B	7.30	0.00B
26E-D79	0.00B	0.00H	0.00B	170.00	0.00B	11.00	0.00B	0.00B	6.60	0.00B
27C-D79	0.00B	0.00H	0.00B	9.80	0.00B	15.00	1.00L	0.00B	6.00	0.00B
27CR-D79	0.00B	0.00H	0.00B	9.60	0.00B	15.00	1.00L	0.00B	5.80	0.00B
30A-D79	8.10	63.00L	5.73	7.60	6.05	2.70	0.78	1.00	11.00	0.67
32A-D79	0.00B	100.00L	0.00B	24.00	0.00B	11.00	0.08	1.00L	4.00	0.00B
33A-D79	0.00B	100.00L	0.00B	6.20	0.00B	13.00	0.54	1.00L	4.40	0.00B
33AR-D79	0.00B	100.00L	0.00B	4.50	0.00B	10.00	0.52	1.00L	3.70	0.00B

Table 10.--Travertines-continued

SAMPLE	Ce ppmNA	Ce ppm-S	Co ppmNA	Co ppm-S	Cr ppmNA	Cr ppm-S	Cs ppmNA	Cs ppmAA	Cu ppm-S	Dy ppmNA
33B-D80	0.00B	63.00L	0.00B	1.00L	0.00B	1.90	0.00B	0.00B	4.50	0.00B
33C-D80	0.00B	70.00	0.00B	2.60	0.00B	1.70	0.00B	0.00B	5.50	0.00B
33E-D80	0.00B	63.00L	0.00B	5.90	0.00B	2.40	0.00B	0.00B	6.70	0.00B
35A-D79	0.00B	0.00H	0.00B	12.00	0.00B	16.00	0.80	1.00L	5.10	0.00B
35AR-D80	0.00B	63.00L	0.00B	2.40	0.00B	1.70	0.00B	0.00B	3.50	0.00B
35B-D79	0.00B	0.00H	0.00B	11.00	0.00B	16.00	0.00B	0.00B	3.90	0.00B
35BR-D80	0.00B	63.00L	5.15	8.30	1.69	1.80	0.45	1.00	5.00	0.00B
35C-D79	0.00B	0.00H	0.00B	12.00	0.00B	17.00	0.00B	0.00B	4.40	0.00B
35D-D79	0.00B	0.00H	0.00B	9.10	0.00B	15.00	0.00B	0.00B	6.00	0.00B
36A-D79	1.50	100.00L	21.40	25.00	0.97	11.00	0.07	1.00L	4.50	0.00B
36B-D79	0.00B	100.00L	0.00B	14.00	0.00B	14.00	0.29	1.00L	3.40	0.00B
36C-D79	0.00B	220.00	0.00B	37.00	0.00B	20.00	0.66	1.00L	6.70	0.00B
36D-D80	0.00B	63.00L	0.00B	25.00	0.00B	1.10	0.00B	0.00B	3.50	0.00B
37A-D79	0.00B	100.00	0.00B	13.00	0.00B	41.00	0.80	1.00L	15.00	0.00B
37D-D79	62.80	100.00L	9.29	11.00	40.50	42.00	1.92	2.00	15.00	4.71
37DR-D79	0.00B	110.00	0.00B	13.00	0.00B	43.00	0.00B	0.00B	17.00	0.00B
37E-D80	45.10	63.00L	9.28	9.00	33.40	35.00	0.83	1.00	28.00	3.62
39A-D79	1.40	100.00L	1.26	6.90	1.65	11.00	0.31	1.00L	2.70	0.17
39B-D79	0.00B	100.00L	0.00B	12.00	0.00B	11.00	0.18	1.00L	5.60	0.00B
39C-D79	0.00B	63.00L	0.00B	9.80	0.00B	38.00	0.00B	0.00B	12.00	0.00B
40A-D79	2.90	100.00L	2.18	7.60	2.55	12.00	0.55	1.00L	3.10	0.36L
41A-D79	0.00B	100.00L	0.00B	80.00	0.00B	28.00	0.22	1.00L	4.60	0.00B
42A-D79	0.00B	100.00L	0.00B	6.90	0.00B	10.00	0.23	1.00L	3.00	0.00B
43A-D79	0.00B	0.00H	0.00B	41.00	0.00B	18.00	1.53	2.00	8.60	0.00B
82A-D80	0.00B	63.00L	0.00B	39.00	0.00B	1.00L	0.00B	0.00B	4.50	0.00B
84A-D80	0.00B	63.00L	0.00B	11.00	0.00B	1.80	0.00B	0.00B	16.00	0.00B
85A-D80	0.00B	63.00L	0.00B	3.30	0.00B	1.00L	0.00B	0.00B	5.10	0.00B
86A-D80	3.80	63.00L	6.42	9.90	4.39	3.70	0.63	1.00	28.00	0.33
86B-D80	0.00B	63.00L	0.00B	6.40	0.00B	2.10	0.00B	0.00B	7.30	0.00B
87A-D80	0.00B	63.00L	0.00B	8.40	0.00B	1.00L	0.00B	0.00B	5.70	0.00B
89B-D80	0.00B	63.00L	0.00B	3.20	0.00B	3.20	0.00B	0.00B	4.10	0.00B
90A-D80	0.00B	63.00L	0.00B	7.40	0.00B	9.70	0.00B	0.00B	63.00	0.00B
91A-D80	0.00B	63.00L	0.00B	5.30	0.00B	10.00	0.00B	0.00B	13.00	0.00B
92A-D80	0.00B	63.00L	0.00B	22.00	0.00B	3.70	0.00B	0.00B	11.00	0.00B
93A-D80	2.80	63.00L	4.22	5.20	3.42	1.80	0.29	1.00	4.60	0.00B
93B-D80	0.00B	63.00L	0.00B	3.70	0.00B	1.00L	0.00B	0.00B	3.20	0.00B
93C-D80	0.00B	63.00L	0.00B	5.70	0.00B	2.50	0.00B	0.00B	7.50	0.00B
94A-D80	0.00B	63.00L	0.00B	8.10	0.00B	2.00	0.00B	22.00L	3.60	0.00B
94B-D80	0.00B	63.00L	0.00B	5.40	0.00B	3.00	0.00B	0.00B	4.90	0.00B
94D-D80	1.50	63.00L	5.54	11.00	3.18	2.70	0.26	1.00	8.00	0.19
95A-D80	0.00B	63.00L	0.00B	12.00	0.00B	3.50	0.00B	0.00B	14.00	0.00B
97A-D80	0.00B	63.00L	0.00B	3.60	0.00B	2.80	0.00B	0.00B	6.30	0.00B
99A-D80	0.00B	63.00L	0.00B	1.40	0.00B	1.00L	0.00B	0.00B	6.60	0.00B
100A-D80	0.00B	71.00	0.00B	2.90	0.00B	6.90	0.00B	0.00B	6.40	0.00B
100B-D80	0.00B	63.00L	0.00B	8.10	0.00B	4.30	0.00B	0.00B	5.60	0.00B
100C-D80	0.00B	63.00L	0.00B	11.00	0.00B	11.00	0.00B	0.00B	5.00	0.00B
101A-D80	0.00B	63.00L	0.00B	28.00	0.00B	7.40	0.00B	0.00B	8.60	0.00B
102A-D80	0.00B	63.00L	0.00B	18.00	0.00B	10.00	0.00B	0.00B	9.20	0.00B
104A-D80	0.00B	63.00L	0.00B	11.00	0.00B	4.10	0.00B	0.00B	5.30	0.00B
105A-D80	30.80	63.00L	5.62	8.20	15.10	13.00	5.48	7.00	15.00	2.05

Table 10.--Travertines-continued

SAMPLE	Ce ppmNA	Ce ppm-S	Co ppmNA	Co ppm-S	Cr ppmNA	Cr ppm-S	Cs ppmNA	Cs ppmAA	Cu ppm-S	Dy ppmNA
106A-D80	12.10	63.00L	4.08	4.80	9.03	5.50	1.97	2.00	8.80	1.09
106B-D80	0.00B	63.00L	0.00B	1.30	0.00B	1.80	0.00B	0.00B	5.10	0.00B
106C-D80	0.00B	63.00L	0.00B	82.00	0.00B	1.00L	0.00B	0.00B	240.00	0.00B
106D-D80	0.00B	63.00L	0.00B	51.00	0.00B	1.00L	0.00B	0.00B	7.00	0.00B
107A-D80	0.00B	63.00L	0.00B	11.00	0.00B	8.80	0.00B	0.00B	6.30	0.00B
107B-D80	0.00B	63.00L	0.00B	5.80	0.00B	2.90	0.00B	0.00B	5.40	0.00B
107C-D80	0.00B	63.00L	0.00B	3.50	0.00B	2.10	0.00B	0.00B	6.80	0.00B
107D-D80	0.00B	63.00L	0.00B	4.00	0.00B	12.00	0.00B	0.00B	6.70	0.00B
107E-D80	0.00B	63.00L	0.00B	14.00	0.00B	1.00L	0.00B	0.00B	6.30	0.00B
108A-D80	0.00B	63.00L	0.00B	3.60	0.00B	4.50	0.00B	0.00B	6.20	0.00B
108B-D80	0.00B	63.00L	0.00B	3.00	0.00B	3.20	0.00B	0.00B	5.10	0.00B
108C-D80	0.00B	63.00L	0.00B	2.60	0.00B	3.20	0.00B	0.00B	5.70	0.00B
108D-D80	0.00B	63.00L	-0.00B	2.80	0.00B	4.70	0.00B	0.00B	5.70	0.00B
110A-D80	0.00B	63.00L	0.00B	3.00	0.00B	2.20	0.00B	0.00B	5.40	0.00B
111A-D80	0.00B	63.00L	3.95	4.50	2.54	1.40	0.17	1.00L	3.70	0.23L
111B-D80	0.00B	63.00L	0.00B	12.00	0.00B	3.10	0.00B	0.00B	9.60	0.00B
112A-D80	0.00B	63.00L	0.00B	1.90	0.00B	1.00L	0.00B	0.00B	4.40	0.00B
113A-D80	0.00B	63.00L	0.00B	13.00	0.00B	1.70	0.00B	0.00B	3.30	0.00B
113B-D80	0.00B	63.00L	0.00B	1.80	0.00B	1.00L	0.00B	0.00B	2.90	0.00B
114A-D80	0.00B	63.00L	0.00B	7.00	0.00B	3.00	0.00B	0.00B	3.80	0.00B
115A-D80	0.00B	63.00L	0.00B	2.50	0.00B	2.20	0.00B	0.00B	3.90	0.00B
115B-D80	0.00B	63.00L	0.00B	70.00	0.00B	1.50	0.00B	0.00B	3.40	0.00B
115G-D80	0.00B	63.00L	0.00B	49.00	0.00B	16.00	0.00B	0.00B	11.00	0.00B
116A-D80	40.00	63.00L	10.30	9.20	21.20	11.00	1.25	2.00	14.00	1.78
117B-D80	0.00B	63.00L	0.00B	11.00	0.00B	2.30	0.00B	0.00B	6.10	0.00B
117C-D80	0.00B	63.00L	0.00B	1.00L	0.00B	1.30	0.00B	0.00B	4.30	0.00B
117D-D80	0.00B	63.00L	0.00B	9.30	0.00B	2.20	0.00B	0.00B	6.90	0.00B

Table 10.--Travertines--continued

SAMPLE	Eu ppmNA	Eu ppm-S	F%-AA	FeO%	T-Fe2O3%	Fe%-NA	Fe%-S	Ga ppm-S	Gd ppmNA	Ge ppm-S
1D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.05L	10.00L	0.00B	0.00B
2E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	3.00	10.00L	0.00B	0.00B
6B-D79	0.00B	0.00B	0.13	0.00B	0.00B	0.00B	1.10	10.00L	0.00B	0.00B
6C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.68	10.00L	0.00B	0.00B
7B-D79	0.00B	0.00B	1.90	0.00B	0.00B	0.00B	5.90	10.00L	0.00B	0.00B
7D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.50	10.00L	0.00B	0.00B
7F-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	4.90	13.00	0.00B	0.00B
7I-D79	0.00B	0.00B	0.01	0.00B	0.00B	0.00B	1.80	10.00L	0.00B	0.00B
7IR-D79	0.00B	0.00B	0.10	0.00B	0.00B	0.00B	1.80	10.00L	0.00B	0.00B
7J-D79	0.00B	0.00B	1.20	0.00B	0.00B	0.00B	3.30	10.00L	0.00B	0.00B
8B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.82	10.00L	0.00B	0.00B
8C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.08	10.00L	0.00B	0.00B
8D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.64	10.00L	0.00B	0.00B
8F-D79	0.00B	0.00B	0.24	0.00B	0.00B	0.00B	0.88	10.00L	0.00B	0.00B
9A-D79	0.00B	0.00B	0.13	0.00B	0.00B	0.00B	2.70	10.00L	0.00B	0.00B
10A-D79	0.00B	0.00B	0.16	0.00B	0.00B	0.00B	1.70	10.00L	0.00B	0.00B
10B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.58	10.00L	0.00B	0.00B
10C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.40	10.00L	0.00B	0.00B
10D-D79	0.00B	0.00B	0.06	0.00B	0.76	0.00B	0.37	10.00L	0.00B	0.00B
11B-D79	0.00B	0.00B	0.04	0.00B	0.00B	0.00B	0.67	10.00L	0.00B	0.00B
11C-D80	0.00B	0.00B	0.06	0.00B	0.00B	0.00B	0.66	10.00L	0.00B	0.00B
13C-D79	0.00B	0.00B	0.06	0.00B	2.22	0.00B	1.80	12.00	0.00B	0.00B
15A-D79	0.00B	0.00B	0.01	0.00B	1.09	0.00B	0.05L	10.00L	0.00B	0.00B
15C-D79	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.10	1.50L	0.00B	1.50L
17A-D79	0.00B	0.00B	0.04	0.00B	1.47	0.00B	0.99	10.00L	0.00B	0.00B
17AR-D79	0.00B	0.00B	0.04	0.00B	1.56	0.00B	1.20	10.00L	0.00B	0.00B
20A-D79	0.00B	0.00B	0.06	0.00B	0.00B	0.00B	1.60	10.00L	0.00B	0.00B
20C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	2.50	10.00L	0.00B	0.00B
22A-D79	0.00B	0.00B	0.12	0.00B	0.00B	0.00B	0.72	10.00L	0.00B	0.00B
22C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.05L	10.00L	0.00B	0.00B
23A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.47	10.00L	0.00B	0.00B
23B-D79	0.00B	0.00B	0.04	0.00B	0.00B	0.00B	0.60	10.00L	0.00B	0.00B
23C-D79	0.06	2.20L	0.01	0.00B	0.00B	0.38	0.74	1.50L	0.00B	1.50L
23CR-D79	0.00B	0.00B	0.06	0.00B	1.02	0.00B	0.54	10.00L	0.00B	0.00B
24A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.30	10.00L	0.00B	0.00B
24B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.26	10.00L	0.00B	0.00B
24C-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	0.79	10.00L	0.00B	0.00B
24D-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	0.98	10.00L	0.00B	0.00B
24E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.09	10.00L	0.00B	0.00B
24F-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.24	10.00L	0.00B	0.00B
26A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.55	10.00L	0.00B	0.00B
26B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	3.00	10.00L	0.00B	0.00B
26C-D79	0.00B	0.00B	0.06	0.00B	0.00B	0.00B	2.60	10.00L	0.00B	0.00B
26E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	20.00G	27.00	0.00B	0.00B
27C-D79	0.00B	0.00B	0.01	0.00B	0.00B	0.00B	0.05L	10.00L	0.00B	0.00B
27CR-D79	0.00B	0.00B	0.01	0.00B	0.00B	0.00B	0.05L	10.00L	0.00B	0.00B
30A-D79	0.19	2.20L	0.06	0.00B	0.00B	0.54	0.68	1.50L	0.57	1.50L
32A-D79	0.00B	0.00B	0.04	0.00B	0.00B	0.00B	4.00	10.00L	0.00B	0.00B
33A-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	0.05L	10.00L	0.00B	0.00B
33AR-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	0.05L	10.00L	0.00B	0.00B

Table 1D.--Travertines-continued

SAMPLE	Eu ppmNA	Eu ppm-S	F%-AA	FeO%	T-Fe2O3%	Fe%-NA	Fe%-S	Ga ppm-S	Gd ppmNA	Ge ppm-S
33B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.10	1.50L	0.00B	1.50L
33C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.20	1.50L	0.00B	1.50L
33E-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.70	1.50L	0.00B	1.50L
35A-D79	0.00B	0.00B	0.02	0.00B	0.00B	0.00B	0.57	10.00L	0.00B	0.00B
35AR-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.90	1.50L	0.00B	1.50L
35B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.91	10.00L	0.00B	0.00B
35BR-D80	0.07	2.20L	0.02	0.00B	0.00B	0.70	1.00	1.50L	0.33	1.50L
35C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	1.10	10.00L	0.00B	0.00B
35D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	0.25	10.00L	0.00B	0.00B
36A-D79	0.03	0.00B	0.03	0.00B	2.47	1.74	1.80	10.00L	0.00B	0.00B
36B-D79	0.00B	0.00B	0.04	0.00B	0.00B	0.00B	1.20	10.00L	0.00B	0.00B
36C-D79	0.00B	0.00B	0.02	0.00B	0.00B	0.00B	1.40	10.00L	0.00B	0.00B
36D-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.60	1.50L	0.00B	1.50L
37A-D79	0.00B	0.00B	0.03	0.00B	0.00B	0.00B	3.10	16.00	0.00B	0.00B
37D-D79	1.00	0.00B	0.02	0.00B	4.78	3.30	3.40	18.00	5.01	0.00B
37DR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	0.00B	3.60	18.00	0.00B	0.00B
37E-D80	0.86	2.20L	0.03	0.00B	0.00B	2.01	1.90	12.00	4.30	1.50L
39A-D79	0.05	0.00B	0.04	0.00B	0.18	0.80	0.68	10.00L	0.15L	0.00B
39B-D79	0.00B	0.00B	0.08	0.00B	0.00B	0.00B	1.20	10.00L	0.00B	0.00B
39C-D79	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.80	16.00	0.00B	1.50L
40A-D79	0.10	0.00B	0.07	0.00B	1.35	0.96	0.92	10.00L	0.34	0.00B
41A-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	13.00	24.00	0.00B	0.00B
42A-D79	0.00B	0.00B	0.03	0.00B	0.00B	0.00B	0.91	10.00L	0.00B	0.00B
43A-D79	0.00B	0.00B	0.05	0.00B	0.00B	0.00B	5.30	10.00L	0.00B	0.00B
82A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.20	1.50L	0.00B	1.50L
84A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.20	1.50L	0.00B	1.50L
85A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.00	1.50L	0.00B	1.50L
86A-D80	0.13	2.20L	0.07	0.00B	0.00B	0.91	1.30	1.50L	0.50	1.50L
86B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.10	1.50L	0.00B	1.50L
87A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.96	1.50L	0.00B	1.50L
89B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.93	1.50L	0.00B	1.50L
90A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.40	2.10	0.00B	1.50L
91A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.00	1.80	0.00B	1.50L
92A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.62	1.50L	0.00B	1.50L
93A-D80	0.07	2.20L	0.01	0.00B	0.00B	0.76	1.10	1.50L	0.19L	1.50L
93B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.55	1.50L	0.00B	1.50L
93C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.83	1.50L	0.00B	1.50L
94A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.86	1.50L	0.00B	1.50L
94B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.82	1.50L	0.00B	1.50L
94D-D80	0.06	2.20L	0.02	0.00B	0.00B	0.34	0.64	1.50L	0.21	1.50L
95A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	5.80	9.90	0.00B	1.50L
97A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.60	1.50L	0.00B	1.50L
99A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.34	1.50L	0.00B	1.50L
100A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.00	1.60	0.00B	1.50L
100B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.70	1.90	0.00B	1.50L
100C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.78	1.80	0.00B	1.50L
101A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.00	2.30	0.00B	1.50L
102A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.40	2.40	0.00B	1.50L
104A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.40	1.50L	0.00B	1.50L
105A-D80	0.63	2.20L	0.10	0.00B	0.00B	2.04	2.50	4.40	2.16	1.50L

Table 10.--Travertines--continued

SAMPLE	Eu ppmNA	Eu ppm-S	FX-AA	FeOX	T-Fe2O3X	FeX-NA	FeX-S	Ga ppm-S	Gd ppmNA	Ge ppm-S
106A-D80	0.27	2.20L	0.06	0.00B	0.00B	1.40	1.40	2.40	0.95	1.50L
106B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.10	1.50L	0.00B	1.50L
106C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	17.00	2.30	0.00B	1.50L
106D-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	3.30	1.50L	0.00B	1.50L
107A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.30	1.80	0.00B	1.50L
107B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.70	1.50L	0.00B	1.50L
107C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.74	1.50L	0.00B	1.50L
107D-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.00	1.50L	0.00B	1.50L
107E-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.30	1.50L	0.00B	1.50L
108A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.96	1.50L	0.00B	1.50L
108B-D80	0.00B	2.40	0.00B	0.00B	0.00B	0.00B	1.10	1.50L	0.00B	1.50L
108C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.70	1.50L	0.00B	1.50L
108D-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.93	2.20	0.00B	1.50L
110A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.00	1.50L	0.00B	1.50L
111A-D80	0.11	2.20L	0.05	0.00B	0.00B	1.23	1.40	1.50L	0.00B	1.50L
111B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.30	1.50L	0.00B	1.50L
112A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.17	1.50L	0.00B	1.50L
113A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.30	1.50L	0.00B	1.50L
113B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.20	1.50L	0.00B	1.50L
114A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.70	1.50L	0.00B	1.50L
115A-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.10	1.50L	0.00B	1.50L
115B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.20	1.50L	0.00B	1.50L
115G-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.70	1.60	0.00B	1.50L
116A-D80	0.93	2.20L	0.08	0.00B	0.00B	2.37	2.10	1.90	2.65	1.50L
117B-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	2.00	1.50L	0.00B	1.50L
117C-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	0.98	1.50L	0.00B	1.50L
117D-D80	0.00B	2.20L	0.00B	0.00B	0.00B	0.00B	1.70	1.50L	0.00B	1.50L

Table 1D.--Travertines-continued

SAMPLE	H2O+%	H2O-%	Hf ppmNA	Hf ppm-S	Hg ppmAA	Hg ppm-S	In ppm-S	K2O%-X	K%-NA	K%-S
1D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.24
2E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.28
6B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.86
6C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.33
7B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.42
7D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.20
7F-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.94
7I-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.15
7IR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.17
7J-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	0.00B	0.00B	0.22
8B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.30
8C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.12
8D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.28
8F-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.33
9A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.60
10A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.82
10B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.23
10C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.10
10D-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	0.06	0.00B	0.08L
11B-D79	0.00B	0.00B	0.00B	0.00B	0.03	500.00L	0.00B	0.00B	0.00B	0.51
11C-D80	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.31
13C-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	1.52	0.00B	1.70
15A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.07	0.00B	0.08L
15C-D79	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.19
17A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.59	0.00B	0.43
17AR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.57	0.00B	0.54
20A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.30
20C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.21
22A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.24
22C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.11
23A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.20
23B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.11
23C-D79	0.00B	0.00B	0.22	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.17
23CR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.26	0.00B	0.29
24A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.21
24B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.31
24C-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.20
24D-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.22
24E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.12
24F-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.18
26A-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.66
26B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.52
26C-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.50
26E-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.41
27C-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.21
27CR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.18
30A-D79	0.00B	0.00B	0.94	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.30
32A-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	0.00B	0.00B	0.12
33A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.31
33AR-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.24

Table 10.--Travertines-continued

SAMPLE	H2O+%	H2O-%	Hf ppmNA	Hf ppm-S	Hg ppmAA	Hg ppm-S	In ppm-S	K2O%-X	K%-NA	K%-S
33B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.08
33C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.19
33E-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.17
35A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.34
35AR-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.18
35B-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.27
35BR-D80	0.00B	0.00B	0.30	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.16
35C-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.28
35D-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	0.31
36A-D79	0.00B	0.00B	0.33L	0.00B	0.01L	500.00L	0.00B	0.03	0.50L	0.12
36B-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.16
36C-D79	0.00B	0.00B	0.00B	0.00B	0.01	500.00L	0.00B	0.00B	0.00B	0.47
36D-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.13
37A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	3.60
37D-D79	0.00B	0.00B	3.94	0.00B	0.02	500.00L	0.00B	4.14	3.45	3.50
37DR-D79	0.00B	0.00B	0.00B	0.00B	0.00B	500.00L	0.00B	0.00B	0.00B	4.40
37E-D80	0.00B	0.00B	3.84	15.00L	0.00B	0.00B	6.80L	0.00B	3.20	2.00
39A-D79	0.00B	0.00B	0.29	0.00B	0.01L	500.00L	0.00B	0.02L	0.50L	0.17
39B-D79	0.00B	0.00B	0.00B	0.00B	0.02	500.00L	0.00B	0.00B	0.00B	0.15
39C-D79	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	3.60
40A-D79	0.00B	0.00B	0.36	0.00B	0.01L	500.00L	0.00B	0.13	0.50L	0.20
41A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.16
42A-D79	0.00B	0.00B	0.00B	0.00B	0.01L	500.00L	0.00B	0.00B	0.00B	0.14
43A-D79	0.00B	0.00B	0.00B	0.00B	0.02	500.00L	0.00B	0.00B	0.00B	0.89
82A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.12
84A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.18
85A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.11
86A-D80	0.00B	0.00B	0.39	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.16
86B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.15
87A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.11
89B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.30
90A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.67
91A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.34
92A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.22
93A-D80	0.00B	0.00B	0.58	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.17
93B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.09
93C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.23
94A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.22
94B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.21
94D-D80	0.00B	0.00B	0.28	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.21
95A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.57
97A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.26
99A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.08
100A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.31
100B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.27
100C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.30
101A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.28
102A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	1.10
104A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.37
105A-D80	0.00B	0.00B	1.62	15.00L	0.00B	0.00B	6.80L	0.00B	1.01	0.99

Table 10.--Travertines-continued

SAMPLE	H2O+%	H2O-%	Hf ppmNA	Hf ppm-S	Hg ppmAA	Hg ppm-S	In ppm-S	K2O%-X	K%-NA	K%-S
106A-D80	0.00B	0.00B	0.99	15.00L	0.00B	0.00B	6.80L	0.00B	0.73	0.59
106B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.17
106C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.07L
106D-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.11
107A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.45
107B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.25
107C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.20
107D-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.21
107E-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.10
108A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.40
108B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.33
108C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.40
108D-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.46
110A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.27
111A-D80	0.00B	0.00B	0.89	15.00L	0.00B	0.00B	6.80L	0.00B	0.50L	0.09
111B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.23
112A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.09
113A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.10
113B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.08
114A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.11
115A-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.16
115B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.10
115G-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.26
116A-D80	0.00B	0.00B	2.14	15.00L	0.00B	0.00B	6.80L	0.00B	0.85	0.63
117B-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.25
117C-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.14
117D-D80	0.00B	0.00B	0.00B	15.00L	0.00B	0.00B	6.80L	0.00B	0.00B	0.26

Table 10.--Travertines-continued

SAMPLE	La ppmNA	La ppm-S	Li ppmAA	Li ppm-S	Lu ppmNA	MgO%-X	Mg%-S	MnO%-X	Mn ppmNA	Mn ppm-S
1D-D79	0.00B	39.00	0.00B	50.00L	0.00B	0.00B	13.00	0.00B	0.00B	460.00
2E-D79	0.00B	76.00	0.00B	50.00L	0.00B	0.00B	0.56	0.00B	0.00B	2200.00
6B-D79	0.00B	52.00	57.00	0.00H	0.00B	0.00B	2.10	0.00B	0.00B	1200.00
6C-D79	0.00B	69.00	0.00B	50.00L	0.00B	0.00B	0.84	0.00B	0.00B	1200.00
7B-D79	0.00B	60.00	10.00	50.00L	0.00B	0.00B	0.72	0.00B	0.00B	1600.00
7D-D79	0.00B	65.00	0.00B	50.00L	0.00B	0.00B	0.90	0.00B	0.00B	7400.00
7F-D79	0.00B	91.00	0.00B	85.00	0.00B	0.00B	2.00	0.00B	0.00B	800.00
7I-D79	0.00B	71.00	4.00	50.00L	0.00B	0.00B	0.94	0.00B	0.00B	5000.00G
7IR-D79	0.00B	69.00	6.00	50.00L	0.00B	0.00B	0.89	0.00B	0.00B	5000.00G
7J-D79	0.00B	65.00	42.00	50.00L	0.00B	0.00B	5.30	0.00B	0.00B	3200.00
8B-D79	0.00B	41.00	0.00B	50.00L	0.00B	0.00B	7.00	0.00B	0.00B	1000.00
8C-D79	0.00B	36.00	0.00B	50.00L	0.00B	0.00B	12.00	0.00B	0.00B	430.00
8D-D79	0.00B	42.00	0.00B	50.00L	0.00B	0.00B	9.80	0.00B	0.00B	1400.00
8F-D79	0.00B	35.00	29.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	820.00
9A-D79	0.00B	66.00	33.00	50.00L	0.00B	0.00B	1.40	0.00B	0.00B	850.00
10A-D79	0.00B	50.00	59.00	50.00L	0.00B	0.00B	7.90	0.00B	0.00B	950.00
10B-D79	0.00B	36.00	0.00B	50.00L	0.00B	0.00B	9.20	0.00B	0.00B	670.00
10C-D79	0.00B	32.00	0.00B	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	660.00
10D-D79	0.00B	39.00	9.00	50.00L	0.00B	18.40	11.00	0.08	0.00B	540.00
11B-D79	0.00B	73.00	11.00	0.00H	0.00B	0.00B	0.72	0.00B	0.00B	480.00
11C-D80	0.00B	35.00	18.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	810.00
13C-D79	0.00B	200.00	28.00	50.00L	0.00B	2.00	1.10	0.02L	0.00B	290.00
15A-D79	0.00B	20.00L	36.00	50.00L	0.00B	18.90	0.10L	0.02L	0.00B	200.00L
15C-D79	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.97	0.00B	0.00B	290.00
17A-D79	0.00B	67.00	16.00	50.00L	0.00B	1.10	0.54	0.20	0.00B	1200.00
17AR-D79	0.00B	85.00	18.00	0.00H	0.00B	1.10	0.68	0.21	0.00B	1700.00
20A-D79	0.00B	42.00	14.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	750.00
20C-D79	0.00B	39.00	0.00B	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	860.00
22A-D79	0.00B	50.00	19.00	50.00L	0.00B	0.00B	12.00	0.00B	0.00B	470.00
22C-D79	0.00B	35.00	0.00B	50.00L	0.00B	0.00B	9.30	0.00B	0.00B	1600.00
23A-D79	0.00B	43.00	0.00B	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	1000.00
23B-D79	0.00B	39.00	10.00	50.00L	0.00B	0.00B	14.00	0.00B	0.00B	990.00
23C-D79	0.99	10.00L	4.00	68.00L	0.00B	0.00B	1.20	0.00B	825.00	1400.00
23CR-D79	0.00B	44.00	12.00	50.00L	0.00B	12.40	8.40	0.07	0.00B	720.00
24A-D79	0.00B	37.00	0.00B	50.00L	0.00B	0.00B	12.00	0.00B	0.00B	720.00
24B-D79	0.00B	40.00	0.00B	50.00L	0.00B	0.00B	12.00	0.00B	0.00B	330.00
24C-D79	0.00B	38.00	10.00	50.00L	0.00B	0.00B	10.00	0.00B	0.00B	590.00
24D-D79	0.00B	36.00	11.00	50.00L	0.00B	0.00B	10.00	0.00B	0.00B	900.00
24E-D79	0.00B	37.00	0.00B	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	220.00
24F-D79	0.00B	37.00	0.00B	50.00L	0.00B	0.00B	12.00	0.00B	0.00B	220.00
26A-D79	0.00B	43.00	0.00B	50.00L	0.00B	0.00B	1.30	0.00B	0.00B	3300.00
26B-D79	0.00B	42.00	0.00B	50.00L	0.00B	0.00B	5.40	0.00B	0.00B	1600.00
26C-D79	0.00B	41.00	22.00	50.00L	0.00B	0.00B	7.10	0.00B	0.00B	1900.00
26E-D79	0.00B	24.00	0.00B	50.00L	0.00B	0.00B	1.90	0.00B	0.00B	5000.00G
27C-D79	0.00B	81.00	2.00	0.00H	0.00B	0.00B	0.31	0.00B	0.00B	2100.00
27CR-D79	0.00B	76.00	2.00	50.00L	0.00B	0.00B	0.31	0.00B	0.00B	1700.00
30A-D79	5.02	10.00L	16.00	68.00L	0.00B	0.00B	6.60	0.00B	423.00	550.00
32A-D79	0.00B	44.00	8.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	1400.00
33A-D79	0.00B	38.00	14.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	360.00
33AR-D79	0.00B	31.00	13.00	50.00L	0.00B	0.00B	9.30	0.00B	0.00B	310.00

Table 10.--Travertines--continued

SAMPLE	La ppmNA	La ppm-S	Li ppmAA	Li ppm-S	Lu ppmNA	MgO%-X	Mg%-S	MnO%-X	Mn ppmNA	Mn ppm-S
33B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.09	0.00B	0.00B	160.00
33C-D80	0.00B	23.00	0.00B	68.00L	0.00B	0.00B	0.33	0.00B	0.00B	780.00
33E-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.90	0.00B	0.00B	540.00
35A-D79	0.00B	83.00	2.00	70.00	0.00B	0.00B	0.41	0.00B	0.00B	480.00
35AR-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	2.60	0.00B	0.00B	2300.00
35B-D79	0.00B	87.00	0.00B	0.00H	0.00B	0.00B	0.43	0.00B	0.00B	650.00
35BR-D80	1.72	10.00L	3.00	68.00L	0.00B	0.00B	0.65	0.00B	510.00	620.00
35C-D79	0.00B	90.00	0.00B	0.00H	0.00B	0.00B	1.30	0.00B	0.00B	600.00
35D-D79	0.00B	71.00	0.00B	51.00	0.00B	0.00B	1.10	0.00B	0.00B	930.00
36A-D79	1.08	43.00	12.00	50.00L	0.00B	17.70	9.70	0.14	1170.00	1300.00
36B-D79	0.00B	37.00	10.00	50.00L	0.00B	0.00B	8.80	0.00B	0.00B	900.00
36C-D79	0.00B	62.00	2.00	180.00	0.00B	0.00B	10.00	0.00B	0.00B	950.00
36D-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	7.40	0.00B	0.00B	1300.00
37A-D79	0.00B	60.00	19.00	50.00L	0.00B	0.00B	2.80	0.00B	0.00B	1400.00
37D-D79	35.20	56.00	57.00	65.00	0.43	3.50	2.10	0.08	753.00	800.00
37DR-D79	0.00B	59.00	0.00B	67.00	0.00B	0.00B	2.40	0.00B	0.00B	1000.00
37E-D80	21.10	22.00	20.00	68.00L	0.30	0.00B	2.90	0.00B	1240.00	1600.00
39A-D79	1.41	41.00	6.00	50.00L	0.32L	0.10L	12.00	0.02L	323.00	540.00
39B-D79	0.00B	39.00	20.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	740.00
39C-D79	0.00B	32.00	0.00B	68.00L	0.00B	0.00B	2.60	0.00B	0.00B	870.00
40A-D79	2.99	45.00	18.00	50.00L	0.00B	19.20	11.00	0.10	866.00	870.00
41A-D79	0.00B	70.00	18.00	65.00	0.00B	0.00B	6.20	0.00B	0.00B	4000.00
42A-D79	0.00B	42.00	7.00	50.00L	0.00B	0.00B	11.00	0.00B	0.00B	850.00
43A-D79	0.00B	68.00	19.00	160.00	0.00B	0.00B	9.50	0.00B	0.00B	2400.00
82A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.69	0.00B	0.00B	290.00
84A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.64	0.00B	0.00B	3500.00
85A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.50	0.00B	0.00B	1500.00
86A-D80	3.02	10.00L	11.00	68.00L	0.00B	0.00B	11.00	0.00B	442.00	620.00
86B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	10.00	0.00B	0.00B	660.00
87A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	2.40	0.00B	0.00B	710.00
89B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.10	0.00B	0.00B	1700.00
90A-D80	0.00B	22.00	0.00B	75.00	0.00B	0.00B	5.80	0.00B	0.00B	850.00
91A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.77	0.00B	0.00B	4900.00
92A-D80	0.00B	21.00	0.00B	68.00L	0.00B	0.00B	0.59	0.00B	0.00B	2400.00
93A-D80	1.80	10.00L	5.00	68.00L	0.00B	0.00B	0.74	0.00B	1790.00	2400.00
93B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.32	0.00B	0.00B	1600.00
93C-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.73	0.00B	0.00B	300.00
94A-D80	0.00B	39.00	0.00B	68.00L	0.00B	0.00B	0.71	0.00B	0.00B	320.00
94B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.10	0.00B	0.00B	2700.00
94D-D80	1.60	10.00L	7.00	68.00L	0.00B	0.00B	0.33	0.00B	112.00	230.00
95A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	2.20	0.00B	0.00B	1900.00
97A-D80	0.00B	49.00	0.00B	68.00L	0.00B	0.00B	0.86	0.00B	0.00B	1100.00
99A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	5.90	0.00B	0.00B	260.00
100A-D80	0.00B	24.00	0.00B	68.00L	0.00B	0.00B	1.20	0.00B	0.00B	1900.00
100B-D80	0.00B	18.00	0.00B	68.00L	0.00B	0.00B	0.94	0.00B	0.00B	2300.00
100C-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.90	0.00B	0.00B	2600.00
101A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	7.40	0.00B	0.00B	2000.00
102A-D80	0.00B	20.00	0.00B	68.00L	0.00B	0.00B	9.00	0.00B	0.00B	1200.00
104A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.75	0.00B	0.00B	1400.00
105A-D80	19.20	33.00	71.00	71.00	0.14	0.00B	5.50	0.00B	1070.00	1600.00

Table 10. Travertines continued

SAMPLE	La ppmNA	La ppm-S	Li ppmAA	Li ppm-S	Lu ppmNA	MgO%-X	Mg%-S	MnO%-X	Mn ppmNA	Mn ppm-S
106A-D80	7.86	25.00	37.00	68.00L	0.19L	0.00B	2.30	0.00B	1240.00	1800.00
106B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	8.80	0.00B	0.00B	1300.00
106C-D80	0.00B	10.00L	0.00B	0.00B	0.00B	0.00B	0.31	0.00B	0.00B	5200.00
106D-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.28	0.00B	0.00B	2100.00
107A-D80	0.00B	14.00	0.00B	68.00L	0.00B	0.00B	8.30	0.00B	0.00B	1300.00
107B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	4.30	0.00B	0.00B	2300.00
107C-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	4.60	0.00B	0.00B	1400.00
107D-D80	0.00B	18.00	0.00B	68.00L	0.00B	0.00B	8.90	0.00B	0.00B	740.00
107E-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	5.50	0.00B	0.00B	1100.00
108A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.90	0.00B	0.00B	880.00
108B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.87	0.00B	0.00B	1200.00
108C-D80	0.00B	10.00L	0.00B	79.00	0.00B	0.00B	1.50	0.00B	0.00B	1200.00
108D-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	1.30	0.00B	0.00B	1200.00
110A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	0.84	0.00B	0.00B	2300.00
111A-D80	1.93	10.00L	13.00	68.00L	0.00B	0.00B	7.10	0.00B	840.00	1200.00
111B-D80	0.00B	13.00	0.00B	68.00L	0.00B	0.00B	8.50	0.00B	0.00B	770.00
112A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	8.10	0.00B	0.00B	140.00
113A-D80	0.00B	14.00	0.00B	68.00L	0.00B	0.00B	8.40	0.00B	0.00B	760.00
113B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	9.20	0.00B	0.00B	420.00
114A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	9.90	0.00B	0.00B	1000.00
115A-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	8.10	0.00B	0.00B	1200.00
115B-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	11.00	0.00B	0.00B	1600.00
115G-D80	0.00B	25.00	0.00B	68.00L	0.00B	0.00B	6.10	0.00B	0.00B	1700.00
116A-D80	21.70	17.00	21.00	68.00L	0.00B	0.00B	4.40	0.00B	841.00	770.00
117B-D80	0.00B	15.00	0.00B	68.00L	0.00B	0.00B	7.80	0.00B	0.00B	820.00
117C-D80	0.00B	11.00	0.00B	68.00L	0.00B	0.00B	9.70	0.00B	0.00B	500.00
117D-D80	0.00B	10.00L	0.00B	68.00L	0.00B	0.00B	8.20	0.00B	0.00B	2100.00

Table 1D.--Travertines--continued

SAMPLE	Mo ppm-S	Na2O%-X	Na%-NA	Na%-S	Nb ppm-S	Nd ppmNA	Nd ppm-S	Ni ppm-S	P2O5%-X	P%-S
1D-D79	62.00	0.00B	0.00B	0.17	25.00L	0.00B	0.00B	10.00	0.00B	0.02L
2E-D79	0.00H	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	44.00	0.00B	0.02L
6B-D79	0.00H	0.00B	0.00B	0.22	25.00L	0.00B	0.00B	140.00	0.00B	0.02L
6C-D79	0.00H	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	58.00	0.00B	0.02L
7B-D79	39.00	0.00B	0.00B	1.10	50.00	0.00B	0.00B	94.00	0.00B	0.45G
7D-D79	10.00L	0.00B	0.00B	0.18	57.00	0.00B	0.00B	15.00	0.00B	0.45G
7F-D79	10.00L	0.00B	0.00B	0.43	48.00	0.00B	0.00B	69.00	0.00B	0.45G
7I-D79	17.00	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	26.00	0.00B	0.02L
7IR-D79	20.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	26.00	0.00B	0.45G
7J-D79	21.00	0.00B	0.00B	0.88	140.00	0.00B	0.00B	42.00	0.00B	0.45G
8B-D79	10.00L	0.00B	0.00B	0.20	25.00L	0.00B	0.00B	57.00	0.00B	0.02L
8C-D79	0.00H	0.00B	0.00B	0.16	25.00L	0.00B	0.00B	14.00	0.00B	0.02L
8D-D79	120.00	0.00B	0.00B	0.16	25.00L	0.00B	0.00B	61.00	0.00B	0.02L
8F-D79	0.00H	0.00B	0.00B	0.28	25.00L	0.00B	0.00B	16.00	0.00B	0.02L
9A-D79	140.00	0.00B	0.00B	0.46	25.00L	0.00B	0.00B	32.00	0.00B	0.45G
10A-D79	10.00L	0.00B	0.00B	0.69	25.00L	0.00B	0.00B	35.00	0.00B	0.14
10B-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	12.00	0.00B	0.02L
10C-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	62.00	0.00B	0.02L
10D-D79	10.00L	0.20L	0.00B	0.15L	25.00L	0.00B	0.00B	37.00	0.20	0.02L
11B-D79	0.00H	0.00B	0.00B	0.24	25.00L	0.00B	0.00B	22.00	0.00B	0.02L
11C-D80	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	11.00	0.00B	0.02L
13C-D79	10.00L	1.00	0.00B	0.88	25.00L	0.00B	0.00B	490.00	0.30	0.08
15A-D79	10.00L	0.20L	0.00B	0.15L	25.00L	0.00B	0.00B	98.00	0.10L	0.02L
15C-D79	15.00	0.00B	0.00B	0.04	11.00	0.00B	32.00L	160.00	0.00B	0.07L
17A-D79	10.00L	0.20L	0.00B	0.15L	25.00L	0.00B	0.00B	41.00	0.10L	0.02L
17AR-D79	0.00H	0.20L	0.00B	0.15L	25.00L	0.00B	0.00B	55.00	0.10L	0.02L
20A-D79	10.00L	0.00B	0.00B	0.20	25.00L	0.00B	0.00B	20.00	0.00B	0.03
20C-D79	10.00L	0.00B	0.00B	0.21	25.00L	0.00B	0.00B	140.00	0.00B	0.02L
22A-D79	10.00L	0.00B	0.00B	0.16	25.00L	0.00B	0.00B	20.00	0.00B	0.04
22C-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	24.00	0.00B	0.02L
23A-D79	0.00H	0.00B	0.00B	0.15	25.00L	0.00B	0.00B	94.00	0.00B	0.02L
23B-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	82.00	0.00B	0.02L
23C-D79	1300.00	0.00B	0.04	0.04	3.20L	0.00B	32.00L	78.00	0.00B	0.07L
23CR-D79	10.00L	0.20L	0.00B	0.20	25.00L	0.00B	0.00B	14.00	0.10	0.02L
24A-D79	32.00	0.00B	0.00B	0.15	25.00L	0.00B	0.00B	11.00	0.00B	0.02L
24B-D79	10.00L	0.00B	0.00B	0.27	25.00L	0.00B	0.00B	30.00	0.00B	0.02L
24C-D79	29.00	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	42.00	0.00B	0.02L
24D-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	28.00	0.00B	0.02L
24E-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	20.00	0.00B	0.02L
24F-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	10.00	0.00B	0.02L
26A-D79	10.00L	0.00B	0.00B	0.40	25.00L	0.00B	0.00B	36.00	0.00B	0.02
26B-D79	50.00	0.00B	0.00B	0.70	25.00L	0.00B	0.00B	36.00	0.00B	0.09
26C-D79	100.00	0.00B	0.00B	0.24	25.00L	0.00B	0.00B	130.00	0.00B	0.02L
26E-D79	0.00H	0.00B	0.00B	0.35	25.00L	0.00B	0.00B	580.00	0.00B	0.12
27C-D79	10.00L	0.00B	0.00B	0.15L	26.00	0.00B	0.00B	17.00	0.00B	0.02L
27CR-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	16.00	0.00B	0.02L
30A-D79	66.00	0.00B	0.24	0.21	3.20L	4.80	32.00L	30.00	0.00B	0.07L
32A-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	120.00	0.00B	0.02L
33A-D79	17.00	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	15.00	0.00B	0.02L
33AR-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	12.00	0.00B	0.02L

Table 10.--Travertines-continued

SAMPLE	Mo ppm-S	Na2O%-X	Na%-NA	Na%-S	Nb ppm-S	Nd ppmNA	Nd ppm-S	Ni ppm-S	P2O5%-X	P%-S
33B-D80	6.00	0.00B	0.00B	0.03	3.20L	0.00B	32.00L	1.50L	0.00B	0.07L
33C-D80	20.00	0.00B	0.00B	0.06	3.20L	0.00B	32.00L	11.00	0.00B	0.07L
33E-D80	80.00	0.00B	0.00B	0.07	3.20L	0.00B	32.00L	28.00	0.00B	0.07L
35A-D79	0.00H	0.00B	0.00B	0.15L	33.00	0.00B	0.00B	28.00	0.00B	0.02L
35AR-D80	48.00	0.00B	0.00B	0.14	3.20L	0.00B	32.00L	9.60	0.00B	0.07L
35B-D79	10.00L	0.00B	0.00B	0.15L	30.00	0.00B	0.00B	17.00	0.00B	0.02L
35BR-D80	67.00	0.00B	0.05	0.05	3.20L	0.98	32.00L	38.00	0.00B	0.07L
35C-D79	0.00H	0.00B	0.00B	0.15L	33.00	0.00B	0.00B	21.00	0.00B	0.02L
35D-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	35.00	0.00B	0.02L
36A-D79	10.00L	0.20L	0.11	0.15L	25.00L	0.50	0.00B	84.00	0.10L	0.02L
36B-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	73.00	0.00B	0.02L
36C-D79	22.00	0.00B	0.00B	0.30	25.00L	0.00B	0.00B	200.00	0.00B	0.04
36D-D80	15.00	0.00B	0.00B	0.09	3.20L	0.00B	32.00L	110.00	0.00B	0.07L
37A-D79	10.00L	0.00B	0.00B	2.60	25.00L	0.00B	0.00B	26.00	0.00B	0.13
37D-D79	10.00L	3.00	2.69	2.50	25.00L	27.50	0.00B	25.00	0.20	0.06
37DR-D79	10.00L	0.00B	0.00B	3.00	25.00L	0.00B	0.00B	27.00	0.00B	0.06
37E-D80	2.40	0.00B	2.41	3.40	5.20	21.70	32.00L	16.00	0.00B	0.08
39A-D79	10.00L	0.20L	0.06	0.15L	25.00L	3.90L	0.00B	13.00	0.10L	0.02L
39B-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	64.00	0.00B	0.02L
39C-D79	1.00L	0.00B	0.00B	2.70	5.70	0.00B	32.00L	17.00	0.00B	1.30
40A-D79	10.00L	0.20L	0.14	0.15L	25.00L	1.50	0.00B	40.00	0.10L	0.02L
41A-D79	30.00	0.00B	0.00B	0.19	25.00L	0.00B	0.00B	690.00	0.00B	0.02L
42A-D79	10.00L	0.00B	0.00B	0.15L	25.00L	0.00B	0.00B	20.00	0.00B	0.02L
43A-D79	0.00H	0.00B	0.00B	0.33	25.00L	0.00B	0.00B	130.00	0.00B	0.03
82A-D80	5.30	0.00B	0.00B	0.03	3.20L	0.00B	32.00L	190.00	0.00B	0.07L
84A-D80	48.00	0.00B	0.00B	0.03	3.20L	0.00B	32.00L	31.00	0.00B	0.07L
85A-D80	17.00	0.00B	0.00B	0.02	3.20L	0.00B	32.00L	17.00	0.00B	0.07L
86A-D80	91.00	0.00B	0.10	0.10	3.20L	2.00	32.00L	49.00	0.00B	0.07L
86B-D80	8.60	0.00B	0.00B	0.08	3.40	0.00B	32.00L	23.00	0.00B	0.07L
87A-D80	11.00	0.00B	0.00B	0.04	3.20L	0.00B	32.00L	57.00	0.00B	0.07L
89B-D80	4.00	0.00B	0.00B	0.06	3.20L	0.00B	32.00L	5.20	0.00B	0.07L
90A-D80	32.00	0.00B	0.00B	0.23	6.30	0.00B	32.00L	35.00	0.00B	0.07L
91A-D80	7.70	0.00B	0.00B	0.23	3.60	0.00B	32.00L	12.00	0.00B	0.30
92A-D80	390.00	0.00B	0.00B	0.09	3.20L	0.00B	32.00L	39.00	0.00B	0.07L
93A-D80	2.90	0.00B	0.04	0.06	3.20L	1.20	32.00L	32.00	0.00B	0.07L
93B-D80	6.70	0.00B	0.00B	0.00L	3.20L	0.00B	32.00L	17.00	0.00B	0.07L
93C-D80	73.00	0.00B	0.00B	0.10	3.20L	0.00B	32.00L	33.00	0.00B	0.07L
94A-D80	14.00	0.00B	0.00B	0.06	4.50	0.00B	32.00L	58.00	0.00B	0.07L
94B-D80	34.00	0.00B	0.00B	0.06	3.20	0.00B	32.00L	26.00	0.00B	0.07L
94D-D80	24.00	0.00B	0.03	0.04	3.20L	0.96	32.00L	77.00	0.00B	0.07L
95A-D80	6.30	0.00B	0.00B	0.20	3.20L	0.00B	32.00L	93.00	0.00B	0.07L
97A-D80	480.00	0.00B	0.00B	0.07	3.20L	0.00B	32.00L	8.00	0.00B	0.07L
99A-D80	3.70	0.00B	0.00B	0.05	3.20L	0.00B	32.00L	5.90	0.00B	0.07L
100A-D80	81.00	0.00B	0.00B	0.18	5.50	0.00B	32.00L	24.00	0.00B	0.07L
100B-D80	570.00	0.00B	0.00B	0.14	3.20L	0.00B	32.00L	31.00	0.00B	0.07L
100C-D80	6.50	0.00B	0.00B	0.20	4.30	0.00B	32.00L	25.00	0.00B	0.07L
101A-D80	3.00	0.00B	0.00B	0.15	3.20L	0.00B	32.00L	130.00	0.00B	0.17
102A-D80	4.50	0.00B	0.00B	0.20	5.00	0.00B	32.00L	62.00	0.00B	0.07L
104A-D80	7.90	0.00B	0.00B	0.08	3.20L	0.00B	32.00L	57.00	0.00B	0.07L
105A-D80	20.00	0.00B	0.29	0.31	4.20	15.80	32.00L	34.00	0.00B	0.10

Table 10.--Travertines-continued

SAMPLE	Mo ppm-S	Na2O%-X	Na%-NA	Na%-S	Nb ppm-S	Nd ppmNA	Nd ppm-S	Ni ppm-S	P2O5%-X	P%-S
106A-D80	55.00	0.00B	0.14	0.14	3.20L	6.00	32.00L	13.00	0.00B	0.07L
106B-D80	16.00	0.00B	0.00B	0.21	3.20L	0.00B	32.00L	9.10	0.00B	0.07L
106C-D80	9.40	0.00B	0.00B	0.01	3.20L	0.00B	32.00L	230.00	0.00B	0.07L
106D-D80	6.00	0.00B	0.00B	0.02	3.20L	0.00B	32.00L	200.00	0.00B	0.07L
107A-D80	2.40	0.00B	0.00B	0.29	4.60	0.00B	32.00L	48.00	0.00B	0.07L
107B-D80	140.00	0.00B	0.00B	0.98	3.20L	0.00B	32.00L	50.00	0.00B	0.07L
107C-D80	18.00	0.00B	0.00B	0.12	3.20L	0.00B	32.00L	14.00	0.00B	0.07L
107D-D80	490.00	0.00B	0.00B	0.18	3.20L	0.00B	32.00L	24.00	0.00B	0.07L
107E-D80	1.00L	0.00B	0.00B	0.06	3.20L	0.00B	32.00L	46.00	0.00B	0.07L
108A-D80	26.00	0.00B	0.00B	0.19	3.70	0.00B	32.00L	5.10	0.00B	0.07L
108B-D80	46.00	0.00B	0.00B	0.10	3.20L	0.00B	32.00L	4.40	0.00B	0.07L
108C-D80	17.00	0.00B	0.00B	0.22	3.20L	0.00B	32.00L	3.50	0.00B	0.07L
108D-D80	16.00	0.00B	0.00B	0.24	3.20L	0.00B	32.00L	4.50	0.00B	0.07L
110A-D80	68.00	0.00B	0.00B	0.17	4.30	0.00B	32.00L	6.50	0.00B	0.07L
111A-D80	8.50	0.00B	0.13	0.08	3.20L	0.00B	32.00L	16.00	0.00B	0.07L
111B-D80	53.00	0.00B	0.00B	0.18	3.60	0.00B	32.00L	26.00	0.00B	0.07L
112A-D80	3.00	0.00B	0.00B	0.05	3.20L	0.00B	32.00L	28.00	0.00B	0.07L
113A-D80	4.20	0.00B	0.00B	0.07	3.20L	0.00B	32.00L	77.00	0.00B	0.07L
113B-D80	8.70	0.00B	0.00B	0.07	3.20L	0.00B	32.00L	14.00	0.00B	0.07L
114A-D80	18.00	0.00B	0.00B	0.06	3.20L	0.00B	32.00L	65.00	0.00B	0.07L
115A-D80	6.80	0.00B	0.00B	0.17	3.20L	0.00B	32.00L	39.00	0.00B	0.07L
115B-D80	6.70	0.00B	0.00B	0.06	4.70	0.00B	32.00L	810.00	0.00B	0.07L
115G-D80	14.00	0.00B	0.00B	0.14	12.00	0.00B	32.00L	290.00	0.00B	0.11
116A-D80	7.40	0.00B	0.30	0.23	14.00	18.60	32.00L	36.00	0.00B	0.16
117B-D80	87.00	0.00B	0.00B	0.14	6.50	0.00B	32.00L	23.00	0.00B	0.37
117C-D80	28.00	0.00B	0.00B	0.07	3.20L	0.00B	32.00L	3.10	0.00B	0.16
117D-D80	52.00	0.00B	0.00B	0.11	3.50	0.00B	32.00L	23.00	0.00B	0.11

Table 10.--Travertines-continued

SAMPLE	Pb ppm-S	Pd ppm-S	Pr ppm-S	Rb ppmNA	Rb ppmAA	Re ppm-S	T-S%-AA	Sb ppmNA	Sb ppm-S	Sc ppmNA
1D-D79	21.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
2E-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
6B-D79	10.00L	0.00B	0.00B	20.00	0.00B	50.00L	0.10	0.00B	100.00L	0.00B
6C-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
7B-D79	10.00L	0.00B	0.00B	30.00	0.00B	50.00L	0.48	0.00B	100.00L	0.00B
7D-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
7F-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
7I-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
7IR-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.04	0.00B	100.00L	0.00B
7J-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.28	0.00B	100.00L	0.00B
8B-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
8C-D79	18.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
8D-D79	19.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
8F-D79	17.00	0.00B	0.00B	5.00L	0.00B	50.00L	0.12	0.00B	100.00L	0.00B
9A-D79	10.00L	0.00B	0.00B	16.00	0.00B	50.00L	0.10	0.00B	100.00L	0.00B
10A-D79	11.00	0.00B	0.00B	23.00	0.00B	50.00L	0.15	0.00B	100.00L	0.00B
10B-D79	33.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
10C-D79	36.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
10D-D79	18.00	0.00B	0.00B	1.00L	0.00B	50.00L	0.05	0.00B	100.00L	0.00B
11B-D79	10.00L	0.00B	0.00B	8.00	0.00B	50.00L	0.11	0.00B	100.00L	0.00B
11C-D80	10.00L	0.00B	0.00B	8.00	0.00B	50.00L	0.06	0.00B	100.00L	0.00B
13C-D79	33.00	0.00B	0.00B	42.00	0.00B	50.00L	0.04	0.00B	100.00L	0.00B
15A-D79	10.00L	0.00B	0.00B	29.00	0.00B	50.00L	0.05	0.00B	100.00L	0.00B
15C-D79	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
17A-D79	10.00L	0.00B	0.00B	12.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
17AR-D79	10.00L	0.00B	0.00B	11.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
20A-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
20C-D79	39.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
22A-D79	24.00	0.00B	0.00B	5.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
22C-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
23A-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
23B-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
23C-D79	6.80L	1.00L	68.00L	10.00L	5.00L	10.00L	0.01	0.10	32.00L	0.31
23CR-D79	10.00L	0.00B	0.00B	3.00	0.00B	50.00L	0.06	0.00B	100.00L	0.00B
24A-D79	16.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
24B-D79	19.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
24C-D79	11.00	0.00B	0.00B	5.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
24D-D79	12.00	0.00B	0.00B	5.00	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
24E-D79	19.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
24F-D79	25.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
26A-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
26B-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
26C-D79	10.00L	0.00B	0.00B	15.00	0.00B	50.00L	0.09	0.00B	100.00L	0.00B
26E-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
27C-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.01	0.00B	100.00L	0.00B
27CR-D79	10.00L	0.00B	0.00B	5.00L	0.00B	50.00L	0.03	0.00B	100.00L	0.00B
30A-D79	6.80L	1.00L	68.00L	13.90	15.00	10.00L	0.04	0.33	32.00L	1.12
32A-D79	41.00	0.00B	0.00B	10.00L	4.00L	50.00L	0.04	0.00B	100.00L	0.00B
33A-D79	36.00	0.00B	0.00B	10.50	5.00	50.00L	0.03	0.00B	100.00L	0.00B
33AR-D79	27.00	0.00B	0.00B	10.00L	5.00	50.00L	0.03	0.00B	100.00L	0.00B

Table 10.--Travertines-continued

SAMPLE	Pb ppm-S	Pd ppm-S	Pr ppm-S	Rb ppmNA	Rb ppmAA	Re ppm-S	T-S%-AA	Sb ppmNA	Sb ppm-S	Sc ppmNA
33B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
33C-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
33E-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
35A-D79	32.00	0.00B	0.00B	10.00L	5.00L	50.00L	0.08	0.00B	100.00L	0.00B
35AR-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
35B-D79	28.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
35BR-D80	6.80L	1.00L	68.00L	10.00L	5.00L	10.00L	0.09	0.09	32.00L	0.36
35C-D79	39.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
35D-D79	13.00	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
36A-D79	44.00	0.00B	0.00B	10.00L	1.00L	50.00L	0.04	0.08L	100.00L	0.14
36B-D79	17.00	0.00B	0.00B	10.00L	5.00L	50.00L	0.03	0.00B	100.00L	0.00B
36C-D79	32.00	0.00B	0.00B	10.00L	5.00L	50.00L	0.08	0.00B	100.00L	0.00B
36D-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
37A-D79	10.00L	0.00B	0.00B	67.80	48.00	50.00L	0.05	0.00B	100.00L	0.00B
37D-D79	10.00L	0.00B	0.00B	98.50	76.00	50.00L	0.01	1.26	100.00L	9.55
37DR-D79	10.00L	0.00B	0.00B	0.00B	0.00B	50.00L	0.00B	0.00B	100.00L	0.00B
37E-D80	40.00	1.00L	68.00L	63.10	65.00	10.00L	0.01	0.22	32.00L	7.76
39A-D79	51.00	0.00B	0.00B	10.00L	1.00L	50.00L	0.01L	0.09	100.00L	0.31
39B-D79	34.00	0.00B	0.00B	10.00L	5.00L	50.00L	0.05	0.00B	100.00L	0.00B
39C-D79	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
40A-D79	32.00	0.00B	0.00B	10.00L	2.00	50.00L	0.05	0.09	100.00L	0.53
41A-D79	10.00L	0.00B	0.00B	10.00L	5.00L	50.00L	0.09	0.00B	100.00L	0.00B
42A-D79	28.00	0.00B	0.00B	10.00L	5.00L	50.00L	0.03	0.00B	100.00L	0.00B
43A-D79	11.00	0.00B	0.00B	19.90	13.00	50.00L	0.08	0.00B	100.00L	0.00B
82A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
84A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
85A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
86A-D80	6.80L	1.00L	68.00L	10.00L	10.00	10.00L	0.07	0.17	32.00L	0.70
86B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
87A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
89B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
90A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
91A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
92A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
93A-D80	6.80L	1.00L	68.00L	10.00L	5.00L	10.00L	0.02	0.13	32.00L	0.39
93B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
93C-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
94A-D80	6.80L	1.00L	68.00L	0.00B	6.80L	10.00L	0.00B	0.00B	32.00L	0.00B
94B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
94D-D80	6.80L	1.00L	69.00	10.00L	5.00	10.00L	0.06	0.07	32.00L	0.38
95A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
97A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
99A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
100A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
100B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
100C-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
101A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
102A-D80	9.30	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
104A-D80	6.80L	1.10	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
105A-D80	6.80L	1.00L	68.00L	35.20	40.00	10.00L	0.08	0.34	32.00L	3.61

Table 10.--Travertines-continued

SAMPLE	Pb ppm-S	Pd ppm-S	Pr ppm-S	Rb ppmNA	Rb ppmAA	Re ppm-S	T-S%-AA	Sb ppmNA	Sb ppm-S	Sc ppmNA
106A-D80	6.80L	1.00L	68.00L	25.40	30.00	10.00L	0.08	0.37	32.00L	2.14
106B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
106C-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
106D-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
107A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
107B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
107C-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
107D-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
107E-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
108A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
108B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
108C-D80	7.00	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
108D-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
110A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
111A-D80	6.80L	1.00L	68.00L	10.00L	5.00L	10.00L	0.02	0.04	32.00L	0.45
111B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
112A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
113A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
113B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
114A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
115A-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
115B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
115G-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
116A-D80	6.80L	1.00L	68.00L	27.10	20.00	10.00L	0.02	0.15	32.00L	3.22
117B-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
117C-D80	6.80L	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B
117D-D80	7.40	1.00L	68.00L	0.00B	0.00B	10.00L	0.00B	0.00B	32.00L	0.00B

Table 10.--Travertines-continued

SAMPLE	Sc ppm-S	Se ppm-X	Se ppm-S	SiO2%-X	Si%-S	Sm ppmNA	Sm ppm-S	Sn ppm-S	Sr ppmNA	Sr ppm-S
1D-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	5000.00G
2E-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	870.00
6B-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	840.00
6C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1100.00
7B-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	5000.00G
7D-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3600.00
7F-D79	16.00	0.00B	200.00L	0.00B	15.00	0.00B	0.00B	10.00L	0.00B	5000.00G
7I-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2000.00
7IR-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1800.00
7J-D79	10.00L	0.30	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	5000.00G
8B-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2400.00
8C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2200.00
8D-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1700.00
8F-D79	10.00L	0.10	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1800.00
9A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1100.00
10A-D79	10.00L	0.90	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	810.00
10B-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1400.00
10C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1600.00
10D-D79	10.00L	0.10L	200.00L	1.50	10.00L	0.00B	0.00B	10.00L	0.00B	1700.00
11B-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2900.00
11C-D80	10.00L	0.50	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2200.00
13C-D79	10.00	0.70	200.00L	51.30	27.00	0.00B	0.00B	10.00L	0.00B	5000.00G
15A-D79	10.00L	0.10L	200.00L	1.80	40.00G	0.00B	0.00B	10.00L	0.00B	160.00
15C-D79	3.40	0.10L	0.00B	0.00B	1.30	0.00B	10.00L	1.50L	0.00B	1200.00
17A-D79	10.00L	0.10L	200.00L	9.50	10.00L	0.00B	0.00B	10.00L	0.00B	2000.00
17AR-D79	10.00L	0.10L	200.00L	9.23	10.00L	0.00B	0.00B	10.00L	0.00B	2100.00
20A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3400.00
20C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1800.00
22A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3800.00
22C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1900.00
23A-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3400.00
23B-D79	10.00L	0.10	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1900.00
23C-D79	1.80	0.20	0.00B	0.00B	0.75	0.00B	10.00L	15.00	4370.00	6700.00
23CR-D79	10.00L	0.10L	200.00L	5.55	10.00L	0.00B	0.00B	10.00L	0.00B	1900.00
24A-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3000.00
24B-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2600.00
24C-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3000.00
24D-D79	10.00L	0.40	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3800.00
24E-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	3800.00
24F-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2800.00
26A-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	440.00
26B-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1000.00
26C-D79	10.00L	0.80	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	500.00
26E-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	0.00H	0.00B	540.00
27C-D79	10.00L	0.70	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2800.00
27CR-D79	10.00L	0.60	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2400.00
30A-D79	1.80	0.60	0.00B	0.00B	1.80	0.86	10.00L	1.50L	830.00	690.00
32A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	980.00
33A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1700.00
33AR-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1700.00

Table 1D.--Travertines-continued

SAMPLE	Sc ppm-S	Se ppm-X	Se ppm-S	SiO2%-X	Si%-S	Sm ppmNA	Sm ppm-S	Sn ppm-S	Sr ppmNA	Sr ppm-S
33B-D80	1.00L	0.10L	0.00B	0.00B	34.00G	0.00B	10.00L	1.50L	0.00B	200.00
33C-D80	3.70	0.20	0.00B	0.00B	1.20	0.00B	10.00L	3.40	0.00B	1400.00
33E-D80	3.20	0.10L	0.00B	0.00B	0.68	0.00B	10.00L	1.50L	0.00B	790.00
35A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1400.00
35AR-D80	2.40	0.10L	0.00B	0.00B	0.92	0.00B	10.00L	1.50L	0.00B	560.00
35B-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	910.00
35BR-D80	2.30	0.10L	0.00B	0.00B	0.53	0.16	10.00L	1.50L	735.00	1000.00
35C-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1500.00
35D-D79	10.00L	0.00B	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1800.00
36A-D79	10.00L	0.10L	200.00L	0.94	10.00L	0.14	0.00B	10.00L	1030.00	1600.00
36B-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1200.00
36C-D79	10.00L	0.20	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	1600.00
36D-D80	1.40	0.70	0.00B	0.00B	0.44	0.00B	10.00L	1.50L	0.00B	630.00
37A-D79	12.00	0.10L	200.00L	0.00B	24.00	0.00B	0.00B	10.00L	0.00B	1000.00
37D-D79	11.00	0.10L	200.00L	52.50	26.00	5.49	0.00B	10.00L	747.00	720.00
37DR-D79	12.00	0.00B	200.00L	0.00B	27.00	0.00B	0.00B	10.00L	0.00B	780.00
37E-D80	7.10	0.10L	0.00B	0.00B	17.00	4.73	10.00L	4.10	929.00	840.00
39A-D79	10.00L	0.10L	200.00L	87.80	10.00L	0.26	0.00B	10.00L	1060.00	1700.00
39B-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	5000.00G
39C-D79	9.80	0.10L	0.00B	0.00B	21.00	0.00B	10.00L	1.50L	0.00B	720.00
40A-D79	10.00L	0.20	200.00L	2.10	10.00L	0.44	0.00B	10.00L	977.00	1800.00
41A-D79	10.00L	12.00	200.00L	0.00B	15.00	0.00B	0.00B	10.00L	0.00B	4700.00
42A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2300.00
43A-D79	10.00L	0.10L	200.00L	0.00B	10.00L	0.00B	0.00B	10.00L	0.00B	2000.00
82A-D80	2.50	0.70	0.00B	0.00B	0.35	0.00B	10.00L	3.80	0.00B	1400.00
84A-D80	2.10	2.40	0.00B	0.00B	0.51	0.00B	10.00L	1.50L	0.00B	490.00
85A-D80	1.50	0.10L	0.00B	0.00B	0.36	0.00B	10.00L	1.50L	0.00B	1300.00
86A-D80	1.40	0.20	0.00B	0.00B	1.10	0.53	10.00L	1.50L	543.00	620.00
86B-D80	2.00	2.00	0.00B	0.00B	0.73	0.00B	10.00L	2.70	0.00B	490.00
87A-D80	2.60	1.90	0.00B	0.00B	0.51	0.00B	10.00L	1.50L	0.00B	930.00
89B-D80	3.20	0.10	0.00B	0.00B	1.80	0.00B	10.00L	1.50L	0.00B	1100.00
90A-D80	4.90	0.50	0.00B	0.00B	4.20	0.00B	10.00L	3.90	0.00B	1100.00
91A-D80	6.50	0.70	0.00B	0.00B	2.40	0.00B	10.00L	1.50L	0.00B	76000.00
92A-D80	3.80	0.10L	0.00B	0.00B	1.20	0.00B	10.00L	1.50L	0.00B	1900.00
93A-D80	2.30	0.20	0.00B	0.00B	0.84	0.26	10.00L	1.50L	774.00	930.00
93B-D80	2.90	0.10L	0.00B	0.00B	0.25	0.00B	10.00L	1.50L	0.00B	980.00
93C-D80	3.20	0.10L	0.00B	0.00B	1.40	0.00B	10.00L	1.50L	0.00B	1500.00
94A-D80	3.20	1.50	0.00B	0.00B	1.00	0.00B	10.00L	1.50L	0.00B	1900.00
94B-D80	2.90	1.60	0.00B	0.00B	1.30	0.00B	10.00L	1.50L	0.00B	1200.00
94D-D80	4.50	0.10L	0.00B	0.00B	0.69	0.00B	10.00L	1.50L	1940.00	4000.00
95A-D80	3.30	0.60	0.00B	0.00B	3.70	0.00B	10.00L	1.50L	0.00B	820.00
97A-D80	5.00	0.10L	0.00B	0.00B	1.70	0.00B	10.00L	9.40	0.00B	1700.00
99A-D80	1.00	0.10	0.00B	0.00B	0.24	0.00B	10.00L	1.50L	0.00B	1600.00
100A-D80	5.20	0.10L	0.00B	0.00B	2.70	0.00B	10.00L	4.20	0.00B	2700.00
100B-D80	3.50	0.10L	0.00B	0.00B	1.80	0.00B	10.00L	7.30	0.00B	6700.00
100C-D80	5.40	0.90	0.00B	0.00B	2.50	0.00B	10.00L	6.30	0.00B	18000.00
101A-D80	3.50	32.00	0.00B	0.00B	2.50	0.00B	10.00L	1.50L	0.00B	1400.00
102A-D80	4.10	0.10L	0.00B	0.00B	3.20	0.00B	10.00L	1.50L	0.00B	460.00
104A-D80	6.10	0.30	0.00B	0.00B	2.20	0.00B	10.00L	1.50L	0.00B	710.00
105A-D80	4.50	0.10L	0.00B	0.00B	4.40	3.21	10.00L	4.10	985.00	890.00

Table 1D.--Travertines--continued

SAMPLE	Sc ppm-S	Se ppm-X	Se ppm-S	SiO2%-X	Si%-S	Sm ppmNA	Sm ppm-S	Sn ppm-S	Sr ppmNA	Sr ppm-S
106A-D80	3.80	0.10L	0.00B	0.00B	2.30	1.17	10.00L	1.50L	669.00	810.00
106B-D80	1.30	0.10L	0.00B	0.00B	0.92	0.00B	10.00L	1.50L	0.00B	2100.00
106C-D80	3.00	0.30	0.00B	0.00B	0.93	0.00B	10.00L	1.50L	0.00B	1800.00
106D-D80	5.30	0.10L	0.00B	0.00B	0.32	0.00B	10.00L	1.50L	0.00B	2100.00
107A-D80	3.60	0.10L	0.00B	0.00B	3.00	0.00B	10.00L	1.50L	0.00B	1400.00
107B-D80	3.60	0.10L	0.00B	0.00B	1.60	0.00B	10.00L	1.50L	0.00B	940.00
107C-D80	2.00	0.10L	0.00B	0.00B	1.00	0.00B	10.00L	1.50L	0.00B	2200.00
107D-D80	2.90	11.00	0.00B	0.00B	2.20	0.00B	10.00L	4.80	0.00B	2900.00
107E-D80	1.50	0.10L	0.00B	0.00B	0.41	0.00B	10.00L	1.50L	0.00B	800.00
108A-D80	4.70	0.10L	0.00B	0.00B	3.60	0.00B	10.00L	1.50L	0.00B	1200.00
108B-D80	5.10	6.70	0.00B	0.00B	2.30	0.00B	10.00L	1.50L	0.00B	1300.00
108C-D80	3.40	0.10L	0.00B	0.00B	3.10	0.00B	10.00L	1.50L	0.00B	1000.00
108D-D80	3.80	8.90	0.00B	0.00B	3.50	0.00B	10.00L	1.50L	0.00B	800.00
110A-D80	3.50	1.10	0.00B	0.00B	2.00	0.00B	10.00L	1.50L	0.00B	1600.00
111A-D80	1.60	0.10L	0.00B	0.00B	0.41	0.40	10.00L	1.50L	2740.00	2300.00
111B-D80	2.50	0.10L	0.00B	0.00B	1.30	0.00B	10.00L	2.80	0.00B	2100.00
112A-D80	3.00	0.10L	0.00B	0.00B	0.23	0.00B	10.00L	2.50	0.00B	4200.00
113A-D80	1.50	0.10L	0.00B	0.00B	0.51	0.00B	10.00L	3.10	0.00B	890.00
113B-D80	1.40	0.10L	0.00B	0.00B	0.13	0.00B	10.00L	3.30	0.00B	900.00
114A-D80	1.20	0.50	0.00B	0.00B	0.48	0.00B	10.00L	1.50L	0.00B	1600.00
115A-D80	2.00	0.10L	0.00B	0.00B	1.10	0.00B	10.00L	1.50L	0.00B	1300.00
115B-D80	1.70	0.10L	0.00B	0.00B	0.52	0.00B	10.00L	1.50L	0.00B	1000.00
115G-D80	3.40	3.00	0.00B	0.00B	1.90	0.00B	10.00L	1.50L	0.00B	1000.00
116A-D80	2.60	0.10L	0.00B	0.00B	2.90	3.34	10.00L	4.30	1600.00	980.00
117B-D80	3.50	0.10L	0.00B	0.00B	1.70	0.00B	10.00L	1.50L	0.00B	3000.00
117C-D80	1.50	0.10L	0.00B	0.00B	0.39	0.00B	10.00L	2.90	0.00B	3300.00
117D-D80	1.80	0.10L	0.00B	0.00B	0.76	0.00B	10.00L	4.00	0.00B	1600.00

Table 10.--Travertines-continued

SAMPLE	Ta ppmNA	Tb ppmNA	Tb ppm-S	Te ppm-S	Th ppmNA**	TiO2%-X	Ti%-S	Tl ppm-S	Tm ppmNA	U ppmDN
1D-D79	0.00B	0.00B	0.00B	50.00L	12.00L	0.00B	0.05	10.00L	0.00B	37.20
2E-D79	0.00B	0.00B	0.00B	50.00L	39.00L	0.00B	0.04	20.00L	0.00B	163.00
6B-D79	0.00B	0.00B	0.00B	50.00L	29.00L	0.00B	0.14	10.00L	0.00B	116.00
6C-D79	0.00B	0.00B	0.00B	50.00L	42.00L	0.00B	0.04	10.00L	0.00B	182.00
7B-D79	0.00B	0.00B	0.00B	50.00L	180.00L	0.00B	0.03L	10.00L	0.00B	451.00
7D-D79	0.00B	0.00B	0.00B	50.00L	11.00L	0.00B	0.03	10.00L	0.00B	30.90
7F-D79	0.00B	0.00B	0.00B	50.00L	9.39	0.00B	1.10	10.00L	0.00B	3.32
7I-D79	0.00B	0.00B	0.00B	50.00L	4.00L	0.00B	0.03L	10.00L	0.00B	4.21
7IR-D79	0.00B	0.00B	0.00B	50.00L	7.80L	0.00B	0.03L	10.00L	0.00B	19.60
7J-D79	0.00B	0.00B	0.00B	50.00L	130.00L	0.00B	0.03	10.00L	0.00B	285.00
8B-D79	0.00B	0.00B	0.00B	50.00L	28.00L	0.00B	0.10	10.00L	0.00B	106.00
8C-D79	0.00B	0.00B	0.00B	50.00L	8.80L	0.00B	0.03	10.00L	0.00B	18.90
8D-D79	0.00B	0.00B	0.00B	50.00L	31.00L	0.00B	0.05	14.00	0.00B	129.00
8F-D79	0.00B	0.00B	0.00B	50.00L	29.00L	0.00B	0.04	10.00L	0.00B	120.00
9A-D79	0.00B	0.00B	0.00B	50.00L	15.00L	0.00B	0.38	10.00L	0.00B	39.10
10A-D79	0.00B	0.00B	0.00B	50.00L	63.00L	0.00B	0.23	10.00L	0.00B	86.80
10B-D79	0.00B	0.00B	0.00B	50.00L	32.00L	0.00B	0.04	10.00L	0.00B	133.00
10C-D79	0.00B	0.00B	0.00B	50.00L	9.00L	0.00B	0.03	10.00L	0.00B	18.90
10D-D79	0.00B	0.00B	0.00B	50.00L	12.00L	0.02L	0.03L	10.00L	0.00B	37.50
11B-D79	0.00B	0.00B	0.00B	50.00L	20.00L	0.00B	0.08	10.00L	0.00B	75.70
11C-D80	0.00B	0.00B	0.00B	50.00L	7.30L	0.00B	0.06	10.00L	0.00B	12.90
13C-D79	0.00B	0.00B	0.00B	50.00L	10.00L	1.06	0.71	10.00L	0.00B	30.10
15A-D79	0.00B	0.00B	0.00B	50.00L	3.00L	0.02L	0.03L	10.00L	0.00B	2.75
15C-D79	0.00B	0.00B	32.00L	0.00B	3.20L	0.00B	0.02	4.60L	0.00B	1.69
17A-D79	0.00B	0.00B	0.00B	50.00L	43.00L	0.10	0.07	10.00L	0.00B	164.00
17AR-D79	0.00B	0.00B	0.00B	50.00L	92.00L	0.10	0.07	10.00L	0.00B	181.00
20A-D79	0.00B	0.00B	0.00B	50.00L	51.00L	0.00B	0.09	10.00L	0.00B	222.00
20C-D79	0.00B	0.00B	0.00B	50.00L	3.20L	0.00B	0.03	10.00L	0.00B	2.71
22A-D79	0.00B	0.00B	0.00B	50.00L	31.00L	0.00B	0.07	10.00L	0.00B	115.00
22C-D79	0.00B	0.00B	0.00B	50.00L	23.00L	0.00B	0.03L	10.00L	0.00B	89.30
23A-D79	0.00B	0.00B	0.00B	50.00L	46.00L	0.00B	0.03	10.00L	0.00B	59.80
23B-D79	0.00B	0.00B	0.00B	50.00L	21.00L	0.00B	0.03L	10.00L	0.00B	74.20
23C-D79	0.06	0.05	32.00L	0.00B	0.29*	0.00B	0.05	4.60L	0.00B	144.00
23CR-D79	0.00B	0.00B	0.00B	50.00L	23.00L	0.06	0.04	10.00L	0.00B	77.00
24A-D79	0.00B	0.00B	0.00B	50.00L	17.00L	0.00B	0.04	10.00L	0.00B	62.00
24B-D79	0.00B	0.00B	0.00B	50.00L	16.00L	0.00B	0.04	10.00L	0.00B	48.80
24C-D79	0.00B	0.00B	0.00B	50.00L	32.00L	0.00B	0.04	10.00L	0.00B	134.00
24D-D79	0.00B	0.00B	0.00B	50.00L	84.00L	0.00B	0.04	10.00L	0.00B	180.00
24E-D79	0.00B	0.00B	0.00B	50.00L	11.00L	0.00B	0.03L	10.00L	0.00B	31.90
24F-D79	0.00B	0.00B	0.00B	50.00L	2.90L	0.00B	0.03	10.00L	0.00B	1.58
26A-D79	0.00B	0.00B	0.00B	50.00L	22.00L	0.00B	0.09	10.00L	0.00B	77.20
26B-D79	0.00B	0.00B	0.00B	50.00L	12.00L	0.00B	0.27	10.00L	0.00B	34.50
26C-D79	0.00B	0.00B	0.00B	50.00L	44.00L	0.00B	0.13	10.00L	0.00B	173.00
26E-D79	0.00B	0.00B	0.00B	50.00L	20.00L	0.00B	0.05	10.00L	0.00B	69.40
27C-D79	0.00B	0.00B	0.00B	50.00L	13.00L	0.00B	0.03L	10.00L	0.00B	41.60
27CR-D79	0.00B	0.00B	0.00B	50.00L	15.00L	0.00B	0.03L	10.00L	0.00B	54.60
30A-D79	0.16	0.10	32.00L	0.00B	1.27*	0.00B	0.02	4.60L	0.06	55.00
32A-D79	0.00B	0.00B	0.00B	50.00L	0.10L	0.00B	0.03L	10.00L	0.00B	10.80
33A-D79	0.00B	0.00B	0.00B	50.00L	0.94	0.00B	0.03	10.00L	0.00B	72.00
33AR-D79	0.00B	0.00B	0.00B	50.00L	0.85	0.00B	0.03	10.00L	0.00B	67.60

Table 10. Travertines continued

SAMPLE	Ta ppmNA	Tb ppmNA	Tb ppm-S	Te ppm-S	Th ppmNA**	TiO2%-X	Ti%-S	Tl ppm-S	Tm ppmNA	U ppmDN
33B-D80	0.00B	0.00B	32.00L	0.00B	5.20L	0.00B	0.01	4.60L	0.00B	7.36
33C-D80	0.00B	0.00B	32.00L	0.00B	6.60L	0.00B	0.02	4.60L	0.00B	6.59
33E-D80	0.00B	0.00B	32.00L	0.00B	7.10L	0.00B	0.02	4.60L	0.00B	7.17
35A-D79	0.00B	0.00B	0.00B	50.00L	0.57	0.00B	0.03	10.00L	0.00B	88.80
35AR-D80	0.00B	0.00B	32.00L	0.00B	25.00L	0.00B	0.02	4.60L	0.00B	57.80
35B-D79	0.00B	0.00B	0.00B	50.00L	13.00L	0.00B	0.03L	10.00L	0.00B	41.50
35BR-D80	0.05	0.03	32.00L	0.00B	0.35*	0.00B	0.02	4.60L	0.02	32.10
35C-D79	0.00B	0.00B	0.00B	50.00L	17.00L	0.00B	0.03L	10.00L	0.00B	58.00
35D-D79	0.00B	0.00B	0.00B	50.00L	28.00L	0.00B	0.04	10.00L	0.00B	114.00
36A-D79	0.03L	0.01	0.00B	50.00L	0.14*	0.02L	0.03L	10.00L	0.00B	113.00
36B-D79	0.00B	0.00B	0.00B	50.00L	0.39	0.00B	0.03L	10.00L	0.00B	65.20
36C-D79	0.00B	0.00B	0.00B	50.00L	0.49	0.00B	0.14	10.00L	0.00B	81.50
36D-D80	0.00B	0.00B	32.00L	0.00B	52.00L	0.00B	0.02	4.60L	0.00B	147.00
37A-D79	0.00B	0.00B	0.00B	50.00L	10.50	0.00B	0.38	10.00L	0.00B	2.99
37D-D79	0.94	0.80	0.00B	50.00L	11.60*	0.47	0.31	10.00L	0.44	4.60
37DR-D79	0.00B	0.00B	0.00B	50.00L	7.10	0.00B	0.32	10.00L	0.00B	5.13
37E-D80	0.81	0.59	32.00L	0.00B	9.95*	0.00B	0.10	4.60L	0.20	3.24
39A-D79	0.04	0.03	0.00B	50.00L	0.25*	0.02L	0.03L	10.00L	0.01L	33.50
39B-D79	0.00B	0.00B	0.00B	50.00L	0.24	0.00B	0.03L	10.00L	0.00B	48.80
39C-D79	0.00B	0.00B	32.00L	0.00B	6.10L	0.00B	0.15	4.60L	0.00B	8.67
40A-D79	0.09	0.05	0.00B	50.00L	0.50*	0.04	0.03	10.00L	0.02	55.00
41A-D79	0.00B	0.00B	0.00B	50.00L	0.10	0.00B	0.03L	10.00L	0.00B	201.00
42A-D79	0.00B	0.00B	0.00B	50.00L	0.35	0.00B	0.03L	10.00L	0.00B	32.00
43A-D79	0.00B	0.00B	0.00B	50.00L	1.81	0.00B	0.07	10.00	0.00B	117.00
82A-D80	0.00B	0.00B	32.00L	0.00B	58.00L	0.00B	0.01	4.60L	0.00B	174.00
84A-D80	0.00B	0.00B	32.00L	0.00B	5.80L	0.00B	0.01	4.60L	0.00B	5.78
85A-D80	0.00B	0.00B	32.00L	0.00B	5.90L	0.00B	0.01	4.60L	0.00B	7.51
86A-D80	0.14	0.06	32.00L	0.00B	0.55*	0.00B	0.04	4.60L	0.00B	53.40
86B-D80	0.00B	0.00B	32.00L	0.00B	9.50L	0.00B	0.02	4.60L	0.00B	24.30
87A-D80	0.00B	0.00B	32.00L	0.00B	14.00L	0.00B	0.01	4.60L	0.00B	34.50
89B-D80	0.00B	0.00B	32.00L	0.00B	19.00L	0.00B	0.04	4.60L	0.00B	44.90
90A-D80	0.00B	0.00B	32.00L	0.00B	17.00L	0.00B	0.07	4.60L	0.00B	52.90
91A-D80	0.00B	0.00B	32.00L	0.00B	20.00L	0.00B	0.12	5.40	0.00B	47.20
92A-D80	0.00B	0.00B	32.00L	0.00B	50.00L	0.00B	0.03	4.60L	0.00B	210.00
93A-D80	0.08	0.04	32.00L	0.00B	0.45*	0.00B	0.01	4.60L	0.00B	41.30
93B-D80	0.00B	0.00B	32.00L	0.00B	20.00L	0.00B	0.00L	4.60L	0.00B	67.30
93C-D80	0.00B	0.00B	32.00L	0.00B	23.00L	0.00B	0.02	4.60L	0.00B	65.40
94A-D80	0.00B	0.00B	32.00L	0.00B	25.00L	0.00B	0.02	4.60L	0.00B	90.30
94B-D80	0.00B	0.00B	32.00L	0.00B	62.00L	0.00B	0.02	4.60L	0.00B	200.00
94D-D80	0.06	0.03	32.00L	0.00B	0.40*	0.00B	0.02	4.60L	0.01	64.70
95A-D80	0.00B	0.00B	32.00L	0.00B	4.40L	0.00B	0.04	4.60L	0.00B	3.07
97A-D80	0.00B	0.00B	32.00L	0.00B	8.20L	0.00B	0.05	4.60L	0.00B	17.40
99A-D80	0.00B	0.00B	32.00L	0.00B	8.50L	0.00B	0.00	4.60L	0.00B	16.20
100A-D80	0.00B	0.00B	32.00L	0.00B	33.00L	0.00B	0.12	4.60L	0.00B	85.80
100B-D80	0.00B	0.00B	32.00L	0.00B	48.00L	0.00B	0.06	4.60L	0.00B	193.00
100C-D80	0.00B	0.00B	32.00L	0.00B	22.00L	0.00B	0.10	4.60L	0.00B	74.00
101A-D80	0.00B	0.00B	32.00L	0.00B	4.10L	0.00B	0.10	4.60L	0.00B	2.05
102A-D80	0.00B	0.00B	32.00L	0.00B	4.30L	0.00B	0.08	4.60L	0.00B	4.28
104A-D80	0.00B	0.00B	32.00L	0.00B	7.60L	0.00B	0.04	4.60L	0.00B	13.30
105A-D80	0.47	0.32	32.00L	0.00B	3.49*	0.00B	0.09	4.60L	0.16	7.77

Table 10.--Travertines-continued

SAMPLE	Ta ppmNA	Tb ppmNA	Tb ppm-S	Te ppm-S	Th ppmNA**	TiO2%-X	Ti%-S	Tl ppm-S	Tm ppmNA	U ppmDN
106A-D80	0.24	0.17	32.00L	0.00B	2.37 *	0.00B	0.05	4.60L	0.10	35.60
106B-D80	0.00B	0.00B	32.00L	0.00B	8.90L	0.00B	0.03	4.60L	0.00B	20.40
106C-D80	0.00B	0.00B	32.00L	0.00B	13.00L	0.00B	0.00	4.60L	0.00B	39.70
106D-D80	0.00B	0.00B	32.00L	0.00B	14.00L	0.00B	0.00L	4.60L	0.00B	33.90
107A-D80	0.00B	0.00B	32.00L	0.00B	13.00L	0.00B	0.08	4.60L	0.00B	34.30
107B-D80	0.00B	0.00B	32.00L	0.00B	19.00L	0.00B	0.04	4.60L	0.00B	63.20
107C-D80	0.00B	0.00B	32.00L	0.00B	16.00L	0.00B	0.03	4.60L	0.00B	39.40
107D-D80	0.00B	0.00B	32.00L	0.00B	22.00L	0.00B	0.09	4.60L	0.00B	79.90
107E-D80	0.00B	0.00B	32.00L	0.00B	27.00L	0.00B	0.01	4.60L	0.00B	67.30
108A-D80	0.00B	0.00B	32.00L	0.00B	21.00L	0.00B	0.05	4.60L	0.00B	72.90
108B-D80	0.00B	0.00B	39.00	0.00B	57.00L	0.00B	0.04	4.60L	0.00B	236.00
108C-D80	0.00B	0.00B	32.00L	0.00B	21.00L	0.00B	0.04	4.60L	0.00B	55.40
108D-D80	0.00B	0.00B	32.00L	0.00B	65.00L	0.00B	0.06	4.60L	0.00B	192.00
110A-D80	0.00B	0.00B	32.00L	0.00B	6.90L	0.00B	0.03	4.60L	0.00B	12.90
111A-D80	0.11	0.04	32.00L	0.00B	0.47 *	0.00B	0.02	4.60L	0.00B	141.00
111B-D80	0.00B	0.00B	32.00L	0.00B	11.00L	0.00B	0.07	4.60L	0.00B	26.80
112A-D80	0.00B	0.00B	32.00L	0.00B	12.00L	0.00B	0.00	4.60L	0.00B	21.90
113A-D80	0.00B	0.00B	32.00L	0.00B	20.00L	0.00B	0.02	4.60L	0.00B	71.40
113B-D80	0.00B	0.00B	32.00L	0.00B	8.40L	0.00B	0.00	4.60L	0.00B	19.10
114A-D80	0.00B	0.00B	32.00L	0.00B	12.00L	0.00B	0.02	4.60L	0.00B	36.70
115A-D80	0.00B	0.00B	32.00L	0.00B	6.90L	0.00B	0.02	4.60L	0.00B	12.40
115B-D80	0.00B	0.00B	32.00L	0.00B	27.00L	0.00B	0.01	4.60L	0.00B	103.00
115G-D80	0.00B	0.00B	32.00L	0.00B	32.00L	0.00B	0.16	4.60L	0.00B	91.10
116A-D80	1.13	0.35	32.00L	0.00B	3.13 *	0.00B	0.09	4.60L	0.00B	14.40
117B-D80	0.00B	0.00B	32.00L	0.00B	23.00L	0.00B	0.05	4.60L	0.00B	86.00
117C-D80	0.00B	0.00B	32.00L	0.00B	9.20L	0.00B	0.02	4.60L	0.00B	21.40
117D-D80	0.00B	0.00B	32.00L	0.00B	29.00L	0.00B	0.04	4.60L	0.00B	72.80

** Th data indicated by a "*" was determined by neutron activation; all other Th data were determined by neutron activation analysis.

Table 10.--Travertines--continued

SAMPLE	V ppm-S	W ppm-S	Y ppm-S	Yb ppmNA	Yb ppm-S	Zn ppmAA	Zn ppm-S	Zr ppmNA	Zr ppm-S
1D-D79	49.00	100.00L	10.00	0.00B	0.00B	0.00B	50.00L	0.00B	240.00
2E-D79	26.00	100.00L	17.00	0.00B	0.00B	0.00B	0.00H	0.00B	150.00
6B-D79	34.00	100.00L	19.00	0.00B	0.00B	0.00B	50.00L	0.00B	180.00
6C-D79	56.00	100.00L	12.00	0.00B	0.00B	0.00B	0.00H	0.00B	190.00
7B-D79	33.00	100.00L	14.00	0.00B	0.00B	0.00B	0.00H	0.00B	800.00
7D-D79	22.00	100.00L	12.00	0.00B	0.00B	0.00B	50.00L	0.00B	530.00
7F-D79	110.00	100.00L	34.00	0.00B	0.00B	0.00B	64.00	0.00B	700.00
7I-D79	28.00	100.00L	12.00	0.00B	0.00B	0.00B	0.00H	0.00B	170.00
7IR-D79	19.00	100.00L	11.00	0.00B	0.00B	0.00B	100.00L	0.00B	280.00
7J-D79	34.00	100.00L	14.00	0.00B	0.00B	0.00B	50.00L	0.00B	900.00
8B-D79	120.00	100.00L	12.00	0.00B	0.00B	0.00B	50.00L	0.00B	440.00
8C-D79	47.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	320.00
8D-D79	79.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	150.00
8F-D79	60.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	250.00
9A-D79	79.00	100.00L	23.00	0.00B	0.00B	0.00B	50.00L	0.00B	540.00
10A-D79	110.00	100.00L	19.00	0.00B	0.00B	0.00B	50.00L	0.00B	250.00
10B-D79	76.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	120.00
10C-D79	42.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	260.00
10D-D79	35.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	140.00
11B-D79	57.00	100.00L	14.00	0.00B	0.00B	0.00B	0.00H	0.00B	160.00
11C-D80	27.00	100.00L	12.00	0.00B	0.00B	0.00B	50.00L	0.00B	120.00
13C-D79	82.00	100.00L	29.00	0.00B	0.00B	0.00B	110.00	0.00B	520.00
15A-D79	10.00L	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	20.00L
15C-D79	19.00	10.00L	4.30	0.00B	0.15L	0.00B	260.00	0.00B	20.00
17A-D79	28.00	100.00L	17.00	0.00B	0.00B	0.00B	0.00H	0.00B	160.00
17AR-D79	45.00	100.00L	22.00	0.00B	0.00B	0.00B	0.00H	0.00B	150.00
20A-D79	98.00	100.00L	13.00	0.00B	0.00B	0.00B	50.00L	0.00B	210.00
20C-D79	55.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	900.00
22A-D79	71.00	100.00L	14.00	0.00B	0.00B	0.00B	50.00L	0.00B	470.00
22C-D79	18.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	230.00
23A-D79	45.00	100.00L	10.00	0.00B	0.00B	0.00B	50.00L	0.00B	58.00
23B-D79	41.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	170.00
23C-D79	44.00	10.00L	2.70	0.09	0.15L	12.00	15.00L	0.00B	20.00
23CR-D79	33.00	100.00L	10.00	0.00B	0.00B	0.00B	50.00L	0.00B	120.00
24A-D79	20.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	100.00
24B-D79	56.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	150.00
24C-D79	32.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	150.00
24D-D79	27.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	130.00
24E-D79	15.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	69.00
24F-D79	11.00	100.00L	10.00	0.00B	0.00B	0.00B	50.00L	0.00B	260.00
26A-D79	14.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00L	0.00B	450.00
26B-D79	37.00	100.00L	17.00	0.00B	0.00B	0.00B	50.00	0.00B	340.00
26C-D79	52.00	100.00L	16.00	0.00B	0.00B	0.00B	110.00	0.00B	220.00
26E-D79	280.00	100.00L	19.00	0.00B	0.00B	0.00B	0.00H	0.00B	360.00
27C-D79	28.00	100.00L	12.00	0.00B	0.00B	0.00B	0.00H	0.00B	220.00
27CR-D79	21.00	100.00L	11.00	0.00B	0.00B	0.00B	0.00H	0.00B	170.00
30A-D79	36.00	10.00L	3.20	0.30	0.18	18.00	71.00	0.00B	79.00
32A-D79	46.00	100.00L	12.00	0.00B	0.00B	0.00B	50.00L	0.00B	270.00
33A-D79	30.00	100.00L	11.00	0.00B	0.00B	0.00B	50.00L	0.00B	54.00
33AR-D79	20.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	20.00L

Table 10.--Travertines-continued

SAMPLE	V ppm-S	W ppm-S	Y ppm-S	Yb ppmNA	Yb ppm-S	Zn ppmAA	Zn ppm-S	Zr ppmNA	Zr ppm-S
33B-D80	3.60	10.00L	1.80	0.00B	0.15L	0.00B	23.00	0.00B	27.00
33C-D80	36.00	10.00L	4.30	0.00B	0.23	0.00B	15.00L	0.00B	79.00
33E-D80	20.00	10.00L	4.50	0.00B	0.21	0.00B	15.00L	0.00B	45.00
35A-D79	44.00	100.00L	13.00	0.00B	0.00B	0.00B	0.00H	0.00B	140.00
35AR-D80	18.00	10.00L	3.30	0.00B	0.22	0.00B	15.00L	0.00B	170.00
35B-D79	56.00	100.00L	13.00	0.00B	0.00B	0.00B	0.00H	0.00B	220.00
35BR-D80	15.00	10.00L	1.50L	0.11	0.15L	12.00	15.00L	0.00B	28.00
35C-D79	64.00	100.00L	14.00	0.00B	0.00B	0.00B	0.00H	0.00B	250.00
35D-D79	66.00	100.00L	12.00	0.00B	0.00B	0.00B	0.00H	0.00B	70.00
36A-D79	20.00	100.00L	10.00	0.08L	0.00B	0.00B	50.00L	0.00B	81.00
36B-D79	25.00	100.00L	10.00	0.00B	0.00B	0.00B	50.00L	0.00B	210.00
36C-D79	94.00	100.00L	23.00	0.00B	0.00B	0.00B	50.00L	0.00B	310.00
36D-D80	11.00	10.00L	1.80	0.00B	0.18	0.00B	15.00L	0.00B	83.00
37A-D79	110.00	100.00L	31.00	0.00B	0.00B	0.00B	50.00L	0.00B	280.00
37D-D79	83.00	100.00L	34.00	2.72	0.00B	0.00B	50.00L	165.00	270.00
37DR-D79	91.00	100.00L	37.00	0.00B	0.00B	0.00B	50.00L	0.00B	300.00
37E-D80	57.00	10.00L	8.90	1.91	1.60	37.00	77.00	131.00	76.00
39A-D79	23.00	100.00L	10.00	0.07	0.00B	0.00B	50.00L	0.00B	63.00
39B-D79	58.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	56.00
39C-D79	100.00	10.00L	15.00	0.00B	1.40	0.00B	100.00	0.00B	110.00
40A-D79	63.00	100.00L	11.00	0.15	0.00B	0.00B	50.00L	0.00B	230.00
41A-D79	180.00	100.00L	28.00	0.00B	0.00B	0.00B	50.00L	0.00B	100.00
42A-D79	21.00	100.00L	10.00L	0.00B	0.00B	0.00B	50.00L	0.00B	63.00
43A-D79	46.00	100.00L	21.00	0.00B	0.00B	0.00B	0.00H	0.00B	220.00
82A-D80	7.80	10.00L	1.60	0.00B	0.15L	0.00B	15.00L	0.00B	15.00
84A-D80	24.00	10.00L	2.80	0.00B	0.16	0.00B	81.00	0.00B	40.00
85A-D80	14.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	52.00
86A-D80	19.00	10.00L	2.70	0.14	0.15L	18.00	130.00	0.00B	32.00
86B-D80	16.00	10.00L	2.50	0.00B	0.15L	0.00B	15.00L	0.00B	33.00
87A-D80	13.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	31.00
89B-D80	13.00	10.00L	3.80	0.00B	0.22	0.00B	15.00L	0.00B	60.00
90A-D80	47.00	10.00L	9.00	0.00B	0.62	0.00B	84.00	0.00B	73.00
91A-D80	91.00	10.00L	7.10	0.00B	0.72	0.00B	15.00L	0.00B	150.00
92A-D80	24.00	10.00L	6.30	0.00B	0.41	0.00B	15.00L	0.00B	26.00
93A-D80	200.00	10.00L	3.00	0.10	0.51	18.00	15.00L	0.00B	95.00
93B-D80	42.00	0.00B	1.50L	0.00B	0.15L	0.00B	63.00	0.00B	96.00
93C-D80	100.00	10.00L	2.60	0.00B	0.20	0.00B	15.00L	0.00B	43.00
94A-D80	8.60	10.00L	2.60	0.00B	0.15L	0.00B	15.00L	0.00B	41.00
94B-D80	72.00	10.00L	3.30	0.00B	0.21	0.00B	15.00L	0.00B	85.00
94D-D80	19.00	10.00L	4.60	0.09	0.24	16.00	15.00L	0.00B	63.00
95A-D80	99.00	10.00L	3.30	0.00B	0.15L	0.00B	15.00L	0.00B	91.00
97A-D80	25.00	10.00L	4.50	0.00B	0.31	0.00B	15.00L	0.00B	47.00
99A-D80	5.50	10.00L	2.90	0.00B	0.15L	0.00B	15.00L	0.00B	27.00
100A-D80	64.00	10.00L	8.00	0.00B	0.73	0.00B	15.00L	0.00B	77.00
100B-D80	54.00	10.00L	3.60	0.00B	0.15L	0.00B	15.00L	0.00B	56.00
100C-D80	100.00	10.00L	9.10	0.00B	1.20	0.00B	15.00L	0.00B	83.00
101A-D80	24.00	10.00L	5.10	0.00B	0.42	0.00B	15.00L	0.00B	80.00
102A-D80	29.00	10.00L	5.10	0.00B	0.15L	0.00B	140.00	0.00B	52.00
104A-D80	43.00	10.00L	5.10	0.00B	0.15L	0.00B	15.00L	0.00B	75.00
105A-D80	44.00	10.00L	7.90	0.91	0.20	40.00	90.00	38.00	77.00

Table 10.--Travertines-continued

SAMPLE	V ppm-S	W ppm-S	Y ppm-S	Yb ppmNA	Yb ppm-S	Zn ppmAA	Zn ppm-S	Zr ppmNA	Zr ppm-S
106A-D80	35.00	10.00L	6.00	0.52	0.59	29.00	15.00L	0.00B	90.00
106B-D80	50.00	10.00L	2.00	0.00B	0.15L	0.00B	15.00L	0.00B	59.00
106C-D80	86.00	10.00L	3.20	0.00B	0.15L	0.00B	130.00	0.00B	76.00
106D-D80	81.00	10.00L	2.00	0.00B	0.15L	0.00B	15.00L	0.00B	32.00
107A-D80	55.00	10.00L	4.90	0.00B	0.15L	0.00B	140.00	0.00B	110.00
107B-D80	42.00	10.00L	7.80	0.00B	0.55	0.00B	15.00L	0.00B	100.00
107C-D80	38.00	10.00L	2.10	0.00B	0.15L	0.00B	15.00L	0.00B	33.00
107D-D80	40.00	10.00L	3.30	0.00B	0.30	0.00B	120.00	0.00B	85.00
107E-D80	20.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	38.00
108A-D80	89.00	10.00L	5.30	0.00B	0.38	0.00B	15.00L	0.00B	82.00
108B-D80	140.00	10.00L	4.50	0.00B	0.50	0.00B	15.00L	0.00B	56.00
108C-D80	59.00	10.00L	3.80	0.00B	0.29	0.00B	15.00L	0.00B	110.00
108D-D80	87.00	10.00L	4.90	0.00B	0.59	0.00B	15.00L	0.00B	56.00
110A-D80	160.00	10.00L	4.10	0.00B	0.45	0.00B	15.00L	0.00B	34.00
111A-D80	86.00	10.00L	2.20	0.11	0.27	14.00	15.00L	0.00B	170.00
111B-D80	23.00	10.00L	4.20	0.00B	0.23	0.00B	40.00	0.00B	140.00
112A-D80	7.60	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	3.50
113A-D80	11.00	10.00L	2.20	0.00B	0.15L	0.00B	51.00	0.00B	36.00
113B-D80	20.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	70.00
114A-D80	20.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	48.00
115A-D80	18.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	160.00
115B-D80	28.00	10.00L	1.50L	0.00B	0.15L	0.00B	15.00L	0.00B	56.00
115G-D80	49.00	10.00L	4.90	0.00B	0.44	0.00B	77.00	0.00B	96.00
116A-D80	28.00	10.00L	5.00	0.65	0.49	40.00	73.00	79.00	91.00
117B-D80	44.00	10.00L	5.60	0.00B	0.22	0.00B	15.00L	0.00B	110.00
117C-D80	19.00	10.00L	1.80	0.00B	0.15L	0.00B	52.00	0.00B	110.00
117D-D80	26.00	10.00L	2.50	0.00B	0.25	0.00B	100.00	0.00B	90.00

Table 2A.--Statistical data for Hopi Buttes monchiquites

VARIABLE	TRANS-FORMATION	MINIMUM	MAXIMUM	MEAN OR GEOM. MEAN	STANDARD OR GEOM. DEV.	VALID VALUES	PERCENT ASSIGNED	PERCENT QUALIFIED
Si02%-X	None	38.10	42.60	39.95	1.43	10	0	0
Al203%-X	Log	10.00	12.50	11.31	1.08	10	0	0
T-Fe203%	Log	9.61	15.20	13.11	1.14	10	0	0
MgO%-X	Log	5.98	11.60	7.66	1.26	10	0	0
CaO%-X	Log	10.40	13.60	11.94	1.09	10	0	0
Na2O%-X	Log	2.40	4.00	3.19	1.19	10	0	0
K2O%-X	Log	0.69	2.12	1.30	1.44	10	0	0
TiO2%-X	None	3.27	4.48	3.98	0.40	10	0	0
P2O5%-X	Log	0.86	2.00	1.50	1.34	10	0	0
MnO%-X	Log	0.13	0.23	0.18	1.21	10	0	0
F%-AA	None	0.10	0.16	0.14	0.02	11	0	0
T-S%-AA	Log	0.01	0.09	0.03	1.80	11	0	0
Ba ppm-S	None	360.00	1100.00	697.14	208.49	14	0	0
Be ppm-S	None	1.40	3.70	2.26	0.71	14	0	0
Co ppm-S	None	27.00	52.00	38.57	8.72	14	0	0
Cr ppm-S	Log	17.00	370.00	163.66	2.31	14	0	0
Cu ppm-S	None	33.00	77.00	57.43	16.09	14	0	0
La ppm-S	Log	39.00	130.00	69.97	1.47	14	0	0
Mo ppm-S	Log	1.00*	34.00	1.75**	5.06**	9	0	35.71
Nb ppm-S	None	30.00	95.00	56.57	22.12	14	0	0
Ni ppm-S	Log	24.00	210.00	95.68	1.83	14	0	0
Pb ppm-S	None	5.10	17.00	10.03**	3.17**	14	14.29	0
Sc ppm-S	Log	9.60	25.00	15.31	1.33	14	0	0
Sn ppm-S	None	1.13	7.50	(2.60**)	(1.81**)	14	50.00	0
Sr ppm-S	None	900.00	2200.00	1545.00	425.76	14	0	0
V ppm-S	None	95.00	190.00	136.79	32.20	14	0	0
Y ppm-S	Log	9.80	42.00	18.20	1.51	14	0	0
Zn ppm-S	Log	94.00	290.00	171.49	1.31	14	0	0
Zr ppm-S	Log	150.00	710.00	248.48	1.58	14	0	0
Ce ppm-S	Log	(63.00*)	240.00	109.43**	1.65**	13	0	7.14
Ga ppm-S	None	16.00	29.00	20.86	3.70	14	0	0
Yb ppm-S	None	0.60	1.90	1.21	0.41	13	0	0
Nd ppm-S	None	32.00*	86.00	34.05**	31.91**	7	0	46.15
Eu ppm-S	None	2.20*	6.30	2.69**	1.81**	8	0	38.46
Cs ppmAA	Log	1.00*	71.00	1.31**	4.40**	10	0	23.08
T-C%-AA	Log	0.13	1.42	0.37	2.72	4	0	0
Org C%AA	Log	0.07	0.37	0.19	2.02	4	0	0
Cbt C%AA	Log	0.06	1.05	0.17	3.63	4	0	0
Fe%-NA	None	8.00	10.40	9.10	0.85	10	0	0
K%-NA	None	0.51	1.68	1.04	0.36	10	0	0
Na%-NA	Log	1.91	2.97	2.37	1.18	10	0	0
As ppmAA	Log	1.10	27.00	4.54	3.00	14	0	0
Ba ppmNA	Log	809.00	1490.00	1001.48	1.22	10	0	0
Co ppmNA	Log	39.30	53.10	45.51	1.12	10	0	0
Cr ppmNA	None	25.00	396.00	204.60	132.63	10	0	0
Cs ppmNA	Log	0.57	69.80	1.78	3.99	11	0	0
Hf ppmNA	None	6.12	12.30	9.58	1.94	10	0	0
Li ppmAA	Log	10.00	47.00	20.96	1.54	11	0	0
Mn ppmNA	None	1080.00	1680.00	1433.00	230.61	10	0	0
Rb ppmAA	None	10.00*	41.00	13.17**	14.29**	7	0	36.36
Sb ppmNA	None	0.07*	0.27	0.15**	0.08**	8	0	11.11
Sr ppmNA	None	994.00	2250.00	1740.40	414.17	10	0	0
Ta ppmNA	Log	4.13	9.03	6.55	1.31	10	0	0

Table 2A.--Statistical data for Hopi Buttes monchiquites-continued

Th ppmNA	Log	6.40*	17.00	10.01**	1.39**	13	0	7.14
U ppmDN	Log	2.57	9.00	4.17	1.41	14	0	0
Zn ppmAA	None	124.00	232.00	160.00	34.55	10	0	0
Zr ppmNA	None	256.00	588.00	431.60	103.43	10	0	0
Sc ppmNA	Log	14.10	21.90	18.18	1.16	10	0	0
La ppmNA	Log	68.00	140.00	92.45	1.28	10	0	0
Ce ppmNA	Log	133.00	268.00	190.16	1.28	10	0	0
Nd ppmNA	Log	65.50	123.00	92.41	1.25	10	0	0
Sm ppmNA	None	12.00	22.60	17.23	3.83	10	0	0
Eu ppmNA	Log	3.23	6.02	4.71	1.23	10	0	0
Gd ppmNA	None	8.37	17.80	12.91	2.62	10	0	0
Tb ppmNA	None	1.05	1.95	1.53	0.32	10	0	0
Dy ppmNA	None	5.23	10.50	8.18	1.69	10	0	0
Yb ppmNA	Log	1.34	2.47	1.88	1.24	10	0	0
Lu ppmNA	None	0.19	0.36	0.28	0.06	10	0	0
FeO%	None	2.66	7.55	5.84	1.52	9	0	0
H2O+%	None	1.01	3.15	2.24	0.67	9	0	0
H2O-%	Log	0.29	1.30	0.79	1.58	9	0	0
CO2%	Log	0.05	4.97	0.87	3.52	9	0	0

*Lower or upper limit of detection
**Parameters calculated from censored populations

--Parentheses indicate questionable statistics

Table 28.--Statistical data for Hopi Buttes limburgite tuffs.

VARIABLE	TRANS-FORMATION	MINIMUM	MAXIMUM	MEAN OR GEOM. MEAN	STANDARD OR GEOM. DEV.	VALID VALUES	PERCENT ASSIGNED	PERCENT QUALIFIED
F%-AA	None	0.05	0.22	0.11	0.06	12	0	0
T-S%-AA	Log	0.02	0.52	0.06	2.47	12	0	0
Fe%-S	None	0.66	20.00*	6.02**	3.84**	28	0	3.45
Mg%-S	Log	0.50	10.00	2.04	2.00	29	0	0
Ca%-S	Log	0.33	26.67	6.97**	2.75**	29	17.24	0
Ti%-S	Log	0.00	2.40	0.50**	4.42**	29	20.69	0
Mn ppm-S	Log	200.00*	6000.00	1052.45**	2.34**	28	0	3.45
Ag ppm-S	Log	0.08	2.50	(0.54**)	(3.91**)	29	55.17	0
B ppm-S	None	3.45	130.00	(26.75**)	(31.51**)	29	48.28	0
Ba ppm-S	Log	46.00	2300.00	591.82	2.59	29	0	0
Be ppm-S	None	1.00*	6.70	1.65**	2.27**	18	0	37.93
Co ppm-S	Log	8.50	210.00	29.91	2.18	29	0	0
Cr ppm-S	Log	1.60	1500.00	64.82	3.86	29	0	0
Cu ppm-S	Log	4.20	70.00	25.36	2.18	29	0	0
La ppm-S	Log	7.50	270.00	69.75**	2.44**	29	13.79	0
Mo ppm-S	Log	0.75	1600.00	(12.32**)	(6.12**)	29	48.28	0
Nb ppm-S	Log	2.40	130.00	(29.79**)	(2.42**)	29	37.93	0
Ni ppm-S	Log	9.30	940.00	89.91	2.86	29	0	0
Sc ppm-S	Log	(10.00*)	70.00	12.02**	2.25**	23	0	20.69
Sr ppm-S	Log	150.00	5000.00*	1607.45**	2.36**	26	0	10.34
V ppm-S	Log	43.00	220.00	108.80	1.57	29	0	0
Y ppm-S	Log	1.50*	84.00	23.14**	2.18**	28	0	3.45
Zn ppm-S	Log	50.00*	400.00	67.45**	2.73**	15	0	44.44
Zr ppm-S	Log	58.00	1000.00*	335.27**	2.27**	27	0	6.90
Si%-S	None	2.00	30.00	13.81**	7.19**	29	17.24	0
Al%-S	Log	0.05*	6.70	2.92**	2.73**	28	0	3.45
Na%-S	None	(0.15*)	3.00	1.28**	0.77**	28	0	3.45
K%-S	Log	(0.70*)	5.00	1.19**	2.09**	28	0	3.45
Ce ppm-S	Log	47.25	510.00	(129.92**)	(2.03**)	27	44.44	0
Ga ppm-S	Log	1.13	30.00	13.11**	1.94**	29	13.79	0
As ppmAA	Log	1.30	720.00	20.13	6.59	22	0	0
Li ppmAA	Log	1.00	77.00	16.27	2.90	13	0	0
Rb ppmAA	None	0.75	73.00	29.31**	21.24**	13	15.38	0
Se ppm-X	Log	0.10*	32.00	0.23**	17.71**	14	0	39.13
U ppmDN	Log	1.85	1450.00	37.71	6.40	29	0	0

*Lower or upper limit of detection
**Parameters calculated from censored populations

--Parentheses indicate questionable statistics

Table 2C.--Statistical data for Hopi Buttes clastic rocks

VARIABLE	TRANS-FORMATION	MINIMUM	MAXIMUM	MEAN OR GEOM. MEAN	STANDARD OR GEOM. DEV.	VALID VALUES	PERCENT ASSIGNED	PERCENT QUALIFIED
Fe%-S	Log	0.25	20.00*	2.25**	2.88**	29	0	3.33
Mg%-S	Log	0.12	11.00	1.52	2.83	30	0	0
Ca%-S	Log	0.21	(20.00*)	9.07**	4.22**	24	0	20.00
Ti%-S	Log	0.02	1.50*	0.22**	3.44**	29	0	3.33
Mn ppm-S	Log	200.00*	2200.00	771.96**	1.89**	29	0	3.33
B ppm-S	None	3.45	140.00	(27.72**)	(34.83**)	29	51.72	0
Ba ppm-S	Log	39.00	1700.00	348.83	2.64	30	0	0
Be ppm-S	None	0.50	7.80	(1.77**)	(1.67**)	30	53.33	0
Co ppm-S	Log	1.00*	200.00	14.88**	2.72**	29	0	3.33
Cr ppm-S	Log	1.30	150.00	27.93	2.53	30	0	0
Cu ppm-S	Log	2.70	81.00	14.79	2.26	30	0	0
La ppm-S	Log	7.50	170.00	42.19**	2.17**	30	10.00	0
Mo ppm-S	None	0.75	2666.66	(207.92**)	(634.13**)	27	44.44	0
Ni ppm-S	Log	6.60	540.00	46.39	2.63	30	0	0
Sc ppm-S	Log	2.20	17.00	(7.51**)	(1.61**)	30	50.00	0
Sr ppm-S	Log	190.00	5000.00*	1128.89**	2.36**	27	0	10.00
V ppm-S	Log	8.50	580.00	59.96	2.21	30	0	0
Y ppm-S	Log	(20.00*)	64.00	16.11**	1.91**	29	0	3.33
Zn ppm-S	Log	11.25	230.00	(50.63**)	(1.87**)	26	61.54	0
Zr ppm-S	Log	38.00	1000.00*	248.45**	2.54**	28	0	6.67
Si%-S	Log	3.50	53.33	(13.89**)	(1.93**)	30	30.00	0
Al%-S	Log	0.26	7.20	2.27	2.28	30	0	0
Na%-S	Log	0.11	3.00	0.61**	2.25**	30	10.00	0
K%-S	Log	0.15	2.50	0.97	2.19	30	0	0
P%-S	Log	0.01	1.60	(0.09**)	(3.64**)	30	43.33	0
Ga ppm-S	Log	1.13	30.00	(8.56**)	(2.02**)	30	43.33	0
As ppmAA	Log	2.20	120.00	15.65	3.51	19	0	0
U ppmDN	Log	2.74	1450.00	53.14	5.53	30	0	0

*Lower or upper limit of detection
**Parameters calculated from censored populations

--Parentheses indicate questionable statistics

Table 20.--Statistical data for Hopi Buttes travertines

VARIABLE	TRANS-FORMATION	MINIMUM	MAXIMUM	MEAN OR GEOM. MEAN	STANDARD OR GEOM. DEV.	VALID VALUES	PERCENT ASSIGNED	PERCENT QUALIFIED
Fe%-S	Log	0.04	26.67	1.02**	3.26**	120	5.83	0
Mg%-S	None	(0.10*)	14.00	5.43**	4.39**	119	0	0.83
Ca%-S	None	2.00	42.67	(21.73**)	(8.87**)	120	31.67	0
Ti%-S	Log	0.00	1.10	0.04**	2.81**	120	15.83	0
Mn ppm-S	Log	140.00	7400.00	999.59**	2.22**	120	2.50	0
Ba ppm-S	Log	(20.00*)	4800.00	79.39**	2.87**	117	0	2.50
Co ppm-S	Log	1.00*	170.00	9.49**	2.63**	118	0	1.67
Cr ppm-S	Log	0.75	130.00	6.42**	3.13**	120	9.17	0
Cu ppm-S	Log	1.00*	240.00	6.52**	2.07**	119	0	0.83
La ppm-S	Log	7.50	200.00	(21.99**)	(2.46**)	120	35.83	0
Mo ppm-S	Log	0.75	1300.00	(15.09**)	(3.70**)	109	33.03	0
Ni ppm-S	Log	1.50*	810.00	33.73**	3.07**	119	0	0.83
Sc ppm-S	Log	0.75	16.00	(4.60**)	(1.89**)	120	45.83	0
Sr ppm-S	Log	160.00	(5000.00*)	1636.15**	2.31**	114	0	5.00
V ppm-S	Log	(10.00*)	280.00	37.97**	2.19**	119	0	0.83
Y ppm-S	Log	1.13	34.00	6.31**	2.39**	120	16.67	0
Zr ppm-S	Log	(20.00*)	900.00	102.52**	2.59**	118	0	1.67
Si%-S	Log	0.13	53.33	(3.20**)	(3.49**)	120	45.00	0
Al%-S	Log	0.03	7.00	0.41**	3.01**	120	20.00	0
Na%-S	None	0.00	3.40	0.27**	0.51**	120	25.00	0
K%-S	Log	0.05	3.60	0.25**	2.24**	120	2.50	0
T-C%-AA	None	1.68	13.10	10.73	2.20	62	0	0
Org C%AA	Log	0.01*	2.08	0.36**	3.75**	58	0	6.45
Cbt C%AA	None	0.60	12.64	10.12	2.29	62	0	0
As ppmAA	Log	0.70	500.00	14.75	3.66	97	0	0
U ppmDN	Log	1.58	451.00	40.15	3.52	120	0	0

*Lower or upper limit of detection
**Parameters calculated from censored populations

--Parentheses indicate questionable statistics

Table 3A.--Correlation coefficients for Hopi Buttes monchiquites

	Si02%-X	Al203%-X*	T-Fe203X*	MgO%-X *	CaO%-X *	Na20%-X *	K20%-X *	Ti02%-X	P205%-X *	MnO%-X *
Si02%-X	.....	0.18(10)	-0.83(10)	0.11(10)	-0.02(10)	-0.74(10)	0.52(10)	0.21(10)	-0.52(10)	-0.85(10)
*Al203%-X	.....	0.05(10)	-0.74(10)	0.08(10)	-0.12(10)	0.54(10)	0.64(10)	0.41(10)	-0.01(10)
*T-Fe203X	.....	-0.07(10)	-0.30(10)	0.82(10)	-0.40(10)	-0.00(10)	0.37(10)	0.80(10)
*MgO%-X	.....	-0.51(10)	0.07(10)	-0.31(10)	-0.58(10)	-0.74(10)	-0.09(10)
*CaO%-X	.....	-0.52(10)	0.32(10)	0.32(10)	0.34(10)	-0.20(10)
*Na20%-X	.....	-0.57(10)	-0.11(10)	0.36(10)	0.80(10)
*K20%-X	.....	0.48(10)	0.21(10)	-0.20(10)
Ti02%-X	.....	0.34(10)	-0.15(10)
*P205%-X	.....	0.65(10)
*MnO%-X	.....
F%-AA	.....
*T-S%-AA	.....
Be ppm-S	.....
Cu ppm-S	.....
*Mo ppm-S	.....
Nb ppm-S	.....
*Ni ppm-S	.....
Pb ppm-S	.....
V ppm-S	.....
*Y ppm-S	.....
Ga ppm-S	.....
*As ppmAA	.....
*Ba ppmNA	.....
*Co ppmNA	.....
Cr ppmNA	.....
*Cs ppmNA	.....
Hf ppmNA	.....
*Li ppmAA	.....
Sb ppmNA	.....
Sr ppmNA	.....
*Ta ppmNA	.....
*Th ppmNA	.....
*U ppmDN	.....
Zn ppmAA	.....
Zr ppmNA	.....
*Sc ppmNA	.....
*La ppmNA	.....
*Ce ppmNA	.....
*Nd ppmNA	.....
Sm ppmNA	.....
*Eu ppmNA	.....
Gd ppmNA	.....
Tb ppmNA	.....
Dy ppmNA	.....
*Yb ppmNA	.....
Lu ppmNA	.....
FeO%	.....
H2O+%	.....
* H2O-%	.....
* CO2%	.....

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*Log data were used in calculation

Table 3A, continued

	F%-AA	T-S%-AA *	Be ppm-S	Cu ppm-S	Mo ppm-S*	Nb ppm-S	Ni ppm-S*	Pb ppm-S	V ppm-S	Y ppm-S *
SiO2%-X	-0.23(10)	0.03(10)	-0.08(10)	0.12(10)	0.28(10)	-0.18(10)	0.16(10)	-0.46(10)	0.11(10)	-0.05(10)
*Al2O3%-X	0.60(10)	0.01(10)	0.48(10)	-0.58(10)	0.15(10)	0.38(10)	-0.73(10)	-0.04(10)	0.25(10)	0.51(10)
*T-Fe2O3%	0.25(10)	-0.02(10)	-0.13(10)	-0.07(10)	-0.54(10)	-0.09(10)	-0.19(10)	0.48(10)	-0.37(10)	-0.15(10)
*MgO%-X	-0.84(10)	0.04(10)	-0.66(10)	0.92(10)	-0.14(10)	-0.73(10)	0.80(10)	0.08(10)	-0.44(10)	-0.62(10)
*CaO%-X	0.58(10)	0.48(10)	0.38(10)	-0.42(10)	0.65(10)	0.46(10)	-0.04(10)	-0.31(10)	0.72(10)	0.37(10)
*Na2O%-X	0.06(10)	-0.23(10)	0.03(10)	-0.05(10)	-0.53(10)	0.06(10)	-0.25(10)	0.56(10)	-0.38(10)	0.01(10)
*K2O%-X	0.28(10)	0.28(10)	0.37(10)	-0.04(10)	0.49(10)	0.22(10)	-0.18(10)	0.13(10)	0.42(10)	0.30(10)
TiO2%-X	0.80(10)	0.29(10)	0.47(10)	-0.46(10)	0.38(10)	0.29(10)	-0.38(10)	0.01(10)	0.44(10)	0.49(10)
*P2O5%-X	0.49(10)	-0.14(10)	0.72(10)	-0.62(10)	0.06(10)	0.80(10)	-0.75(10)	0.52(10)	0.28(10)	0.59(10)
*MnO%-X	0.18(10)	-0.12(10)	0.19(10)	-0.03(10)	-0.30(10)	0.27(10)	-0.34(10)	0.76(10)	-0.23(10)	0.10(10)
F%-AA	.....	0.42(11)	0.62(11)	-0.79(11)	0.37(11)	0.66(11)	-0.64(11)	0.04(11)	0.50(11)	0.63(11)
*T-S%-AA	.....	.....	0.10(11)	-0.15(11)	0.62(11)	0.15(11)	0.08(11)	-0.20(11)	0.45(11)	0.23(11)
Be ppm-S	.....	.....	.....	-0.39(14)	0.46(14)	0.84(14)	-0.60(14)	0.33(14)	0.68(14)	0.94(14)
Cu ppm-S	.....	.....	.....	.....	-0.21(14)	-0.44(14)	0.73(14)	0.31(14)	-0.01(14)	-0.34(14)
*Mo ppm-S	.....	.....	.....	.....	.....	0.35(14)	-0.09(14)	-0.14(14)	0.56(14)	0.58(14)
Nb ppm-S	.....	.....	.....	.....	.....	.....	-0.72(14)	0.28(14)	0.51(14)	0.81(14)
*Ni ppm-S	.....	.....	.....	.....	.....	.....	.....	-0.18(14)	-0.02(14)	-0.56(14)
Pb ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	-0.03(14)	0.24(14)
V ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.75(14)
*Y ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ga ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ba ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Co ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cr ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Cs ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hf ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Li ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sr ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ta ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Th ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zn ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zr ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sc ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*La ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ce ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Nd ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sm ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Eu ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gd ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dy ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Yb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lu ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FeO%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
H2O+%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* H2O-%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* CO2%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3A, continued

	Ga ppm-S	As ppmAA*	Ba ppmNA*	Co ppmNA*	Cr ppmNA	Cs ppmNA*	Hf ppmNA	Li ppmAA*	Sb ppmNA	Sr ppmNA
SiO2%-X	0.13(10)	0.07(10)	0.16(9)	0.26(9)	0.75(9)	0.03(10)	-0.63(9)	-0.67(10)	-0.15(8)	-0.41(9)
*Al2O3%-X	0.78(10)	-0.08(10)	0.30(9)	-0.78(9)	-0.63(9)	-0.18(10)	0.32(9)	-0.14(10)	-0.16(8)	0.36(9)
*T-Fe2O3X	0.06(10)	-0.47(10)	-0.13(9)	-0.43(9)	-0.88(9)	-0.05(10)	0.70(9)	0.31(10)	-0.14(8)	0.42(9)
*MgO%-X	-0.53(10)	-0.47(10)	-0.18(9)	0.83(9)	0.76(9)	0.09(10)	-0.66(9)	-0.06(10)	-0.38(8)	-0.57(9)
*CaO%-X	-0.18(10)	0.86(10)	-0.02(9)	-0.17(9)	-0.12(9)	0.19(10)	0.23(9)	0.19(10)	0.37(8)	0.31(9)
*Na2O%-X	0.04(10)	-0.47(10)	-0.26(9)	-0.05(9)	-0.63(9)	0.10(10)	0.52(9)	0.35(10)	-0.14(8)	0.19(9)
*K2O%-X	0.50(10)	0.23(10)	0.73(9)	-0.28(9)	0.07(9)	-0.10(10)	0.22(9)	-0.06(10)	0.04(8)	0.55(9)
TiO2%-X	0.44(10)	0.14(10)	-0.17(9)	-0.18(9)	-0.44(9)	0.35(10)	0.46(9)	-0.29(10)	-0.41(8)	0.19(9)
*P2O5%-X	0.51(10)	0.40(10)	0.35(9)	-0.57(9)	-0.79(9)	-0.04(10)	0.94(9)	0.60(10)	0.39(8)	0.85(9)
*MnO%-X	0.21(10)	-0.21(10)	0.28(9)	-0.29(9)	-0.72(9)	-0.06(10)	0.77(9)	0.76(10)	0.14(8)	0.71(9)
F%-AA	0.37(11)	0.44(11)	-0.06(10)	-0.57(10)	-0.77(10)	-0.13(11)	0.68(10)	0.19(11)	0.14(9)	0.54(10)
*T-S%-AA	-0.25(11)	0.22(11)	-0.15(10)	-0.13(10)	-0.17(10)	-0.28(11)	-0.11(10)	0.18(11)	-0.01(9)	0.15(10)
Be ppm-S	0.50(14)	0.41(14)	0.22(10)	-0.55(10)	-0.78(10)	-0.22(11)	0.77(10)	0.42(11)	0.18(9)	0.64(10)
Cu ppm-S	-0.19(14)	-0.47(14)	0.03(10)	0.76(10)	0.76(10)	0.28(11)	-0.51(10)	-0.11(11)	-0.50(9)	-0.45(10)
*Mo ppm-S	0.04(14)	0.54(14)	-0.10(10)	0.05(10)	-0.14(10)	-0.08(11)	-0.05(10)	0.29(11)	-0.20(9)	0.13(10)
Nb ppm-S	0.52(14)	0.53(14)	0.27(10)	-0.67(10)	-0.82(10)	-0.34(11)	0.77(10)	0.56(11)	0.59(9)	0.79(10)
*Ni ppm-S	-0.73(14)	-0.22(14)	-0.30(10)	0.81(10)	0.87(10)	0.34(11)	-0.66(10)	-0.32(11)	-0.34(9)	-0.64(10)
Pb ppm-S	0.48(14)	-0.22(14)	0.46(10)	-0.01(10)	-0.29(10)	-0.15(11)	0.68(10)	0.57(11)	-0.05(9)	0.58(10)
V ppm-S	0.01(14)	0.47(14)	-0.12(10)	-0.18(10)	-0.26(10)	0.01(11)	0.20(10)	0.13(11)	0.01(9)	0.18(10)
*Y ppm-S	0.47(14)	0.38(14)	0.01(10)	-0.55(10)	-0.85(10)	-0.22(11)	0.61(10)	0.38(11)	0.02(9)	0.48(10)
Ga ppm-S	.....	-0.13(14)	0.58(10)	-0.60(10)	-0.54(10)	-0.28(11)	0.54(10)	0.15(11)	-0.01(9)	0.56(10)
*As ppmAA	.....	.....	0.14(10)	-0.19(10)	-0.11(10)	-0.14(11)	0.37(10)	0.31(11)	0.72(9)	0.45(10)
*Ba ppmNA	.....	.....	.....	-0.44(10)	-0.00(10)	-0.38(10)	0.34(10)	0.32(10)	0.48(9)	0.72(10)
*Co ppmNA	.....	.....	.....	.....	0.71(10)	0.62(10)	-0.42(10)	-0.28(10)	-0.52(9)	-0.60(10)
Cr ppmNA	.....	.....	.....	.....	.....	0.32(10)	-0.66(10)	-0.51(10)	-0.09(9)	-0.54(10)
*Cs ppmNA	.....	.....	.....	.....	.....	.....	-0.10(10)	-0.41(11)	-0.38(9)	-0.36(10)
Hf ppmNA	.....	.....	.....	.....	.....	.....	.....	0.50(10)	0.33(9)	0.81(10)
*Li ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	0.34(9)	0.62(10)
Sb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.59(9)
Sr ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ta ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Th ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zn ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zr ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sc ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*La ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ce ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Nd ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sm ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Eu ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gd ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dy ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Yb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lu ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FeO%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
H2O+%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* H2O-%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* CO2%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3A, continued

	Ta ppmNA*	Th ppmNA*	U ppmDN *	Zn ppmAA	Zr ppmNA	Sc ppmNA*	La ppmNA*	Ce ppmNA*	Nd ppmNA*	Sm ppmNA
SiO2%-X	-0.69(9)	-0.08(10)	0.18(10)	-0.57(9)	-0.62(9)	0.71(9)	-0.64(9)	-0.69(9)	-0.70(9)	-0.69(9)
*Al2O3%-X	0.40(9)	0.30(10)	0.24(10)	0.49(9)	0.33(9)	-0.37(9)	0.35(9)	0.36(9)	0.40(9)	0.32(9)
*T-Fe2O3%	0.76(9)	-0.10(10)	-0.03(10)	0.75(9)	0.72(9)	-0.68(9)	0.62(9)	0.67(9)	0.70(9)	0.71(9)
*MgO%-X	-0.69(9)	-0.53(10)	-0.04(10)	-0.56(9)	-0.66(9)	0.59(9)	-0.59(9)	-0.65(9)	-0.68(9)	-0.59(9)
*CaO%-X	0.22(9)	0.13(10)	-0.18(10)	-0.19(9)	0.21(9)	0.07(9)	0.03(9)	0.13(9)	0.15(9)	0.13(9)
*Na2O%-X	0.56(9)	0.16(10)	-0.14(10)	0.72(9)	0.52(9)	-0.70(9)	0.58(9)	0.56(9)	0.55(9)	0.61(9)
*K2O%-X	0.21(9)	0.27(10)	0.58(10)	0.11(9)	0.18(9)	0.12(9)	0.14(9)	0.13(9)	0.17(9)	0.21(9)
TiO2%-X	0.41(9)	0.14(10)	-0.22(10)	0.25(9)	0.50(9)	0.00(9)	0.10(9)	0.21(9)	0.25(9)	0.27(9)
*P2O5%-X	0.97(9)	0.74(10)	0.15(10)	0.85(9)	0.91(9)	-0.82(9)	0.93(9)	0.96(9)	0.97(9)	0.95(9)
*MnO%-X	0.85(9)	0.34(10)	0.15(10)	0.87(9)	0.72(9)	-0.84(9)	0.89(9)	0.87(9)	0.87(9)	0.90(9)
F%-AA	0.73(10)	0.39(11)	-0.12(11)	0.52(10)	0.71(10)	-0.47(10)	0.47(10)	0.58(10)	0.61(10)	0.61(10)
*T-S%-AA	0.04(10)	-0.13(11)	0.04(11)	-0.08(10)	-0.09(10)	0.02(10)	-0.17(10)	-0.13(10)	-0.12(10)	0.02(10)
Be ppm-S	0.80(10)	0.56(14)	0.16(14)	0.74(10)	0.77(10)	-0.76(10)	0.77(10)	0.78(10)	0.84(10)	0.86(10)
Cu ppm-S	-0.61(10)	-0.51(14)	0.20(14)	-0.56(10)	-0.54(10)	0.67(10)	-0.53(10)	-0.58(10)	-0.58(10)	-0.53(10)
*Mo ppm-S	0.05(10)	0.28(14)	-0.20(14)	-0.11(10)	-0.06(10)	0.06(10)	-0.10(10)	-0.06(10)	-0.03(10)	0.05(10)
Nb ppm-S	0.89(10)	0.66(14)	0.12(14)	0.82(10)	0.75(10)	-0.92(10)	0.88(10)	0.90(10)	0.89(10)	0.89(10)
*Ni ppm-S	-0.79(10)	-0.70(14)	-0.05(14)	-0.89(10)	-0.66(10)	0.88(10)	-0.82(10)	-0.82(10)	-0.81(10)	-0.74(10)
Pb ppm-S	0.63(10)	0.35(14)	0.24(14)	0.63(10)	0.66(10)	-0.43(10)	0.66(10)	0.64(10)	0.66(10)	0.70(10)
V ppm-S	0.18(10)	-0.06(14)	0.28(14)	-0.06(10)	0.20(10)	-0.06(10)	0.03(10)	0.07(10)	0.17(10)	0.23(10)
*Y ppm-S	0.69(10)	0.49(14)	0.06(14)	0.67(10)	0.62(10)	-0.74(10)	0.64(10)	0.65(10)	0.71(10)	0.74(10)
Ga ppm-S	0.59(10)	0.59(14)	0.14(14)	0.73(10)	0.55(10)	-0.53(10)	0.64(10)	0.63(10)	0.64(10)	0.55(10)
*As ppmAA	0.38(10)	0.29(14)	0.04(14)	0.06(10)	0.36(10)	-0.21(10)	0.29(10)	0.36(10)	0.34(10)	0.32(10)
*Ba ppmNA	0.36(10)	0.51(10)	0.88(10)	0.38(10)	0.29(10)	-0.27(10)	0.50(10)	0.44(10)	0.44(10)	0.42(10)
*Co ppmNA	-0.57(10)	-0.52(10)	-0.47(10)	-0.60(10)	-0.44(10)	0.69(10)	-0.58(10)	-0.59(10)	-0.61(10)	-0.54(10)
Cr ppmNA	-0.79(10)	-0.61(10)	0.03(10)	-0.82(10)	-0.68(10)	0.85(10)	-0.73(10)	-0.77(10)	-0.79(10)	-0.75(10)
*Cs ppmNA	-0.29(10)	-0.25(11)	-0.49(11)	-0.35(10)	-0.20(10)	0.47(10)	-0.30(10)	-0.30(10)	-0.31(10)	-0.31(10)
Hf ppmNA	0.96(10)	0.77(10)	0.17(10)	0.80(10)	0.99(10)	-0.67(10)	0.87(10)	0.92(10)	0.93(10)	0.93(10)
*Li ppmAA	0.62(10)	0.50(11)	0.16(11)	0.58(10)	0.47(10)	-0.67(10)	0.69(10)	0.68(10)	0.67(10)	0.68(10)
Sb ppmNA	0.38(9)	0.62(9)	0.47(9)	0.27(9)	0.30(9)	-0.44(9)	0.49(9)	0.47(9)	0.41(9)	0.41(9)
Sr ppmNA	0.87(10)	0.82(10)	0.59(10)	0.76(10)	0.76(10)	-0.68(10)	0.85(10)	0.86(10)	0.85(10)	0.87(10)
*Ta ppmNA	.....	0.83(10)	0.22(10)	0.90(10)	0.95(10)	-0.82(10)	0.93(10)	0.97(10)	0.97(10)	0.97(10)
*Th ppmNA	.....	.....	-0.18(14)	0.89(10)	0.72(10)	-0.89(10)	0.95(10)	0.91(10)	0.89(10)	0.90(10)
*U ppmDN	.....	.....	.....	0.30(10)	0.14(10)	-0.25(10)	0.35(10)	0.27(10)	0.28(10)	0.33(10)
Zn ppmAA	.....	.....	.....	.....	0.79(10)	-0.92(10)	0.94(10)	0.92(10)	0.91(10)	0.91(10)
Zr ppmNA	.....	.....	.....	.....	.....	-0.67(10)	0.83(10)	0.90(10)	0.92(10)	0.91(10)
*Sc ppmNA	.....	.....	.....	.....	.....	.....	-0.90(10)	-0.88(10)	-0.87(10)	-0.86(10)
*La ppmNA	.....	.....	.....	.....	.....	.....	.....	0.99(10)	0.97(10)	0.95(10)
*Ce ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	0.99(10)	0.96(10)
*Nd ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.97(10)
Sm ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Eu ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gd ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dy ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Yb ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lu ppmNA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FeO%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
H2O+%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* H2O-%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
* CO2%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3A, continued

	Eu ppmNA*	Gd ppmNA	Tb ppmNA	Dy ppmNA	Yb ppmNA*	Lu ppmNA	FeO%	H2O+%	H2O-% *	CO2% *
SiO2%-X	-0.69(9)	-0.61(9)	-0.73(9)	-0.70(9)	-0.74(9)	-0.69(9)	-0.06(9)	-0.67(9)	-0.50(9)	0.01(9)
*Al2O3%-X	0.43(9)	0.42(9)	0.29(9)	0.44(9)	0.38(9)	0.47(9)	-0.64(9)	0.17(9)	0.26(9)	-0.67(9)
*T-Fe2O3X	0.74(9)	0.79(9)	0.70(9)	0.75(9)	0.70(9)	0.70(9)	-0.02(9)	0.43(9)	0.34(9)	-0.50(9)
*MgO%-X	-0.70(9)	-0.60(9)	-0.59(9)	-0.71(9)	-0.67(9)	-0.72(9)	0.62(9)	-0.58(9)	-0.68(9)	0.34(9)
*CaO%-X	0.23(9)	0.10(9)	0.16(9)	0.23(9)	0.19(9)	0.18(9)	-0.48(9)	0.51(9)	0.65(9)	0.35(9)
*Na2O%-X	0.52(9)	0.59(9)	0.62(9)	0.52(9)	0.56(9)	0.51(9)	0.50(9)	0.19(9)	-0.05(9)	-0.38(9)
*K2O%-X	0.25(9)	0.27(9)	0.17(9)	0.25(9)	0.18(9)	0.20(9)	-0.35(9)	0.06(9)	0.36(9)	-0.54(9)
TiO2%-X	0.40(9)	0.56(9)	0.26(9)	0.39(9)	0.25(9)	0.25(9)	-0.21(9)	0.16(9)	0.28(9)	-0.45(9)
*P2O5%-X	0.98(9)	0.89(9)	0.97(9)	0.98(9)	0.98(9)	0.97(9)	-0.10(9)	0.79(9)	0.80(9)	-0.50(9)
*MnO%-X	0.86(9)	0.79(9)	0.91(9)	0.84(9)	0.90(9)	0.86(9)	0.24(9)	0.64(9)	0.49(9)	-0.55(9)
F%-AA	0.70(10)	0.69(10)	0.59(10)	0.71(10)	0.60(10)	0.64(10)	-0.42(9)	0.56(9)	0.63(9)	-0.34(9)
*T-S%-AA	-0.03(10)	-0.02(10)	-0.06(10)	0.01(10)	-0.09(10)	-0.01(10)	-0.31(9)	-0.14(9)	-0.05(9)	0.10(9)
Be ppm-S	0.83(10)	0.84(10)	0.85(10)	0.87(10)	0.87(10)	0.80(10)	-0.08(9)	0.44(9)	0.49(9)	-0.33(9)
Cu ppm-S	-0.57(10)	-0.45(10)	-0.50(10)	-0.59(10)	-0.55(10)	-0.64(10)	0.50(9)	-0.48(9)	-0.48(9)	0.20(9)
*Mo ppm-S	0.04(10)	0.04(10)	0.04(10)	0.07(10)	0.03(10)	0.03(10)	-0.16(9)	0.14(9)	0.13(9)	0.18(9)
Nb ppm-S	0.86(10)	0.71(10)	0.87(10)	0.87(10)	0.89(10)	0.93(10)	-0.13(9)	0.76(9)	0.70(9)	-0.33(9)
*Ni ppm-S	-0.77(10)	-0.65(10)	-0.72(10)	-0.77(10)	-0.77(10)	-0.86(10)	0.29(9)	-0.57(9)	-0.48(9)	0.68(9)
Pb ppm-S	0.66(10)	0.75(10)	0.71(10)	0.65(10)	0.66(10)	0.58(10)	0.51(9)	0.33(9)	0.34(9)	-0.53(9)
V ppm-S	0.22(10)	0.26(10)	0.22(10)	0.27(10)	0.25(10)	0.14(10)	-0.36(9)	0.05(9)	0.24(9)	0.27(9)
*Y ppm-S	0.70(10)	0.72(10)	0.72(10)	0.76(10)	0.75(10)	0.70(10)	-0.16(9)	0.33(9)	0.31(9)	-0.26(9)
Ga ppm-S	0.62(10)	0.61(10)	0.53(10)	0.61(10)	0.58(10)	0.65(10)	-0.18(9)	0.34(9)	0.37(9)	-0.84(9)
*As ppmAA	0.34(10)	0.17(10)	0.34(10)	0.34(10)	0.33(10)	0.35(10)	-0.16(9)	0.64(9)	0.72(9)	0.35(9)
*Ba ppmNA	0.41(10)	0.29(10)	0.38(10)	0.40(10)	0.41(10)	0.46(10)	-0.18(9)	0.25(9)	0.48(9)	-0.51(9)
*Co ppmNA	-0.56(10)	-0.42(10)	-0.47(10)	-0.61(10)	-0.56(10)	-0.69(10)	0.74(9)	-0.35(9)	-0.48(9)	0.40(9)
Cr ppmNA	-0.78(10)	-0.72(10)	-0.74(10)	-0.80(10)	-0.78(10)	-0.83(10)	0.28(9)	-0.57(9)	-0.44(9)	0.49(9)
*Cs ppmNA	-0.21(10)	-0.17(10)	-0.18(10)	-0.31(10)	-0.21(10)	-0.37(10)	0.33(9)	0.04(9)	-0.13(9)	0.01(9)
Hf ppmNA	0.97(10)	0.96(10)	0.95(10)	0.95(10)	0.93(10)	0.88(10)	0.09(9)	0.71(9)	0.77(9)	-0.52(9)
*Li ppmAA	0.62(10)	0.49(10)	0.63(10)	0.64(10)	0.68(10)	0.69(10)	0.18(9)	0.68(9)	0.52(9)	-0.15(9)
Sb ppmNA	0.34(9)	0.12(9)	0.39(9)	0.35(9)	0.39(9)	0.45(9)	-0.30(8)	0.41(8)	0.52(8)	0.10(8)
Sr ppmNA	0.87(10)	0.75(10)	0.85(10)	0.86(10)	0.85(10)	0.88(10)	-0.15(9)	0.67(9)	0.81(9)	-0.61(9)
*Ta ppmNA	0.99(10)	0.93(10)	0.96(10)	0.98(10)	0.96(10)	0.97(10)	0.01(9)	0.76(9)	0.77(9)	-0.59(9)
*Th ppmNA	0.83(10)	0.71(10)	0.89(10)	0.82(10)	0.88(10)	0.89(10)	0.15(9)	0.57(9)	0.53(9)	-0.53(9)
*U ppmDN	0.24(10)	0.18(10)	0.24(10)	0.27(10)	0.26(10)	0.31(10)	-0.21(9)	-0.12(9)	0.17(9)	-0.43(9)
Zn ppmAA	0.88(10)	0.83(10)	0.89(10)	0.88(10)	0.89(10)	0.93(10)	0.10(9)	0.57(9)	0.47(9)	-0.76(9)
Zr ppmNA	0.94(10)	0.96(10)	0.91(10)	0.95(10)	0.89(10)	0.87(10)	0.08(9)	0.68(9)	0.75(9)	-0.48(9)
*Sc ppmNA	-0.80(10)	-0.67(10)	-0.83(10)	-0.82(10)	-0.85(10)	-0.90(10)	0.03(9)	-0.57(9)	-0.43(9)	0.49(9)
*La ppmNA	0.94(10)	0.83(10)	0.96(10)	0.93(10)	0.97(10)	0.97(10)	0.06(9)	0.71(9)	0.66(9)	-0.61(9)
*Ce ppmNA	0.97(10)	0.87(10)	0.97(10)	0.96(10)	0.98(10)	0.99(10)	0.03(9)	0.78(9)	0.74(9)	-0.57(9)
*Nd ppmNA	0.98(10)	0.90(10)	0.97(10)	0.98(10)	0.99(10)	0.98(10)	-0.02(9)	0.74(9)	0.74(9)	-0.55(9)
Sm ppmNA	0.97(10)	0.92(10)	0.99(10)	0.97(10)	0.97(10)	0.95(10)	0.09(9)	0.65(9)	0.66(9)	-0.57(9)
*Eu ppmNA	.....	0.94(10)	0.98(10)	0.99(10)	0.98(10)	0.97(10)	-0.03(9)	0.75(9)	0.77(9)	-0.60(9)
Gd ppmNA	.....	.....	0.92(10)	0.95(10)	0.90(10)	0.85(10)	0.11(9)	0.57(9)	0.63(9)	-0.60(9)
Tb ppmNA	.....	.....	.....	0.97(10)	0.99(10)	0.95(10)	0.12(9)	0.71(9)	0.69(9)	-0.54(9)
Dy ppmNA	.....	.....	.....	.....	0.98(10)	0.97(10)	-0.06(9)	0.71(9)	0.76(9)	-0.55(9)
*Yb ppmNA	.....	.....	.....	.....	.....	0.97(10)	-0.01(9)	0.73(9)	0.72(9)	-0.54(9)
Lu ppmNA	.....	.....	.....	.....	.....	.....	-0.11(9)	0.77(9)	0.75(9)	-0.60(9)
FeO%	.....	.....	.....	.....	.....	.....	.....	-0.11(9)	-0.29(9)	0.00(9)
H2O+%	.....	.....	.....	.....	.....	.....	.....	.....	0.89(9)	-0.26(9)
* H2O-%	.....	.....	.....	.....	.....	.....	.....	.....	.....	-0.26(9)
* CO2%	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 38.--Correlation coefficients for Hopi Buttes limburgite tuffs

	F%-AA	T-S%-AA *	Fe%-S	Mg%-S *	Ca%-S *	Ti%-S *	Mn ppm-S*	Ag ppm-S*	B ppm-S	Ba ppm-S*
F%-AA	.....	-0.31(12)	0.74(12)	0.50(12)	-0.15(12)	0.60(12)	0.26(12)	0.25(12)	0.13(12)	0.26(12)
*T-S%-AA	.....	.....	-0.13(12)	-0.28(12)	-0.41(12)	0.05(12)	-0.50(12)	0.11(12)	0.60(12)	0.26(12)
Fe%-S	.....	.....	.....	0.35(29)	-0.59(29)	-0.02(29)	0.23(29)	0.08(29)	0.49(29)	-0.28(29)
*Mg%-S	.....	.....	.....	.....	0.02(29)	0.23(29)	0.34(29)	-0.11(29)	0.08(29)	-0.18(29)
*Ca%-S	.....	.....	.....	.....	.....	-0.23(29)	0.42(29)	-0.12(29)	-0.67(29)	-0.09(29)
*Ti%-S	.....	.....	.....	.....	.....	.....	-0.47(29)	0.49(29)	0.12(29)	0.69(29)
*Mn ppm-S	.....	.....	.....	.....	.....	.....	.....	-0.43(29)	-0.25(29)	-0.45(29)
*Ag ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	0.39(29)	0.31(29)
B ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.13(29)
*Ba ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Be ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Co ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Cr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Cu ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*La ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Mo ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Nb ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ni ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sc ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*V ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Y ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zn ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Si%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Al%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Na%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ce ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ga ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Li ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rb ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Se ppm-X	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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*Log data were used in calculation

Table 3B, continued

	Be ppm-S	Co ppm-S*	Cr ppm-S*	Cu ppm-S*	La ppm-S*	Mo ppm-S*	Nb ppm-S*	Ni ppm-S*	Sc ppm-S*	Sr ppm-S*
F%-AA	0.87(12)	0.57(12)	0.10(12)	0.27(12)	0.70(12)	-0.23(12)	0.62(12)	-0.05(12)	0.37(12)	0.21(12)
*T-S%-AA	-0.01(12)	-0.21(12)	-0.02(12)	0.09(12)	-0.27(12)	0.49(12)	0.11(12)	-0.10(12)	-0.20(12)	-0.08(12)
Fe%-S	0.69(29)	0.70(29)	-0.17(29)	0.12(29)	-0.17(29)	0.33(29)	0.04(29)	0.59(29)	-0.07(29)	-0.19(29)
*Mg%-S	0.30(29)	0.35(29)	0.38(29)	0.18(29)	-0.16(29)	-0.30(29)	0.13(29)	0.28(29)	0.38(29)	-0.11(29)
*Ca%-S	-0.54(29)	-0.45(29)	0.09(29)	-0.34(29)	0.14(29)	-0.23(29)	-0.12(29)	-0.31(29)	0.07(29)	0.13(29)
*Ti%-S	0.37(29)	0.30(29)	0.69(29)	0.69(29)	0.62(29)	-0.30(29)	0.76(29)	0.05(29)	0.81(29)	0.25(29)
*Mn ppm-S	0.07(29)	-0.01(29)	-0.38(29)	-0.30(29)	-0.09(29)	-0.12(29)	-0.16(29)	-0.12(29)	-0.30(29)	0.03(29)
*Ag ppm-S	0.44(29)	0.18(29)	0.19(29)	0.03(29)	0.30(29)	0.35(29)	0.49(29)	0.14(29)	0.35(29)	0.13(29)
B ppm-S	0.52(29)	0.32(29)	-0.03(29)	0.14(29)	-0.28(29)	0.37(29)	0.10(29)	0.35(29)	-0.07(29)	-0.29(29)
*Ba ppm-S	0.04(29)	-0.05(29)	0.43(29)	0.64(29)	0.54(29)	-0.24(29)	0.53(29)	-0.15(29)	0.42(29)	0.22(29)
Be ppm-S	.....	0.51(29)	-0.12(29)	0.14(29)	0.24(29)	0.12(29)	0.59(29)	0.20(29)	0.12(29)	0.21(29)
*Co ppm-S	.....	.....	0.14(29)	0.43(29)	0.03(29)	0.24(29)	0.22(29)	0.84(29)	0.22(29)	-0.10(29)
*Cr ppm-S	.....	.....	.....	0.53(29)	0.20(29)	-0.29(29)	0.33(29)	0.22(29)	0.88(29)	-0.11(29)
*Cu ppm-S	.....	.....	.....	.....	0.44(29)	-0.24(29)	0.43(29)	0.30(29)	0.42(29)	0.23(29)
*La ppm-S	.....	.....	.....	.....	.....	-0.46(29)	0.75(29)	-0.26(29)	0.41(29)	0.64(29)
*Mo ppm-S	.....	.....	.....	.....	.....	.....	-0.33(29)	0.39(29)	-0.37(29)	-0.19(29)
*Nb ppm-S	.....	.....	.....	.....	.....	.....	.....	-0.08(29)	0.60(29)	0.49(29)
*Ni ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	0.14(29)	-0.27(29)
*Sc ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	-0.03(29)
*Sr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*V ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Y ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zn ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Si%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Al%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Na%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ce ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ga ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Li ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rb ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Se ppm-X	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3B, continued

	V ppm-S *	Y ppm-S *	Zn ppm-S*	Zr ppm-S*	Si%-S	Al%-S *	Na%-S	K%-S *	Ce ppm-S*	Ga ppm-S*
F%-AA	0.50(12)	0.76(12)	0.75(12)	0.53(12)	0.15(12)	0.57(12)	0.68(12)	0.35(12)	0.76(11)	0.70(12)
*T-S%-AA	0.02(12)	-0.12(12)	-0.43(12)	0.15(12)	0.32(12)	0.14(12)	-0.04(12)	0.09(12)	-0.14(11)	0.09(12)
Fe%-S	0.10(29)	0.10(29)	0.36(27)	0.17(29)	-0.12(29)	0.02(29)	0.21(29)	-0.01(29)	0.09(27)	0.20(29)
*Mg%-S	0.26(29)	0.05(29)	0.45(27)	-0.01(29)	0.02(29)	0.10(29)	-0.01(29)	-0.23(29)	0.01(27)	0.14(29)
*Ca%-S	0.10(29)	-0.24(29)	0.02(27)	-0.29(29)	-0.40(29)	-0.38(29)	-0.40(29)	-0.43(29)	0.09(27)	-0.42(29)
*Ti%-S	0.47(29)	0.87(29)	0.06(27)	0.68(29)	0.57(29)	0.93(29)	0.52(29)	0.58(29)	0.58(27)	0.85(29)
*Mn ppm-S	-0.24(29)	-0.36(29)	0.49(27)	-0.25(29)	-0.63(29)	-0.53(29)	-0.27(29)	-0.47(29)	0.00(27)	-0.49(29)
*Ag ppm-S	0.41(29)	0.59(29)	-0.06(27)	0.71(29)	0.51(29)	0.41(29)	-0.06(29)	0.08(29)	0.57(27)	0.52(29)
B ppm-S	-0.11(29)	0.14(29)	0.02(27)	0.33(29)	0.45(29)	0.28(29)	-0.03(29)	0.21(29)	-0.08(27)	0.29(29)
*Ba ppm-S	0.26(29)	0.57(29)	-0.06(27)	0.52(29)	0.47(29)	0.71(29)	0.38(29)	0.67(29)	0.35(27)	0.48(29)
Be ppm-S	0.05(29)	0.56(29)	0.65(27)	0.69(29)	0.24(29)	0.37(29)	0.20(29)	0.01(29)	0.52(27)	0.56(29)
*Co ppm-S	0.24(29)	0.41(29)	0.13(27)	0.25(29)	0.01(29)	0.27(29)	0.27(29)	0.18(29)	0.32(27)	0.38(29)
*Cr ppm-S	0.51(29)	0.43(29)	-0.25(27)	0.12(29)	0.40(29)	0.66(29)	0.21(29)	0.38(29)	0.07(27)	0.50(29)
*Cu ppm-S	0.27(29)	0.49(29)	0.05(27)	0.37(29)	0.35(29)	0.69(29)	0.64(29)	0.78(29)	0.27(27)	0.53(29)
*La ppm-S	0.18(29)	0.72(29)	0.24(27)	0.58(29)	0.05(29)	0.54(29)	0.52(29)	0.40(29)	0.72(27)	0.55(29)
*Mo ppm-S	0.21(29)	-0.23(29)	-0.25(27)	0.04(29)	0.16(29)	-0.30(29)	-0.28(29)	-0.21(29)	-0.06(27)	-0.19(29)
*Nb ppm-S	0.25(29)	0.85(29)	0.39(27)	0.84(29)	0.38(29)	0.68(29)	0.31(29)	0.26(29)	0.71(27)	0.74(29)
*Ni ppm-S	0.29(29)	0.07(29)	-0.15(27)	-0.03(29)	-0.01(29)	0.05(29)	0.06(29)	0.06(29)	-0.03(27)	0.10(29)
*Sc ppm-S	0.55(29)	0.66(29)	-0.13(27)	0.36(29)	0.32(29)	0.73(29)	0.25(29)	0.30(29)	0.32(27)	0.66(29)
*Sr ppm-S	0.04(29)	0.32(29)	0.52(27)	0.43(29)	0.13(29)	0.12(29)	0.30(29)	0.04(29)	0.42(27)	0.13(29)
*V ppm-S	.....	0.25(29)	-0.13(27)	0.23(29)	0.35(29)	0.25(29)	0.15(29)	0.09(29)	0.31(27)	0.30(29)
*Y ppm-S	.....	.....	0.13(27)	0.78(29)	0.37(29)	0.83(29)	0.41(29)	0.44(29)	0.74(27)	0.83(29)
*Zn ppm-S	.....	.....	.....	0.39(27)	0.03(27)	-0.06(27)	-0.03(27)	-0.29(27)	0.31(26)	0.03(27)
*Zr ppm-S	.....	.....	.....	.....	0.47(29)	0.59(29)	0.21(29)	0.24(29)	0.71(27)	0.65(29)
Si%-S	.....	.....	.....	.....	.....	0.58(29)	0.11(29)	0.38(29)	0.13(27)	0.54(29)
*Al%-S	.....	.....	.....	.....	.....	.....	0.57(29)	0.72(29)	0.42(27)	0.89(29)
Na%-S	.....	.....	.....	.....	.....	.....	.....	0.68(29)	0.37(27)	0.56(29)
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	0.14(27)	0.54(29)
*Ce ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.57(27)
*Ga ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Li ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rb ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Se ppm-X	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3B, continued

	As ppmAA*	Li ppmAA*	Rb ppmAA	Se ppm-X*	U ppmDN *
F%-AA	-0.22(12)	-0.03(12)	-0.00(12)	0.09(12)	-0.34(12)
*T-S%-AA	0.38(12)	0.63(12)	0.43(12)	0.38(12)	0.39(12)
Fe%-S	0.41(22)	-0.14(13)	-0.07(13)	0.47(23)	0.23(29)
*Mg%-S	-0.16(22)	-0.33(13)	-0.42(13)	-0.37(23)	-0.46(29)
*Ca%-S	-0.37(22)	-0.11(13)	-0.56(13)	-0.42(23)	-0.22(29)
*Ti%-S	-0.17(22)	-0.06(13)	0.08(13)	-0.13(23)	-0.15(29)
*Mn ppm-S	-0.27(22)	-0.17(13)	-0.54(13)	-0.39(23)	-0.16(29)
*Ag ppm-S	-0.02(22)	0.07(13)	0.08(13)	0.18(23)	0.11(29)
B ppm-S	0.02(22)	0.58(13)	0.77(13)	0.09(23)	0.08(29)
*Ba ppm-S	-0.16(22)	0.27(13)	0.52(13)	-0.17(23)	0.03(29)
Be ppm-S	-0.06(22)	0.10(13)	0.13(13)	0.08(23)	-0.02(29)
*Co ppm-S	0.41(22)	-0.24(13)	0.00(13)	0.24(23)	0.39(29)
*Cr ppm-S	-0.14(22)	-0.26(13)	-0.16(13)	-0.19(23)	-0.25(29)
*Cu ppm-S	0.09(22)	0.09(13)	0.33(13)	0.02(23)	0.13(29)
*La ppm-S	-0.48(22)	0.19(13)	-0.12(13)	-0.09(23)	-0.00(29)
*Mo ppm-S	0.73(22)	0.15(13)	0.51(13)	0.59(23)	0.51(29)
*Nb ppm-S	-0.28(22)	0.31(13)	0.11(13)	-0.19(23)	-0.13(29)
*Ni ppm-S	0.52(22)	-0.19(13)	0.11(13)	0.39(23)	0.46(29)
*Sc ppm-S	-0.29(22)	-0.34(13)	-0.37(13)	-0.29(23)	-0.22(29)
*Sr ppm-S	-0.13(22)	0.27(13)	0.10(13)	0.20(23)	-0.12(29)
*V ppm-S	0.30(22)	-0.23(13)	-0.11(13)	0.28(23)	0.04(29)
*Y ppm-S	-0.26(22)	0.07(13)	0.02(13)	-0.13(23)	-0.02(29)
*Zn ppm-S	-0.11(22)	-0.07(13)	0.03(13)	-0.13(23)	-0.32(27)
*Zr ppm-S	-0.02(22)	0.28(13)	0.29(13)	0.05(23)	0.02(29)
Si%-S	0.19(22)	-0.04(13)	0.50(13)	0.05(23)	-0.15(29)
*Al%-S	-0.25(22)	0.03(13)	0.33(13)	-0.22(23)	-0.11(29)
Na%-S	-0.11(22)	0.15(13)	0.28(13)	0.13(23)	0.05(29)
*K%-S	-0.17(22)	0.08(13)	0.53(13)	-0.01(23)	0.16(29)
*Ce ppm-S	-0.18(21)	0.07(12)	-0.10(12)	0.02(22)	0.05(27)
*Ga ppm-S	-0.20(22)	-0.01(13)	0.15(13)	-0.11(23)	-0.07(29)
*As ppmAA	.....	-0.04(12)	0.24(12)	0.62(22)	0.61(22)
*Li ppmAA	.....	.....	0.61(13)	0.18(13)	-0.04(13)
Rb ppmAA	.....	.....	.....	0.14(13)	0.02(13)
*Se ppm-X	.....	.....	.....	.....	0.52(23)
*U ppmDN	.....	.....	.....	.....	.....

Table 3C.--Correlation coefficients for Hopi Buttes clastics

	Fe%-S *	Mg%-S *	Ca%-S *	Ti%-S *	Mn ppm-S*	B ppm-S	Ba ppm-S*	Be ppm-S	Co ppm-S*	Cr ppm-S*
*Fe%-S	.....	0.42(30)	-0.24(30)	0.69(30)	0.35(30)	0.29(29)	0.16(30)	0.65(30)	0.62(30)	0.47(30)
*Mg%-S	.....	.....	0.25(30)	0.25(30)	0.26(30)	-0.06(29)	-0.01(30)	0.07(30)	0.36(30)	0.23(30)
*Ca%-S	.....	.....	.....	-0.50(30)	0.59(30)	-0.67(29)	-0.36(30)	-0.39(30)	-0.19(30)	-0.42(30)
*Ti%-S	.....	.....	.....	.....	0.01(30)	0.50(29)	0.55(30)	0.63(30)	0.65(30)	0.82(30)
*Mn ppm-S	.....	.....	.....	.....	.....	-0.47(29)	-0.27(30)	0.20(30)	0.25(30)	-0.07(30)
B ppm-S	.....	.....	.....	.....	.....	.....	0.50(29)	0.33(29)	0.23(29)	0.41(29)
*Ba ppm-S	.....	.....	.....	.....	.....	.....	.....	0.12(30)	0.10(30)	0.49(30)
Be ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	0.69(30)	0.41(30)
*Co ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.60(30)
*Cr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Cu ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*La ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Mo ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ni ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sc ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*V ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Y ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zn ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Si%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Al%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Na%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*P%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ga ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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*Log data were used in calculation

Table 3C, continued

	Cu ppm-S*	La ppm-S*	Mo ppm-S*	Ni ppm-S*	Sc ppm-S*	Sr ppm-S*	V ppm-S *	Y ppm-S *	Zn ppm-S*	Zr ppm-S*
*Fe%-S	0.45(30)	0.35(30)	0.16(27)	0.37(30)	0.41(30)	0.23(30)	0.37(30)	0.60(30)	0.25(26)	0.63(30)
*Mg%-S	-0.01(30)	0.21(30)	0.15(27)	0.32(30)	0.23(30)	0.13(30)	0.29(30)	0.34(30)	-0.07(26)	0.23(30)
*Ca%-S	-0.68(30)	0.10(30)	-0.24(27)	-0.17(30)	-0.21(30)	0.31(30)	-0.17(30)	-0.26(30)	-0.28(26)	-0.36(30)
*Ti%-S	0.77(30)	0.40(30)	0.04(27)	0.52(30)	0.72(30)	0.08(30)	0.55(30)	0.79(30)	0.09(26)	0.76(30)
*Mn ppm-S	-0.16(30)	0.41(30)	-0.10(27)	-0.03(30)	0.13(30)	0.41(30)	0.07(30)	0.17(30)	-0.04(26)	0.10(30)
B ppm-S	0.35(29)	-0.02(29)	0.30(27)	0.15(29)	0.43(29)	-0.14(29)	0.30(29)	0.31(29)	0.05(26)	0.40(29)
*Ba ppm-S	0.45(30)	-0.15(30)	-0.15(27)	0.23(30)	0.20(30)	-0.25(30)	0.37(30)	0.17(30)	0.03(26)	0.07(30)
Be ppm-S	0.49(30)	0.40(30)	0.17(27)	0.49(30)	0.55(30)	0.22(30)	0.38(30)	0.71(30)	0.38(26)	0.62(30)
*Co ppm-S	0.38(30)	0.54(30)	0.27(27)	0.85(30)	0.64(30)	0.54(30)	0.53(30)	0.65(30)	0.26(26)	0.61(30)
*Cr ppm-S	0.69(30)	0.35(30)	0.07(27)	0.55(30)	0.63(30)	-0.06(30)	0.50(30)	0.58(30)	-0.03(26)	0.45(30)
*Cu ppm-S	.....	0.23(30)	-0.11(27)	0.30(30)	0.42(30)	-0.18(30)	0.47(30)	0.54(30)	0.19(26)	0.54(30)
*La ppm-S	.....	.....	-0.01(27)	0.40(30)	0.66(30)	0.40(30)	0.12(30)	0.73(30)	-0.07(26)	0.52(30)
*Mo ppm-S	.....	.....	.....	0.21(27)	0.14(27)	0.39(27)	0.31(27)	0.01(27)	-0.09(25)	0.08(27)
*Ni ppm-S	.....	.....	.....	.....	0.44(30)	0.42(30)	0.40(30)	0.48(30)	0.18(26)	0.33(30)
*Sc ppm-S	.....	.....	.....	.....	.....	0.33(30)	0.51(30)	0.85(30)	0.09(26)	0.71(30)
*Sr ppm-S	.....	.....	.....	.....	.....	.....	0.38(30)	0.17(30)	0.27(26)	0.27(30)
*V ppm-S	.....	.....	.....	.....	.....	.....	.....	0.36(30)	0.28(26)	0.41(30)
*Y ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	0.05(26)	0.84(30)
*Zn ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.18(26)
*Zr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Si%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Al%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Na%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*P%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ga ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3C, continued

	Si%-S	Al%-S *	Na%-S *	K%-S *	P%-S *	Ga ppm-S*	As ppmAA	U ppmDN *
*Fe%-S	-0.04(30)	0.45(30)	0.63(30)	0.03(30)	0.71(30)	0.66(30)	0.35(19)	0.27(30)
*Mg%-S	-0.40(30)	-0.12(30)	0.18(30)	-0.28(30)	0.01(30)	0.25(30)	-0.03(19)	-0.11(30)
*Ca%-S	-0.73(30)	-0.58(30)	-0.19(30)	-0.40(30)	-0.31(30)	-0.37(30)	0.08(19)	-0.18(30)
*Ti%-S	0.41(30)	0.78(30)	0.55(30)	0.44(30)	0.58(30)	0.69(30)	0.16(19)	0.22(30)
*Mn ppm-S	-0.51(30)	-0.19(30)	0.07(30)	-0.34(30)	0.28(30)	0.19(30)	0.46(19)	0.21(30)
B ppm-S	0.68(29)	0.59(29)	0.29(29)	0.47(29)	0.32(29)	0.42(29)	0.09(19)	0.21(29)
*Ba ppm-S	0.39(30)	0.75(30)	0.56(30)	0.76(30)	0.28(30)	0.05(30)	-0.09(19)	-0.03(30)
Be ppm-S	0.19(30)	0.46(30)	0.28(30)	0.13(30)	0.60(30)	0.60(30)	0.38(19)	0.54(30)
*Co ppm-S	-0.04(30)	0.26(30)	0.18(30)	-0.08(30)	0.42(30)	0.60(30)	0.24(19)	0.49(30)
*Cr ppm-S	0.41(30)	0.66(30)	0.49(30)	0.48(30)	0.28(30)	0.61(30)	-0.05(19)	0.10(30)
*Cu ppm-S	0.49(30)	0.68(30)	0.47(30)	0.44(30)	0.47(30)	0.55(30)	0.10(19)	0.12(30)
*La ppm-S	-0.10(30)	0.00(30)	-0.04(30)	-0.16(30)	0.21(30)	0.72(30)	0.11(19)	0.09(30)
*Mo ppm-S	-0.12(27)	-0.17(27)	-0.21(27)	-0.23(27)	-0.06(27)	0.21(27)	0.33(18)	0.62(27)
*Ni ppm-S	-0.10(30)	0.19(30)	0.16(30)	0.04(30)	0.17(30)	0.35(30)	-0.00(19)	0.29(30)
*Sc ppm-S	0.34(30)	0.45(30)	0.09(30)	0.21(30)	0.30(30)	0.75(30)	0.12(19)	0.33(30)
*Sr ppm-S	-0.46(30)	-0.23(30)	-0.13(30)	-0.30(30)	0.13(30)	0.29(30)	0.35(19)	0.60(30)
*V ppm-S	0.03(30)	0.36(30)	0.25(30)	0.18(30)	0.36(30)	0.39(30)	0.20(19)	0.52(30)
*Y ppm-S	0.24(30)	0.45(30)	0.23(30)	0.14(30)	0.43(30)	0.79(30)	0.14(19)	0.19(30)
*Zn ppm-S	0.04(26)	0.13(26)	0.07(26)	0.03(26)	0.41(26)	0.23(26)	-0.17(18)	0.32(26)
*Zr ppm-S	0.29(30)	0.43(30)	0.19(30)	0.00(30)	0.58(30)	0.73(30)	0.30(19)	0.31(30)
Si%-S	.....	0.66(30)	0.17(30)	0.59(30)	0.18(30)	0.27(30)	-0.15(19)	-0.07(30)
*Al%-S	.....	.....	0.64(30)	0.79(30)	0.50(30)	0.39(30)	0.02(19)	0.04(30)
*Na%-S	.....	.....	.....	0.58(30)	0.49(30)	0.34(30)	-0.07(19)	-0.11(30)
*K%-S	.....	.....	.....	.....	0.07(30)	0.17(30)	-0.22(19)	-0.10(30)
*P%-S	.....	.....	.....	.....	.....	0.44(30)	0.40(19)	0.34(30)
*Ga ppm-S	.....	.....	.....	.....	.....	.....	0.10(19)	0.28(30)
As ppmAA	.....	.....	.....	.....	.....	.....	.....	0.68(19)
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....

Table 30.--Correlation Coefficients for Hopi Buttes travertines

	Fe%-S	* Mg%-S	Ca%-S	Ti%-S	* Mn ppm-S*	Ba ppm-S*	Co ppm-S*	Cr ppm-S*	Cu ppm-S*	La ppm-S*
*Fe%-S	.....	-0.19(120)	0.00(120)	0.24(120)	0.54(120)	0.21(120)	0.47(120)	0.06(120)	0.34(120)	-0.02(120)
Mg%-S	.....	.....	-0.24(120)	-0.02(120)	-0.28(120)	-0.21(120)	-0.02(120)	0.14(120)	-0.23(120)	0.14(120)
Ca%-S	.....	.....	.....	-0.11(120)	0.16(120)	-0.18(120)	-0.02(120)	-0.11(120)	-0.11(120)	-0.01(120)
*Ti%-S	.....	.....	.....	.....	0.12(120)	0.69(120)	0.23(120)	0.76(120)	0.32(120)	0.47(120)
*Mn ppm-S	.....	.....	.....	.....	.....	-0.01(120)	0.38(120)	0.07(120)	0.27(120)	-0.02(120)
*Ba ppm-S	.....	.....	.....	.....	.....	.....	0.17(120)	0.54(120)	0.36(120)	0.27(120)
*Co ppm-S	.....	.....	.....	.....	.....	.....	.....	0.36(120)	0.29(120)	0.38(120)
*Cr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	0.14(120)	0.83(120)
*Cu ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.01(120)
*La ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Mo ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Ni ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sc ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Sr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*V ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Y ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Zr ppm-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Si%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Al%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Na%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
T-C%-AA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Org C%AA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cbt C%AA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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*Log data were used in calculation

Table 3b, continued

	Mo ppm-S*	Ni ppm-S*	Sc ppm-S*	Sr ppm-S*	V ppm-S *	Y ppm-S *	Zr ppm-S*	Si%-S *	Al%-S *	Na%-S
*Fe%-S	0.10(109)	0.44(120)	-0.03(120)	-0.05(120)	0.42(120)	0.10(120)	0.26(120)	-0.10(120)	0.27(120)	0.24(120)
Mg%-S	-0.14(109)	0.04(120)	0.07(120)	0.13(120)	-0.11(120)	0.04(120)	0.13(120)	0.10(120)	-0.22(120)	-0.13(120)
Ca%-S	0.28(109)	-0.06(120)	0.15(120)	0.24(120)	0.10(120)	0.04(120)	-0.02(120)	-0.13(120)	0.02(120)	-0.22(120)
*Ti%-S	0.15(109)	0.08(120)	0.51(120)	0.13(120)	0.45(120)	0.68(120)	0.50(120)	0.57(120)	0.88(120)	0.45(120)
*Mn ppm-S	0.14(109)	0.21(120)	0.06(120)	0.07(120)	0.41(120)	0.12(120)	0.28(120)	-0.04(120)	0.18(120)	0.09(120)
*Ba ppm-S	0.09(109)	0.05(120)	0.43(120)	0.07(120)	0.42(120)	0.52(120)	0.24(120)	0.48(120)	0.71(120)	0.41(120)
*Co ppm-S	-0.05(109)	0.84(120)	0.38(120)	0.04(120)	0.29(120)	0.41(120)	0.38(120)	0.24(120)	0.10(120)	0.12(120)
*Cr ppm-S	-0.09(109)	0.15(120)	0.84(120)	0.17(120)	0.39(120)	0.91(120)	0.66(120)	0.88(120)	0.61(120)	0.43(120)
*Cu ppm-S	0.13(109)	0.18(120)	0.02(120)	0.01(120)	0.29(120)	0.13(120)	0.10(120)	0.02(120)	0.35(120)	0.28(120)
*La ppm-S	-0.05(109)	0.16(120)	0.80(120)	0.20(120)	0.21(120)	0.84(120)	0.64(120)	0.75(120)	0.28(120)	0.22(120)
*Mo ppm-S	.....	-0.05(109)	-0.12(109)	0.13(109)	0.11(109)	-0.01(109)	-0.06(109)	-0.14(109)	0.16(109)	-0.18(109)
*Ni ppm-S	.....	.....	0.16(120)	-0.02(120)	0.15(120)	0.16(120)	0.12(120)	0.02(120)	-0.05(120)	-0.01(120)
*Sc ppm-S	.....	.....	.....	0.26(120)	0.41(120)	0.88(120)	0.57(120)	0.79(120)	0.41(120)	0.31(120)
*Sr ppm-S	.....	.....	.....	.....	0.22(120)	0.18(120)	0.20(120)	0.02(120)	-0.03(120)	-0.09(120)
*V ppm-S	.....	.....	.....	.....	.....	0.43(120)	0.43(120)	0.28(120)	0.45(120)	0.26(120)
*Y ppm-S	.....	.....	.....	.....	.....	.....	0.67(120)	0.85(120)	0.56(120)	0.37(120)
*Zr ppm-S	.....	.....	.....	.....	.....	.....	.....	0.54(120)	0.32(120)	0.26(120)
*Si%-S	.....	.....	.....	.....	.....	.....	.....	.....	0.51(120)	0.38(120)
*Al%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.56(120)
Na%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*K%-S	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
T-C%-AA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*Org C%AA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cbt C%AA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*As ppmAA	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
*U ppmDN	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Table 3D, continued

	K%-S *	T-C%-AA	Org C%AA*	Cbt C%AA	As ppmAA*	U ppmDN *
*Fe%-S	0.31(120)	-0.06(62)	0.02(62)	-0.04(62)	0.31(97)	-0.03(120)
Mg%-S	-0.23(120)	0.29(62)	-0.03(62)	0.28(62)	-0.31(97)	0.04(120)
Ca%-S	-0.09(120)	0.21(62)	-0.00(62)	0.24(62)	0.37(97)	0.16(120)
*Ti%-S	0.79(120)	-0.36(62)	0.18(62)	-0.35(62)	0.02(97)	-0.04(120)
*Mn ppm-S	0.16(120)	-0.05(62)	0.04(62)	-0.04(62)	0.17(97)	0.17(120)
*Ba ppm-S	0.66(120)	-0.54(62)	0.12(62)	-0.52(62)	0.05(97)	-0.10(120)
*Co ppm-S	0.19(120)	0.06(62)	0.07(62)	0.05(62)	0.04(97)	0.20(120)
*Cr ppm-S	0.63(120)	-0.45(62)	0.15(62)	-0.44(62)	-0.07(97)	0.02(120)
*Cu ppm-S	0.36(120)	-0.33(62)	0.15(62)	-0.33(62)	-0.01(97)	-0.05(120)
*La ppm-S	0.38(120)	-0.19(62)	0.03(62)	-0.18(62)	0.03(97)	0.13(120)
*Mo ppm-S	-0.00(109)	0.23(62)	-0.05(62)	0.25(62)	0.64(92)	0.28(109)
*Ni ppm-S	0.00(120)	0.27(62)	-0.07(62)	0.28(62)	0.06(97)	0.11(120)
*Sc ppm-S	0.45(120)	-0.27(62)	0.00(62)	-0.23(62)	0.03(97)	0.05(120)
*Sr ppm-S	-0.06(120)	0.22(62)	0.01(62)	0.22(62)	0.09(97)	0.26(120)
*V ppm-S	0.45(120)	-0.19(62)	-0.03(62)	-0.14(62)	0.19(97)	0.18(120)
*Y ppm-S	0.58(120)	-0.34(62)	0.17(62)	-0.34(62)	0.03(97)	0.07(120)
*Zr ppm-S	0.37(120)	-0.13(62)	-0.05(62)	-0.12(62)	0.01(97)	0.10(120)
*Si%-S	0.47(120)	-0.65(62)	0.17(62)	-0.65(62)	-0.07(97)	-0.06(120)
*Al%-S	0.89(120)	-0.57(62)	0.21(62)	-0.55(62)	0.09(97)	-0.11(120)
Na%-S	0.68(120)	-0.68(62)	0.08(62)	-0.65(62)	-0.02(97)	-0.25(120)
*K%-S	.....	-0.60(62)	0.08(62)	-0.57(62)	0.02(97)	-0.12(120)
T-C%-AA	.....	.....	-0.15(62)	0.98(62)	0.10(62)	0.34(62)
*Org C%AA	.....	.....	.....	-0.28(62)	-0.09(62)	0.12(62)
Cbt C%AA	.....	.....	.....	.....	0.15(62)	0.30(62)
*As ppmAA	.....	.....	.....	.....	.....	0.15(97)
*U ppmDN	.....	.....	.....	.....	.....	.....

Table 4A.--R-mode factor analysis of Hopi Buttes monchiquites with factor loadings for a 4-factor rotation. Secondary element associations are shown in parentheses at the bottom of each group.

Factor Group 1	Factor Group 2	Factor Group 3	Factor Group 4
Sc 0.90	Sn 0.85	Sc 0.88	Ba 0.92
Cr 0.85	CaO 0.68	V 0.76	K_2O 0.76
Ni 0.76	As 0.65	Sr 0.74	U 0.71
SiO_2 0.63	F 0.60	Ba 0.67	Rb 0.70
CO_2 0.60	Mo 0.59	Y 0.65	Sb 0.39
Co 0.57	Zn 0.51	Co 0.54	
Cs 0.26	TiO_2 0.45	Cs 0.33	(Sr) 0.53
-Ga 0.52	Al_2O_3 0.41	-OrgC 0.30	-(Na) 0.35
-T-Fe_2O_3 0.56	T-S 0.35	-T-C 0.49	(SiO_2) 0.40
-Th 0.58	-FeO 0.51	-Cbt-C 0.54	
-H_2O 0.58	-Na_2O 0.61		
-Zr 0.61	-Cu 0.64	(Be) 0.53	
-Be 0.61	-MgO 0.65	(Yb) 0.10	
-Pb 0.63		(Mo) 0.48	
-Li 0.65	(Nb) 0.55	(Zn) 0.47	
-Nb 0.67	-(Fe_2O_3) 0.54		
-H_2O+ 0.68	(Zr) 0.54		
-Nd 0.72	-(MnO) 0.53		
-Yb 0.72	(Y) 0.50		
-MnO 0.78	(Be) 0.47		
-Sr 0.79	(V) 0.44		
-Mn 0.82	-(Ni) 0.44		
-Na 0.83	-(Co) 0.41		
-Fe 0.86			
-Zr 0.89			
-P_2O_5 0.89			
-Gd 0.90			
-Hf 0.91			
-Zn 0.94			
-La 0.95			
-Ta 0.95			
-Eu 0.96			
-Dy 0.96			
-Yb 0.96			
-Sm 0.96			
-Ce 0.96			
-Lu 0.97			
-Tb 0.97			
-Nd 0.98			
-(Na_2O) 0.60			
-(F) 0.59			
(MgO) 0.57			
-(Y) 0.48			
-(Sr) 0.47			
(CU) 0.46			

Table 4B.--R-mode factor analysis of Hopi Buttes limburgite tuffs with factor loadings for a 4-factor rotation. Secondary element associations are shown in parentheses at the bottom of each group.

Factor Group 1	Factor Group 2	Factor Group 3	Factor Group 4
Al 0.92	Fe 0.76	Be 0.79	Mg 0.78
Ti 0.88	Ni 0.72	Zr 0.74	-S 0.49
Ga 0.79	Mo 0.72	Zn 0.74	-Rb 0.65
Ba 0.78	Co 0.69	Ce 0.73	-Li 0.67
K 0.78	As 0.68	Nb 0.72	
Cu 0.74	B 0.66	La 0.63	(Cr) 0.51
Cr 0.73	Se 0.62	Sr 0.58	(Sc) 0.56
Sc 0.71	U 0.51	F 0.56	(V) 0.41
Y 0.70	-Ca 0.69		
Si 0.64		(Ga) 0.43	
Na 0.55	(Be) 0.48	(Y) 0.59	
Ag 0.42	-(La) 0.42		
V 0.42			
-Mn 0.72			
(Zr) 0.47			
(Nb) 0.55			
(La) 0.47			

Table 4C.--R-mode factor analysis of Hopi Buttes clastics with factor loadings for a 4-factor rotation. Secondary element association are shown in parentheses at the bottom of each group.

Factor Group 1	Factor Group 2	Factor Group 3	Factor Group 4
Y 0.92	Ca 0.83	U 0.92	Na 0.87
Sc 0.84	Mn 0.77	Mo 0.69	Ba 0.78
Ga 0.83	Mg 0.53	As 0.62	Al 0.77
La 0.82	-B 0.66	Sr 0.61	K 0.65
Zr 0.77	-Si 0.86	V 0.45	P 0.56
Co 0.76		Zn 0.28	Cu 0.52
Ti 0.73	-(Al) 0.46		
Cr 0.65	-(K) 0.48	(Co) 0.41	(Ti) 0.59
Be 0.62		(Be) 0.44	(U) 0.49
Ni 0.60		(P) 0.42	(Fe) 0.51
Fe 0.57			
(Mg) 0.40			
(Cu) 0.49			

Table 4D.--R-mode factor analysis of Hopi Buttes travertines with factor loadings for a 4-factor rotation. Secondary element associations are shown in parentheses at the botton of each group.

Factor Group 1	Factor Group 2	Factor Group 3	Factor Group 4
Cr 0.91	-V 0.43	Mo 0.77	T-C 0.72
La 0.90	-Mn 0.61	As 0.69	Cbt.C 0.70
Y 0.89	-Fe 0.78	Ca 0.65	Mg 0.46
Sc 0.87	-Ni 0.79	U 0.42	-Cu 0.47
Si-S 0.83	-Co 0.81	Sr 0.38	-Ti 0.59
Zr 0.68			-Na 0.66
Org.C 0.37	-(Cu) 0.45		-Ba 0.67
			-K 0.77
(Ti-s) 0.55			-Al 0.82

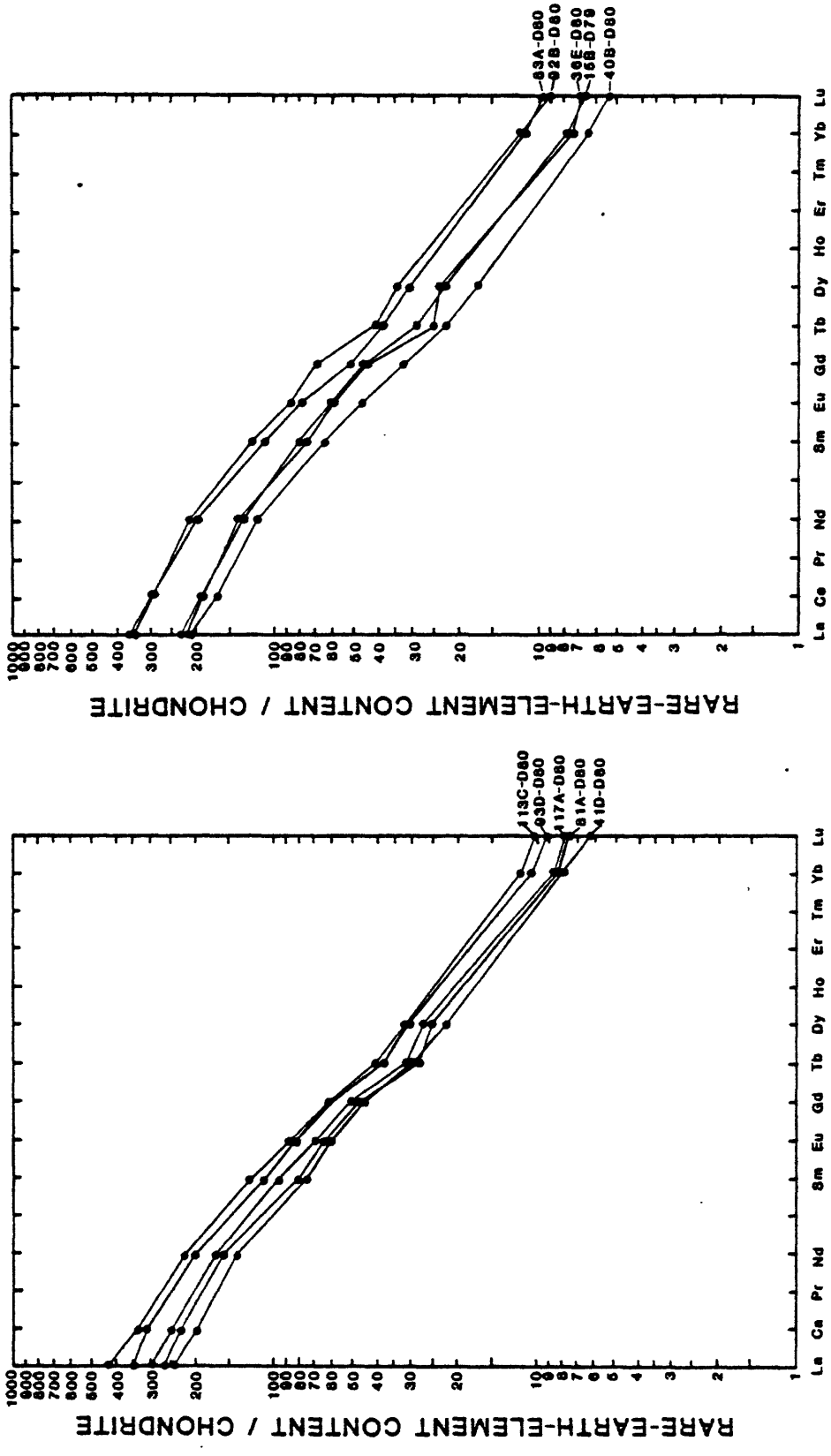

Figure 1.--Rare-earth element data for 10 monchiquites from the Hopi Buttes, Arizona normalized by chondrite rare-earth element concentrations.

Table 5.--Elements present in concentrations in excess of two times the average crustal abundance (Turekian and Wedepohl, 1961) for the respective rock type. Hyphens ("-") indicate that the concentration was less than two times the average crustal abundance. Slashes ("/") indicate there was insufficient data to make an evaluation.

Monchiquites	Lumburgite Tuffs	Clastics	Travertines
Ag	Ag	Ag	Ag
As	As	As	As
Ba	Ba	Ba	Ba
Be	Be	Be	/
Ce	-	/	-
-	-	Co	Co
CO_2	/	/	/
-	Cs	Cs	-
-	Cu	-	-
Dy	-	/	-
Eu	Eu	/	Eu
F	F	F	F
-	-	Fe	Fe
Gd	-	/	-
H_2O+	/	/	/
H_2O-	/	/	/
Hf	Hf	/	Hf
La	La	-	-
-	-	-	Li
-	Mo	Mo	Mo
-	-	Mn	-
-	Na	-	-
Nd	Nd	/	Nd
-	-	Ni	-
P	P	P	-
Pb	-	-	-
Rb	-	Rb	Rb
-	S	S	-
-	-	Sc	Sc
Se	Se	Se	Se
Sm	Sm	/	-
Sn	/	/	Sn
Sr	Sr	Sr	Sr
Ta	/	/	Ta
Tb	-	/	-
Th	Th	/	Th
Ti	Ti	-	-
/	/	/	Tm
U	U	U	U
V	V	V	V
Zn	-	Zn	-
Zr	-	-	Zr

Figures 2-A through 2-T on the following pages are:
Scatter diagrams of uranium versus those elements correlating significantly with uranium at the 99% confidence level (**) or the 95% confidence level (*). r = correlation coefficient; n = number of samples used in the correlation. Samples with values below the detection limit are not plotted on the scatter diagram but were used in the correlation coefficient calculation; therefore, the value of n may not agree with the number of points on the diagram. Regression lines are only shown for those rock types with correlations significant at or above the 95% confidence level. x = monchiquite; o = limburgite tuff; □ = clastic; + = travertine. Scatter diagrams with correlation coefficients calculated for data with > 30% qualified data have their detection limits given in the figure captions.

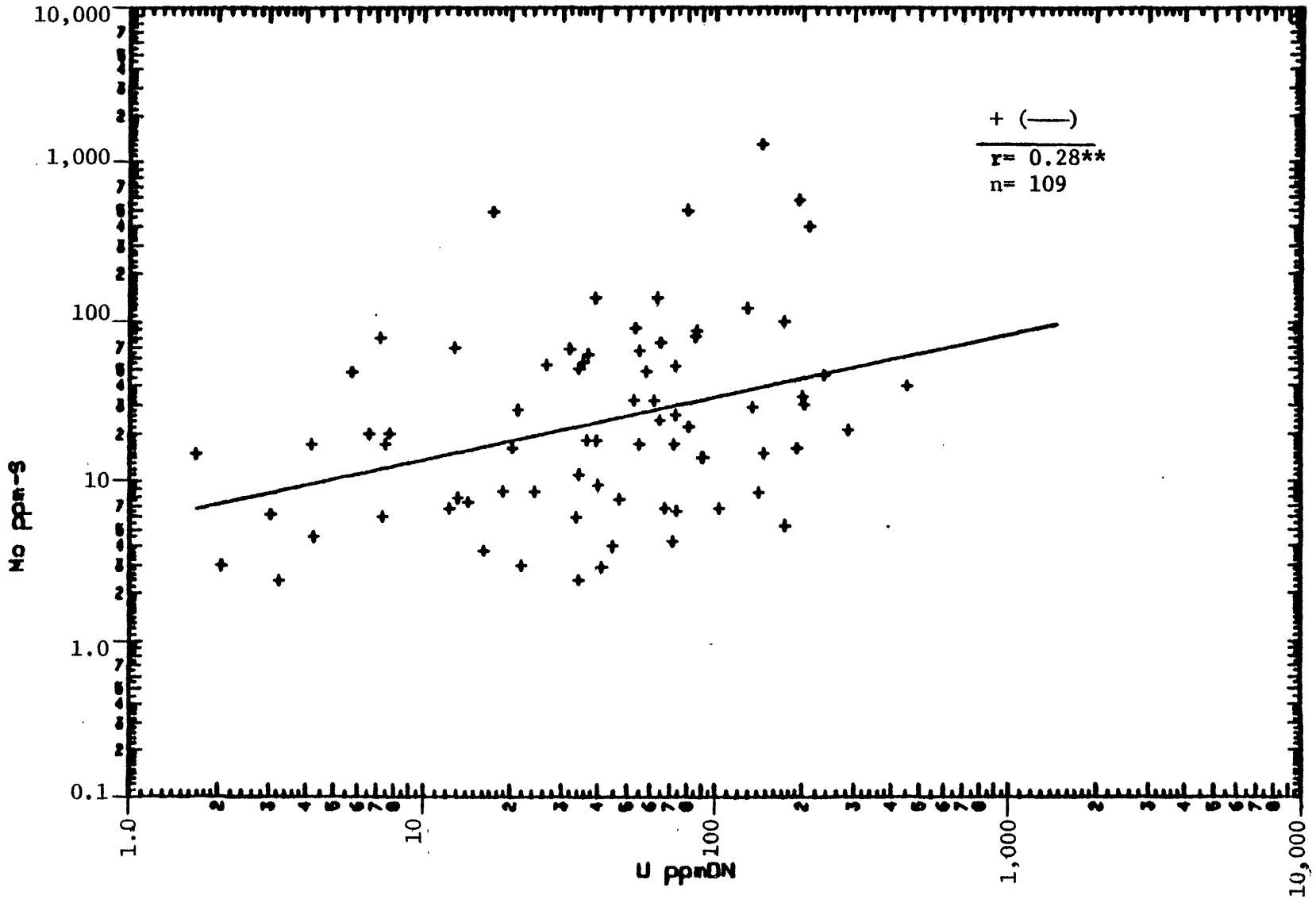

Figure 2-A.--Scatter diagram of U versus Mo for travertine samples (+). The detection limit for Mo is 10 ppm for the 1979 samples and 1 ppm for samples analyzed in 1980.

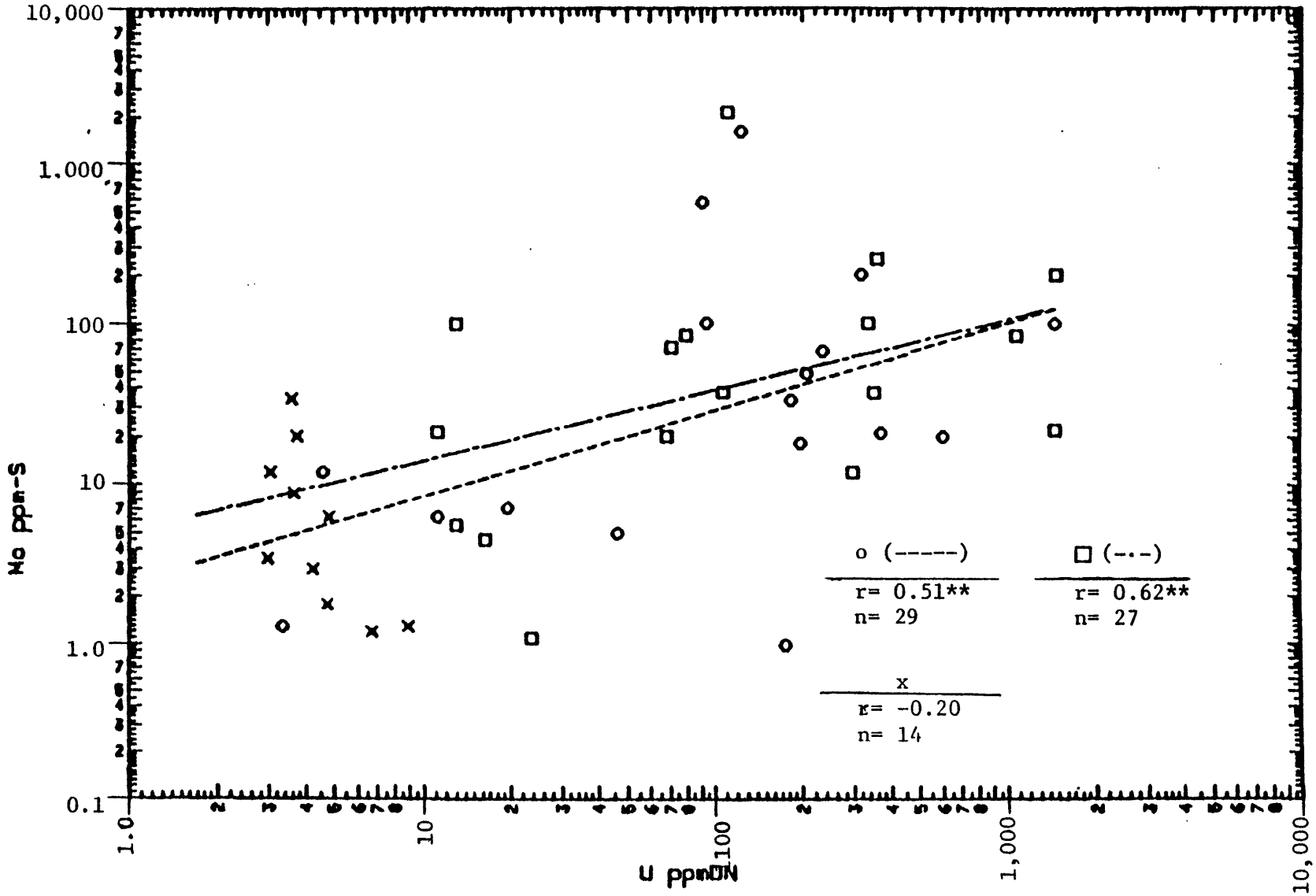

Figure 2-B.--Scatter diagram of U versus Mo for monchiquite (x), limburgite tuff (o) and clastic (□) samples. The detection limit for Mo is 10 ppm for samples analyzed in 1979 and 1 ppm for the 1980 samples.

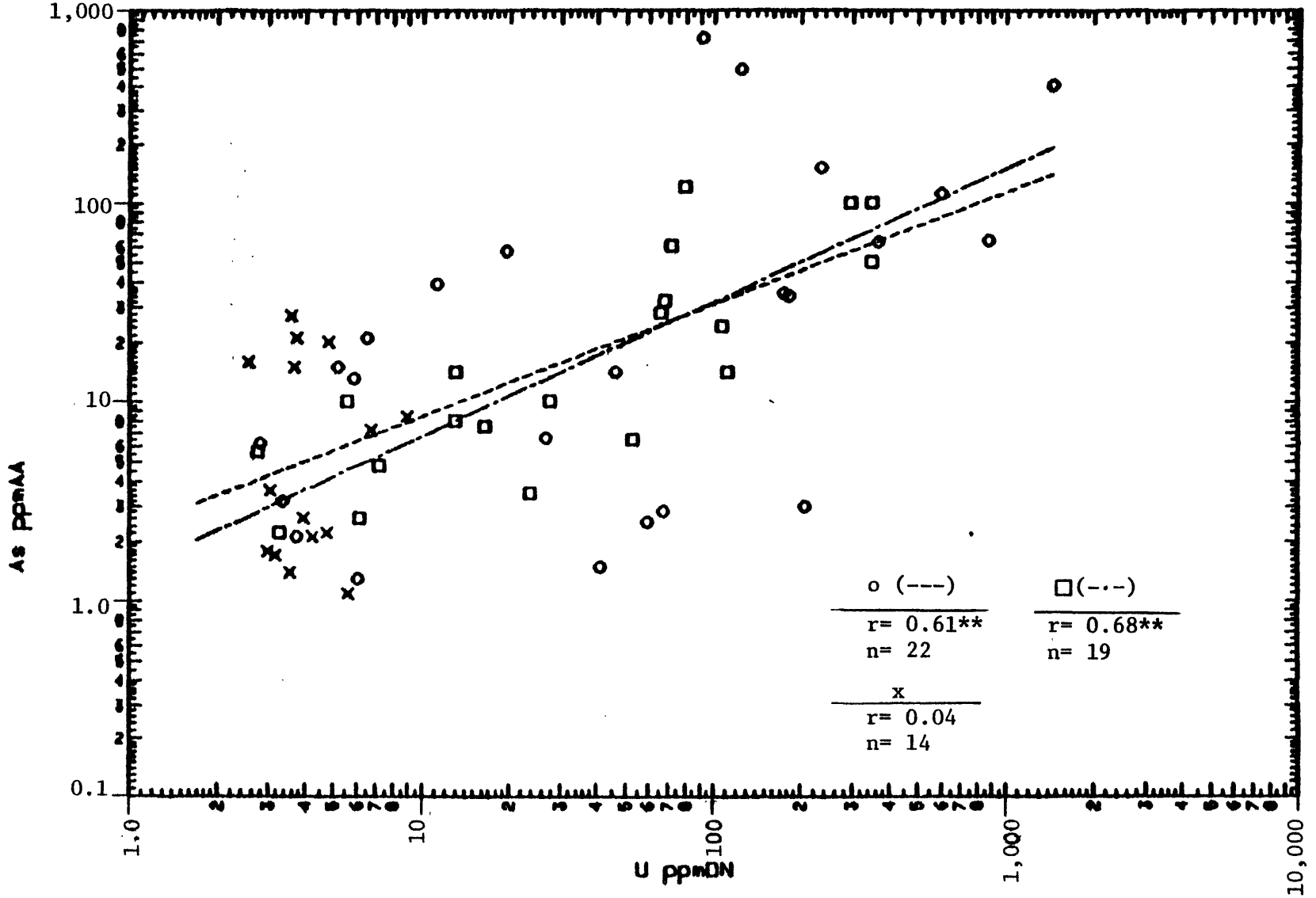

Figure 2-C.--Scatter diagram of U versus As for monchiquite (x), limburgite tuff (o) and clastic (□) samples.

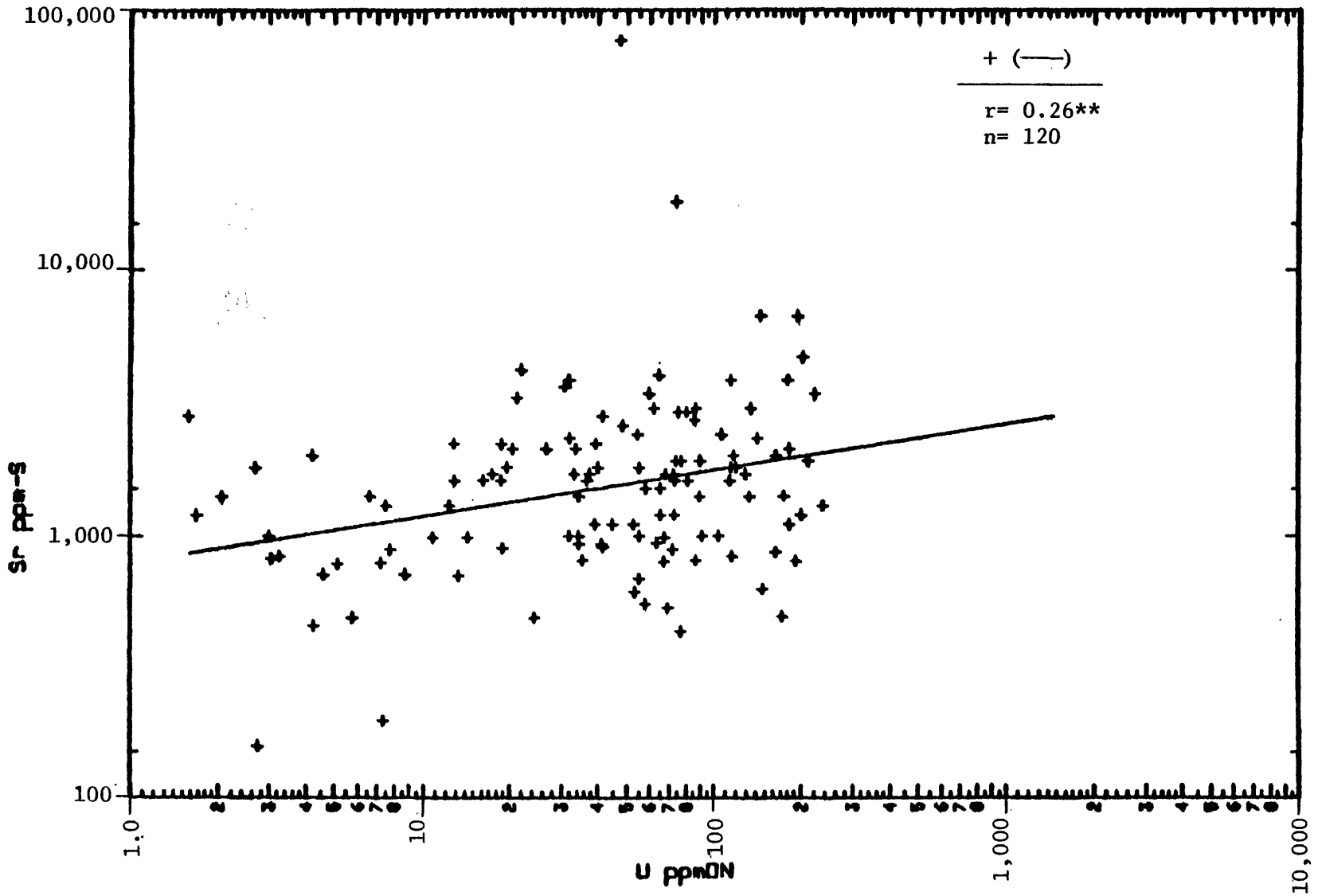

Figure 2-D.--Scatter diagram of U versus Sr for travertine samples (+).

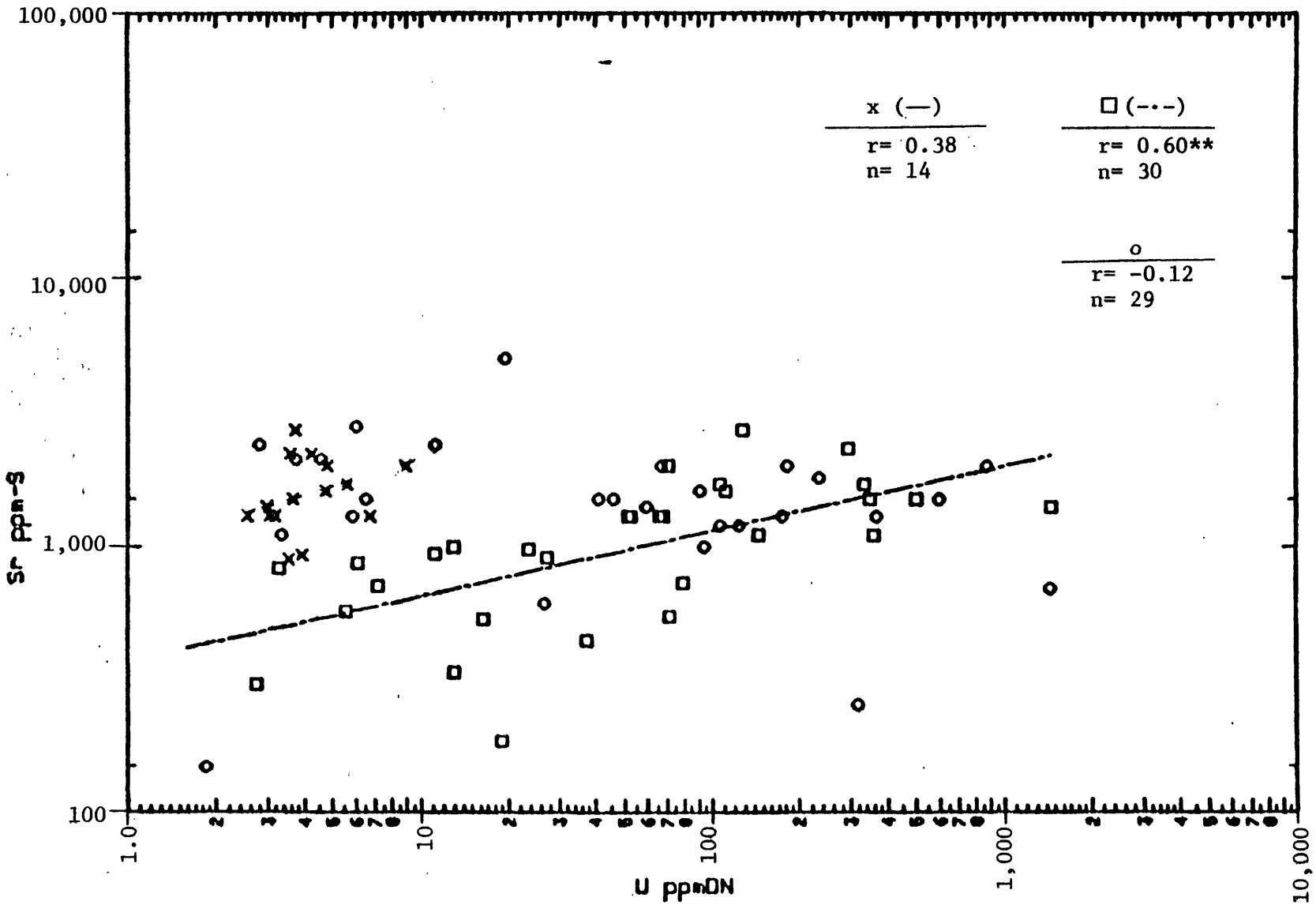

Figure 2-E.--Scatter diagram of U versus Sr for monchiquite (x), limburgite tuff (o) and clastic (□) samples.

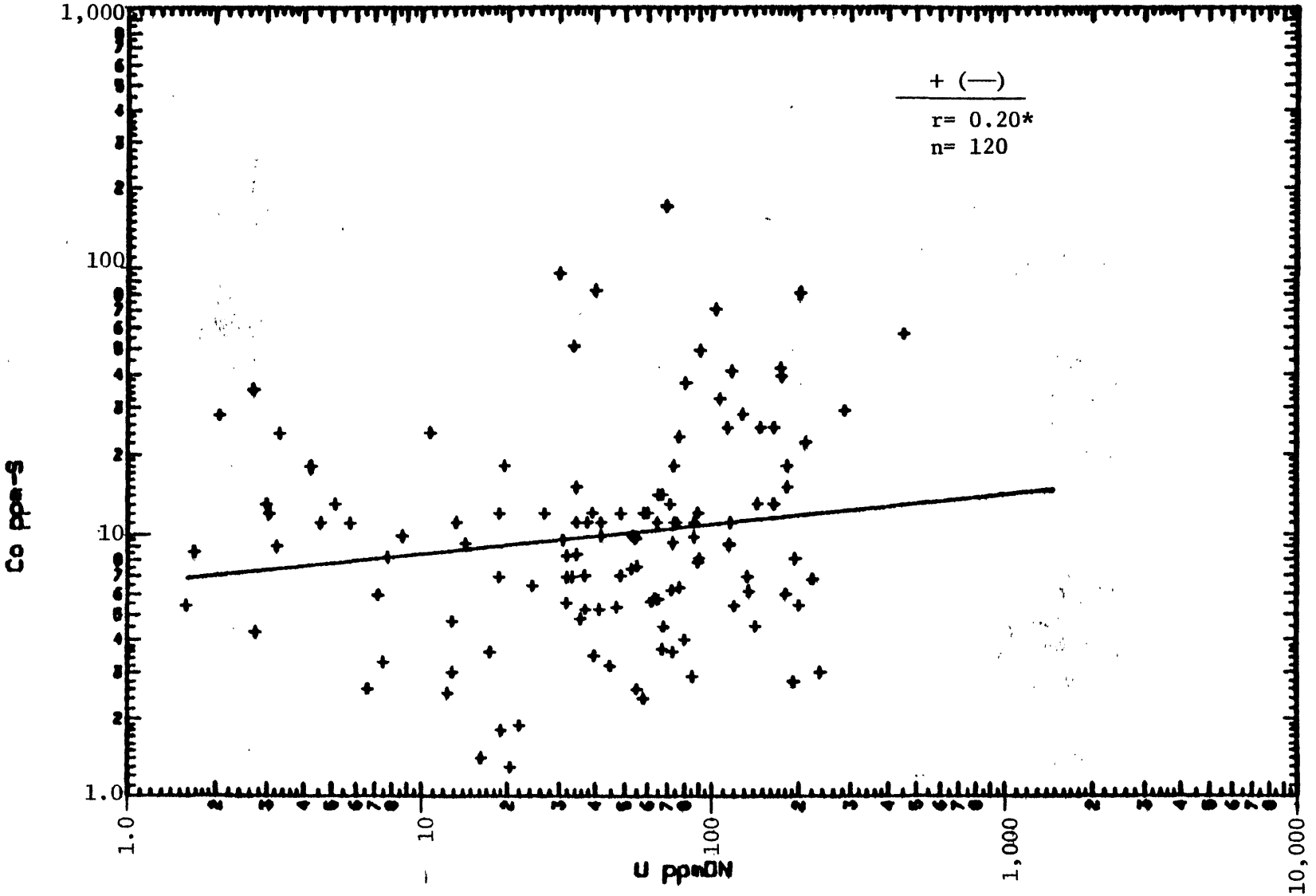

Figure 2-F.--Scatter diagram of U versus Co for travertine samples (+).

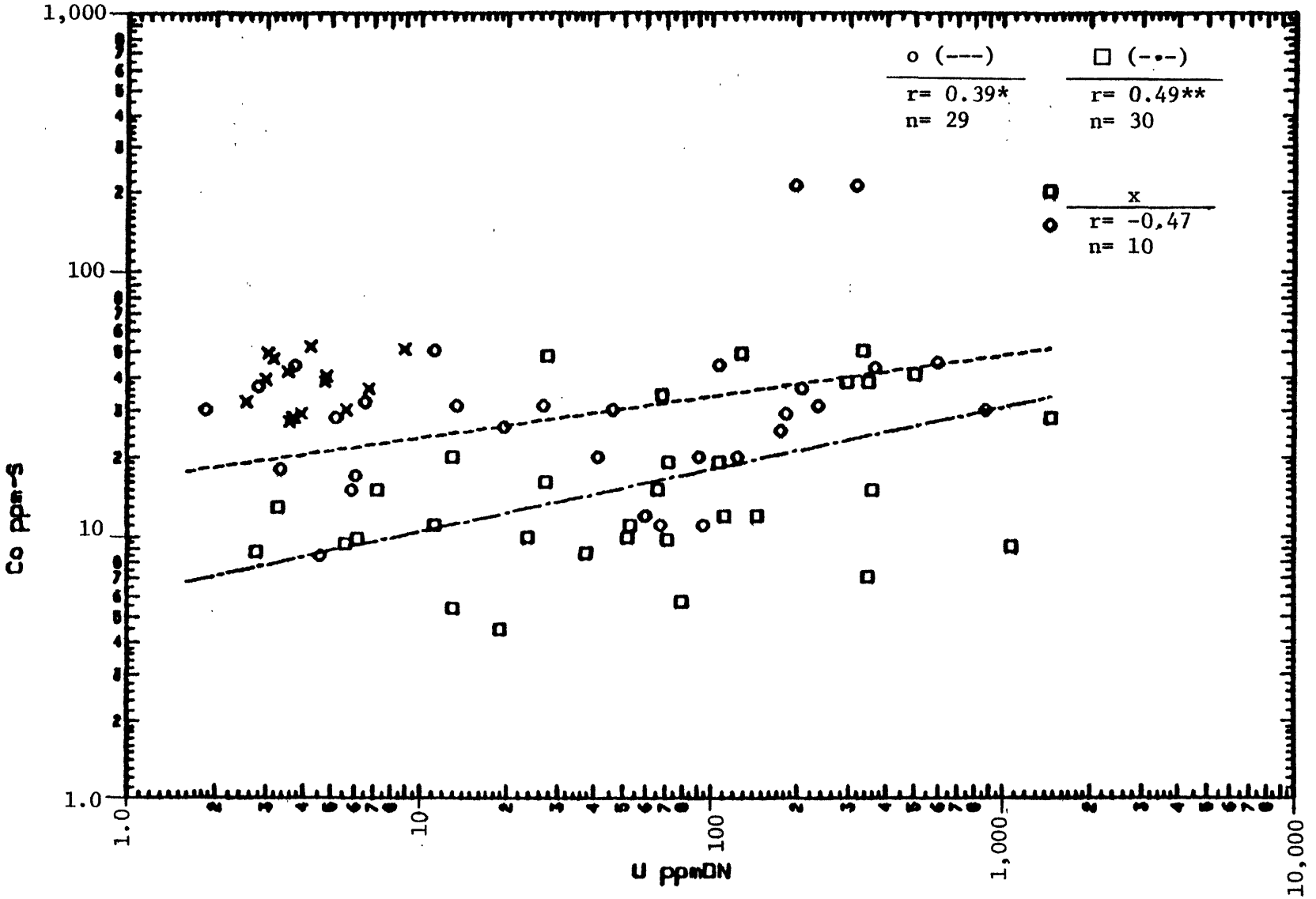

Figure 2-G.--Scatter diagram of U versus Co for monchiquite (x), limburgite tuff (o) and clastic (□) samples.

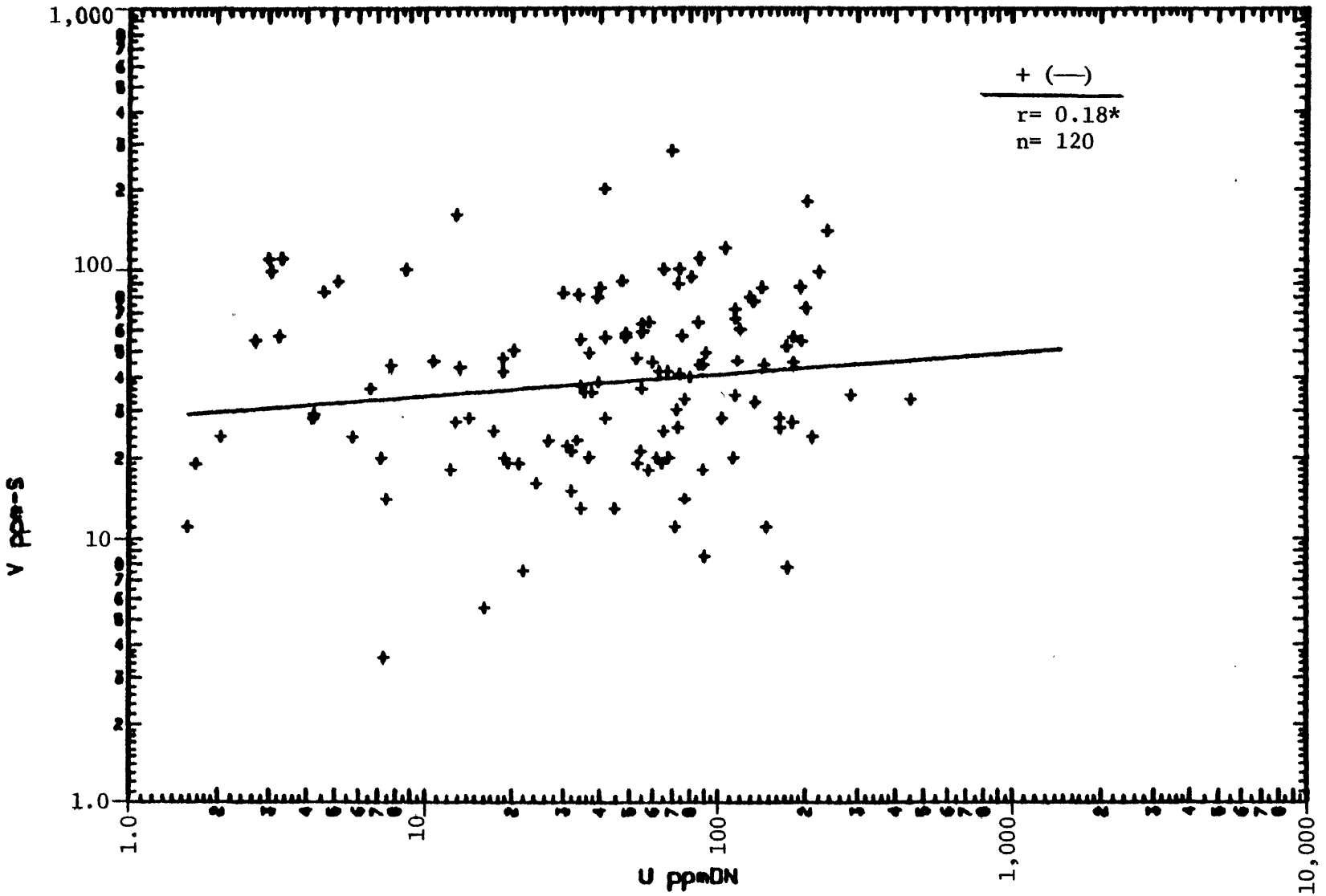

Figure 2-H.--Scatter diagram of U versus V for travertine (+) samples.

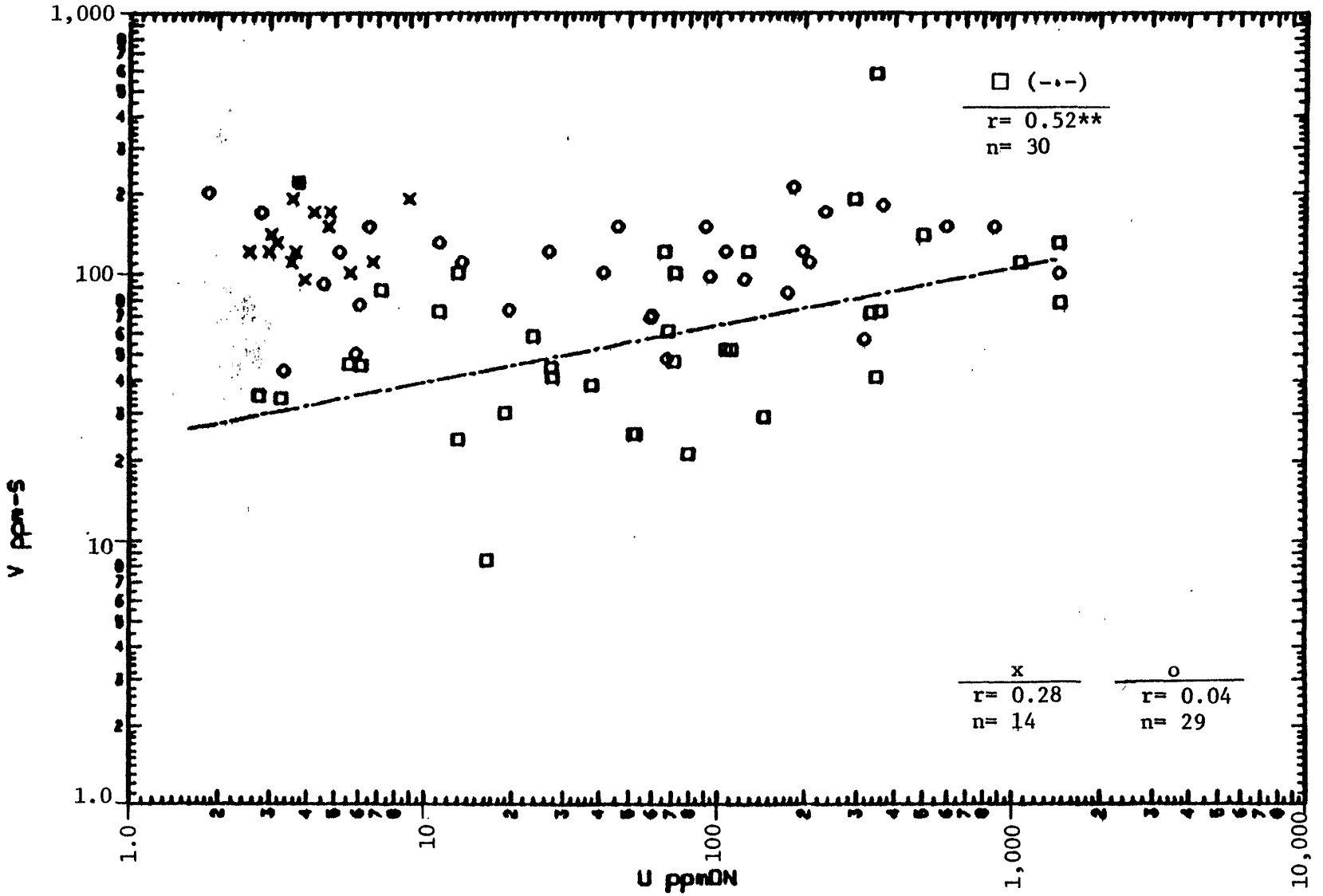

Figure 2-I.--Scatter diagram of U versus V for monchiquite (x), limburgite tuff (o) and clastic (□) samples.

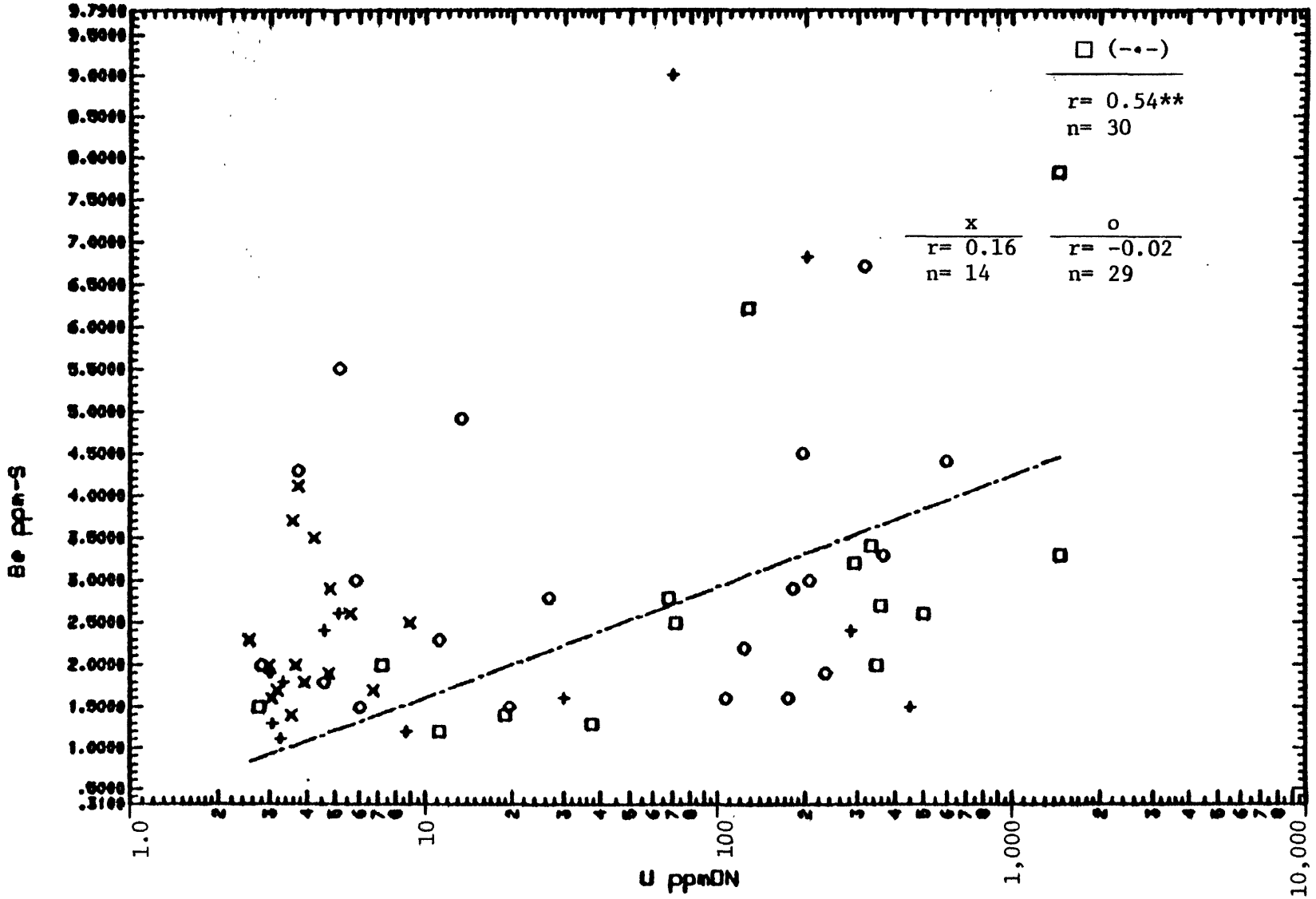

Figure 2-J.--Scatter diagram for U versus Be for monchiquite (x), limburgite tuff (o) and clastic (□) samples. The detection limit for Be is 1 ppm.

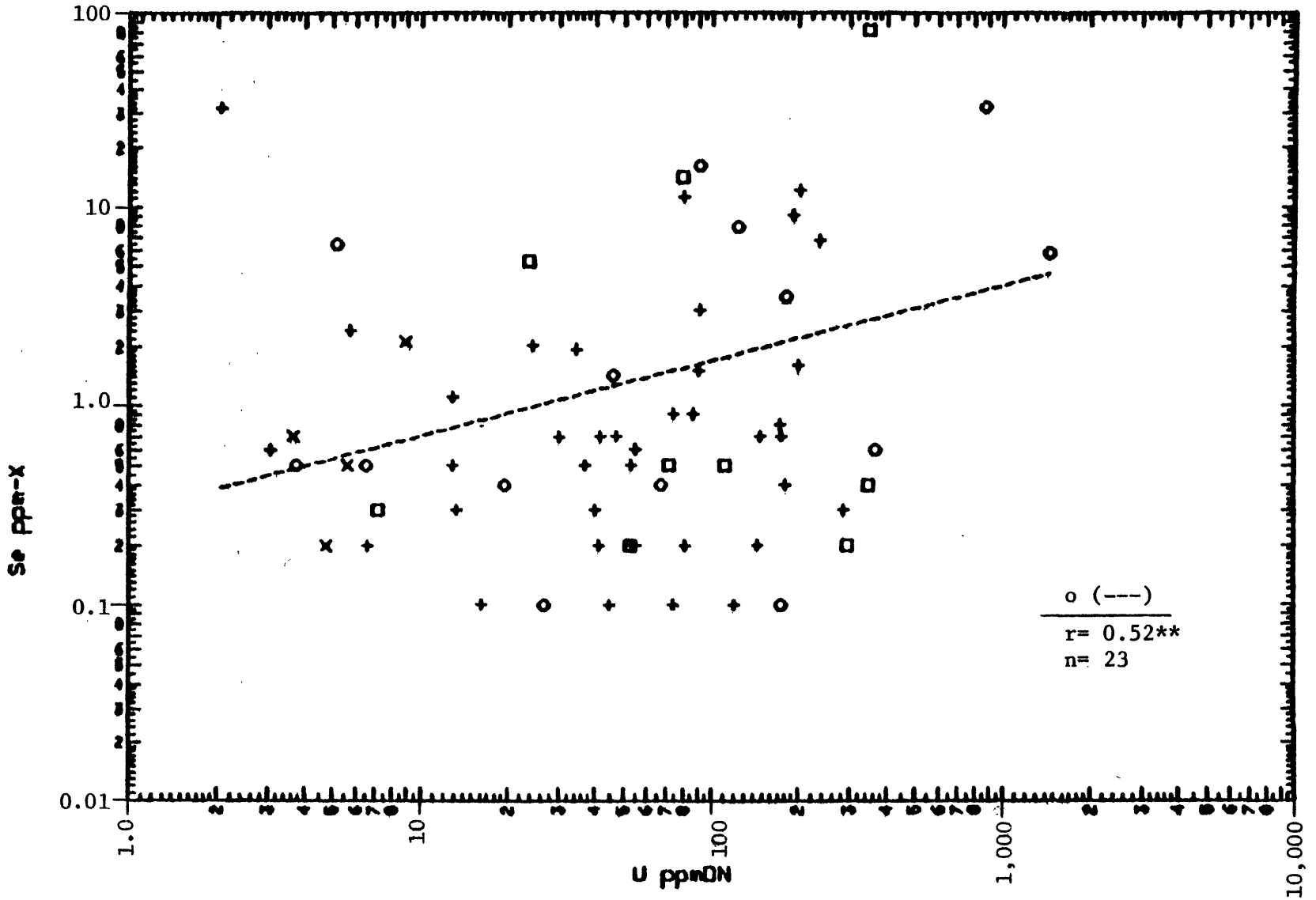

Figure 2-K.--Scatter diagram for U versus Se for monchiquite (x), limburgite tuff (o), clastic (□) and travertine (+) samples. The detection limit for Se is 0.1 ppm.

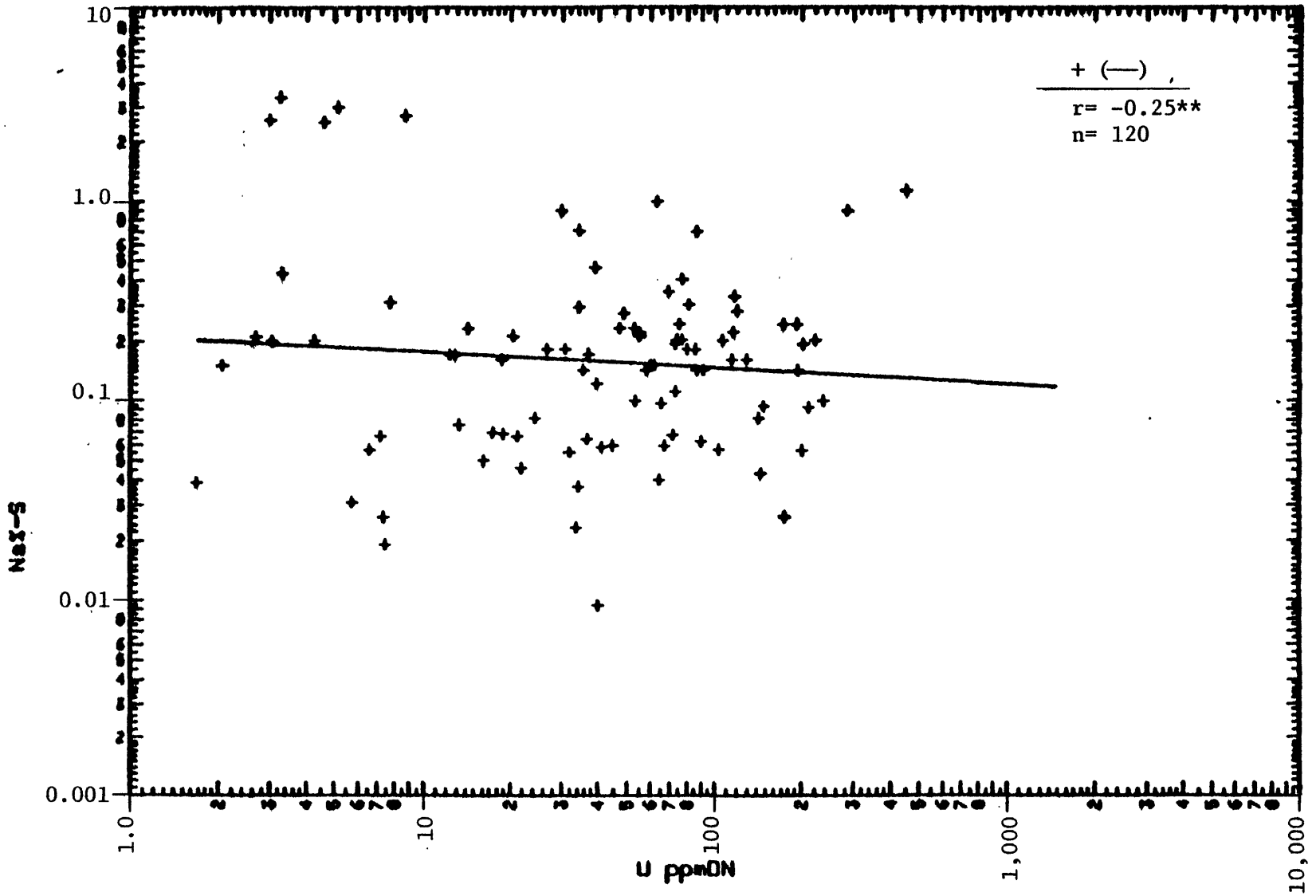

Figure 2-L.--Scatter diagram for U versus Na for travertine (+) samples.

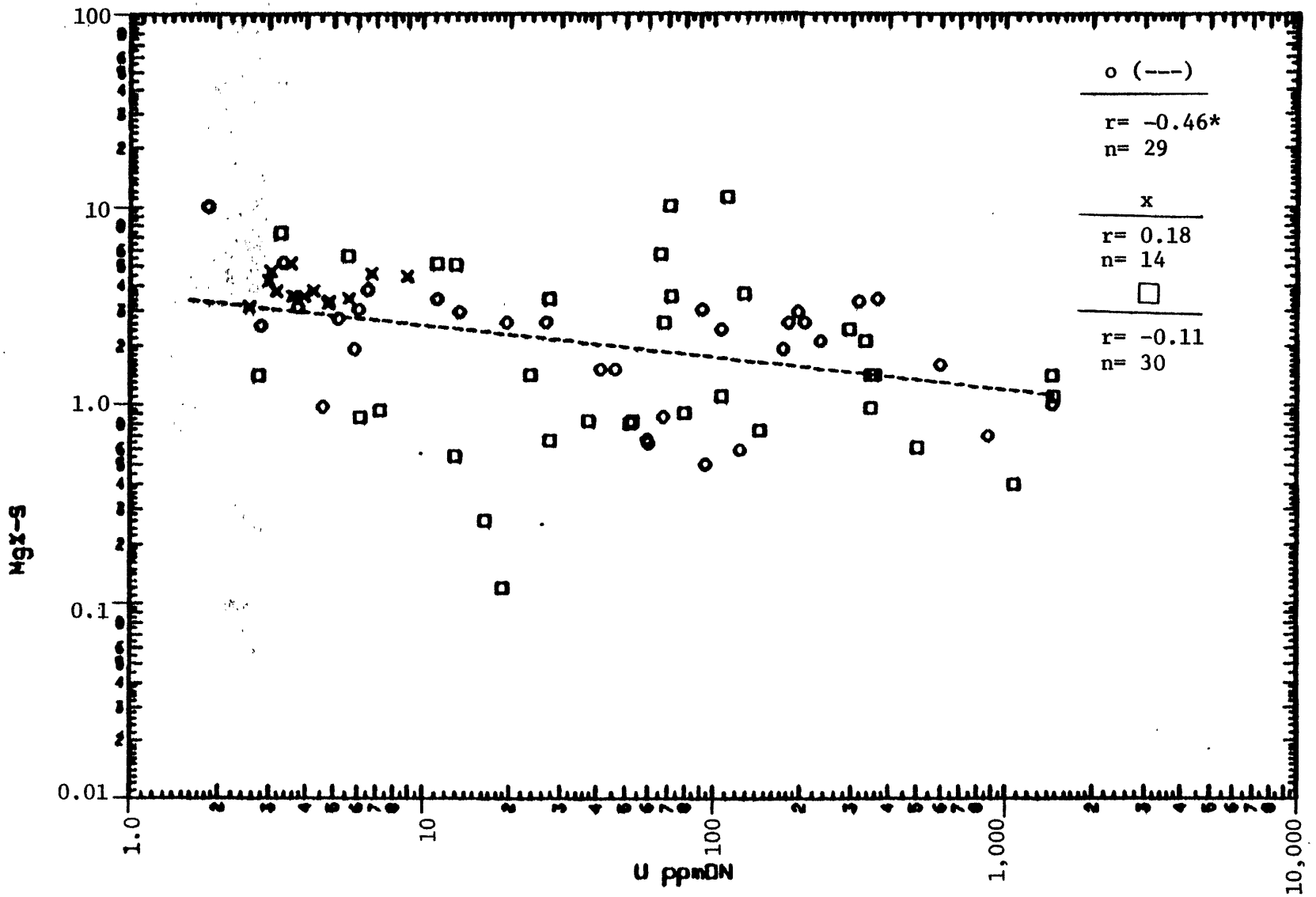

Figure 2-M.—Scatter diagram for U versus Mg for monchiquite (x), limburgite tuff (o) and clastic (□) samples.

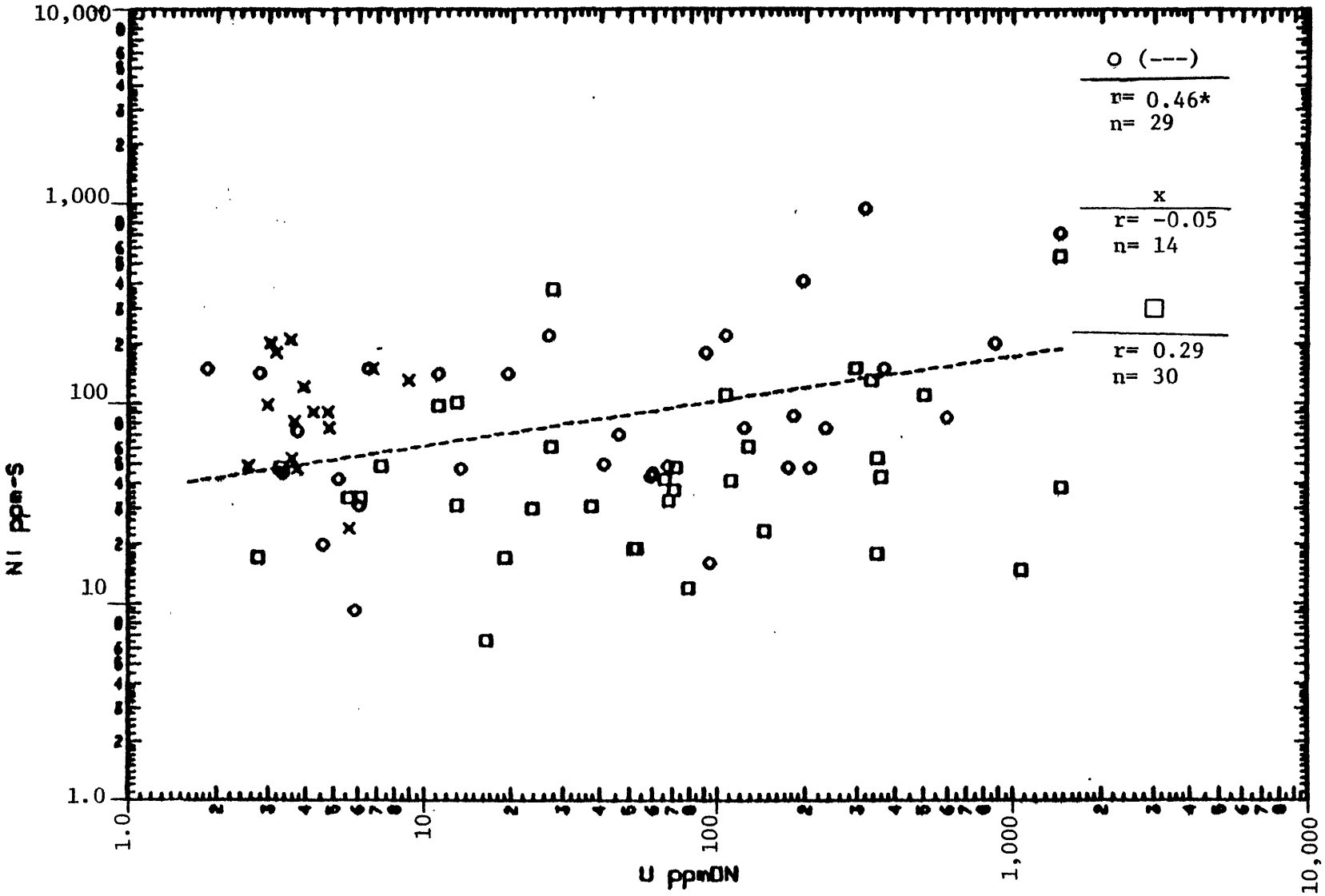

Figure 2-N.--Scatter diagram for U versus Ni for monchiquite (x), limburgite tuff (o) and clastic (□) samples.

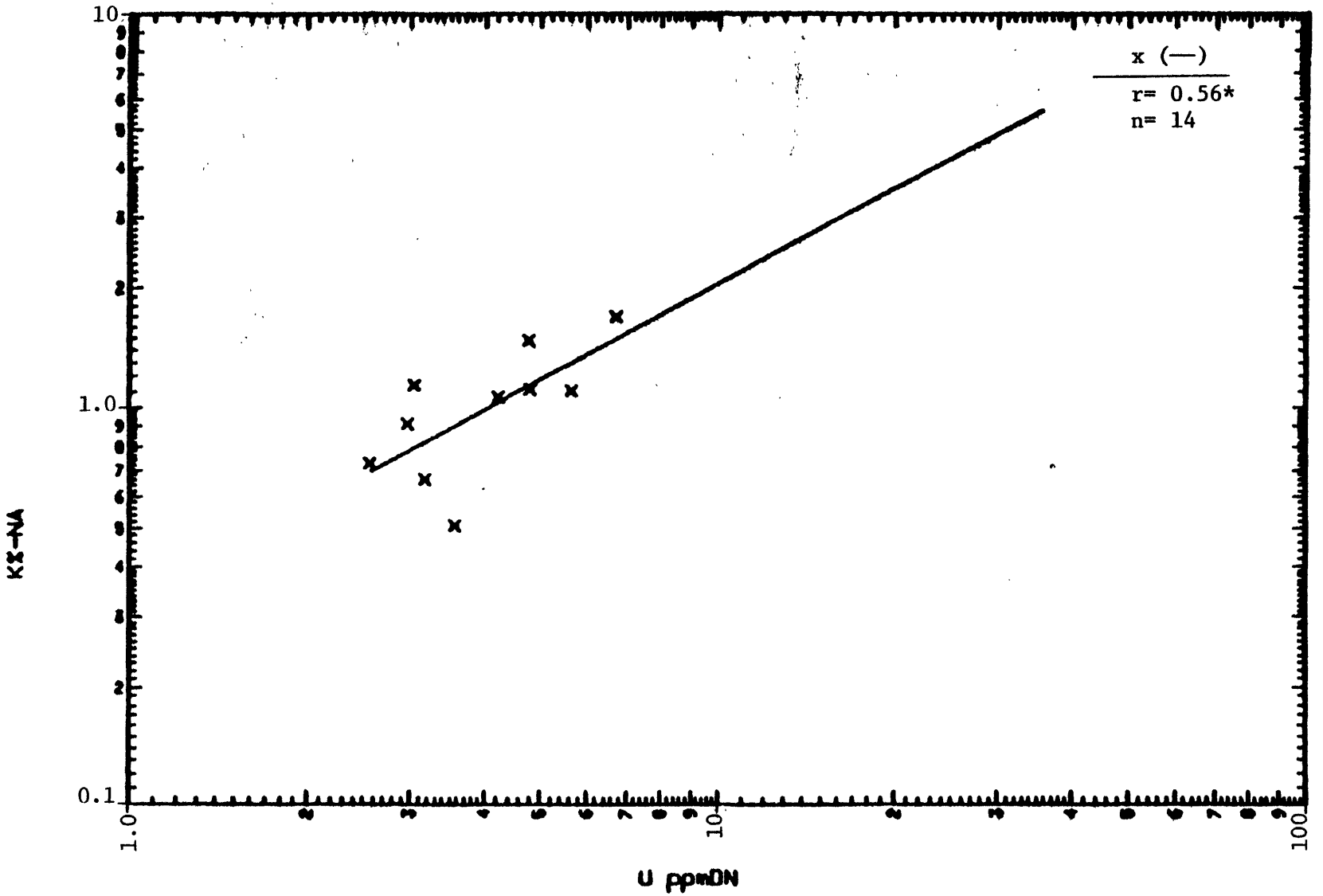

Figure 2-O.--Scatter diagram for U versus K for monchiquite (x) samples.

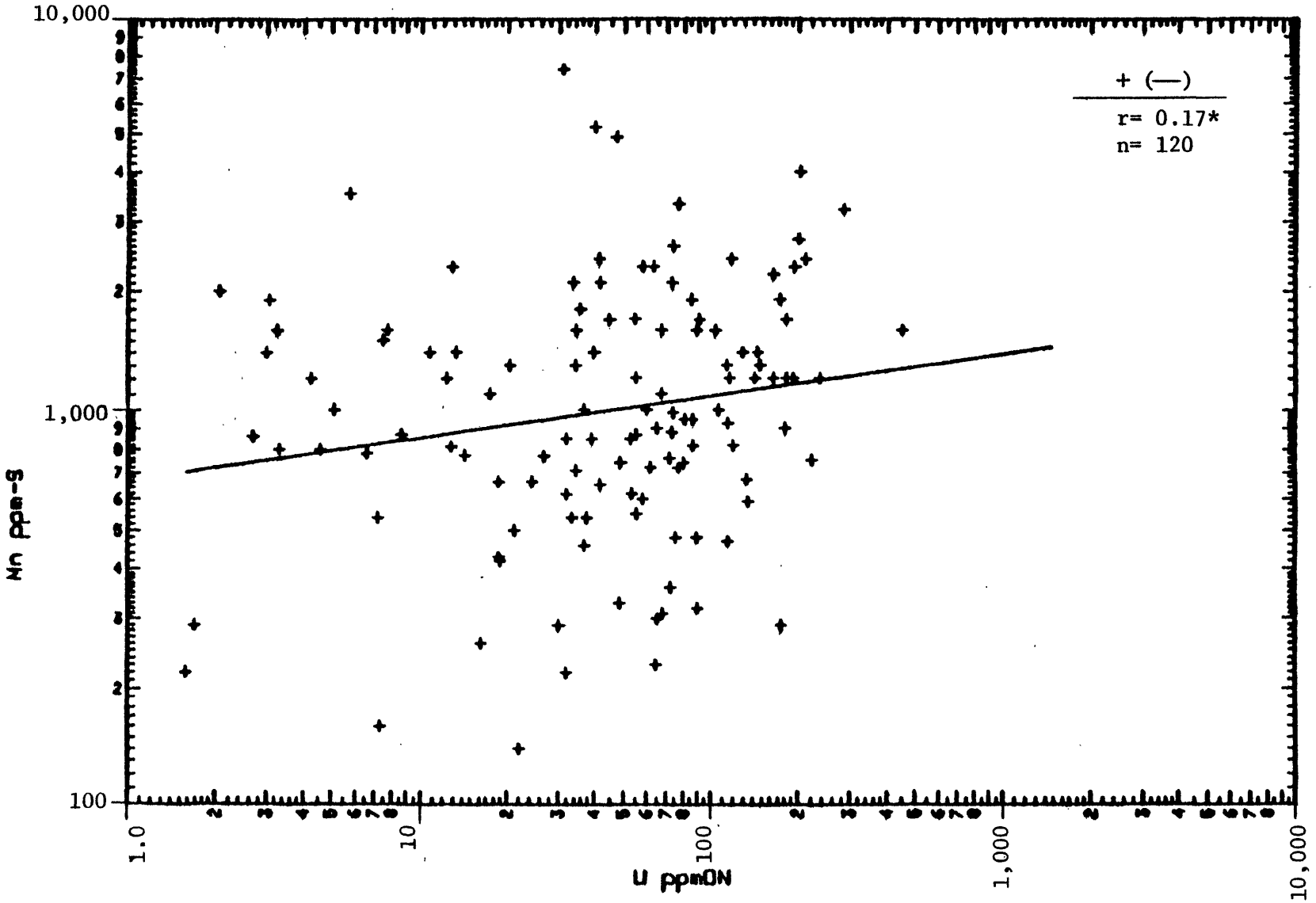

Figure 2-P.--Scatter diagram for U versus Mn for travertine (+) samples.

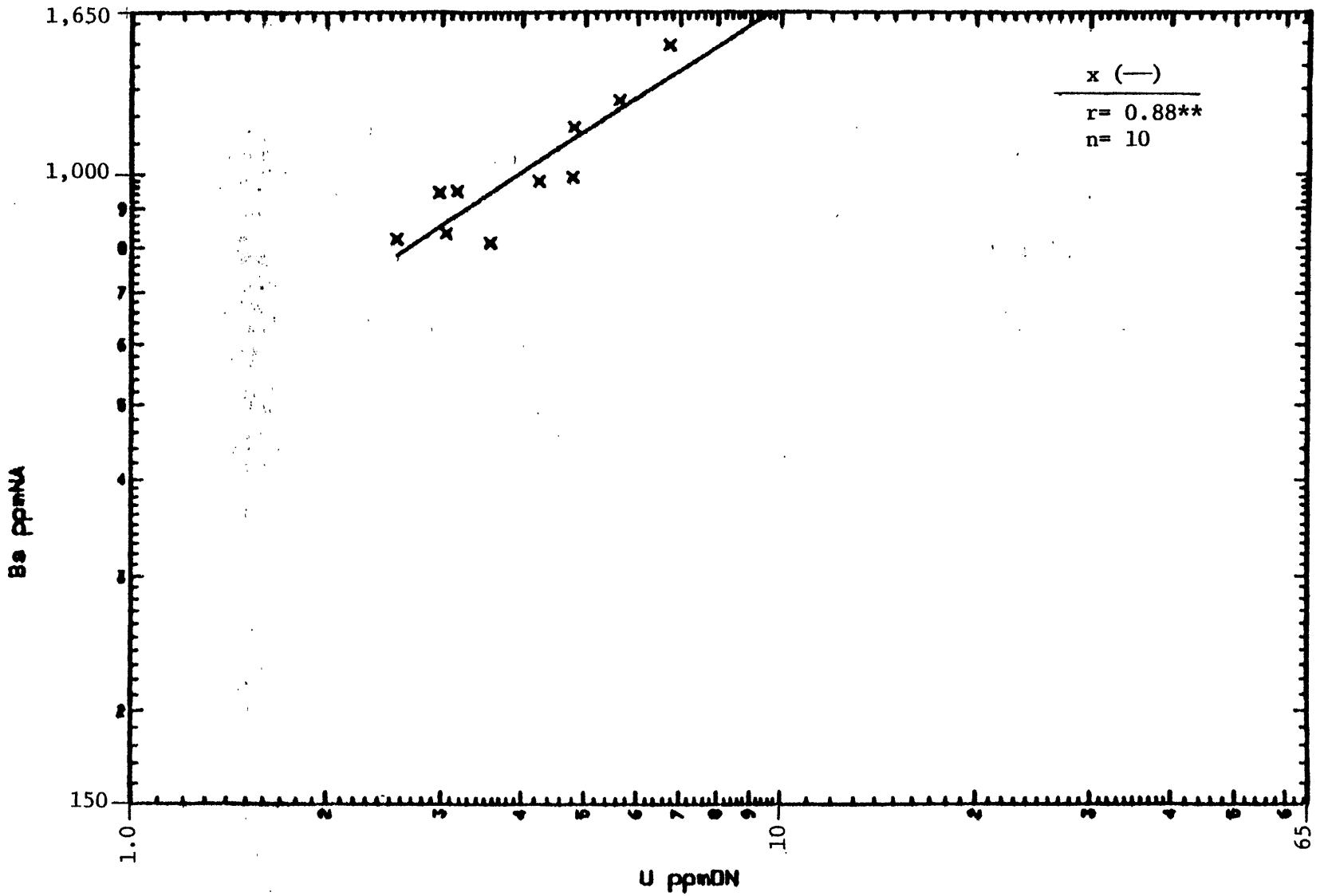

Figure 2-Q.--Scatter diagram for U versus Ba for monchiquite (x) samples.

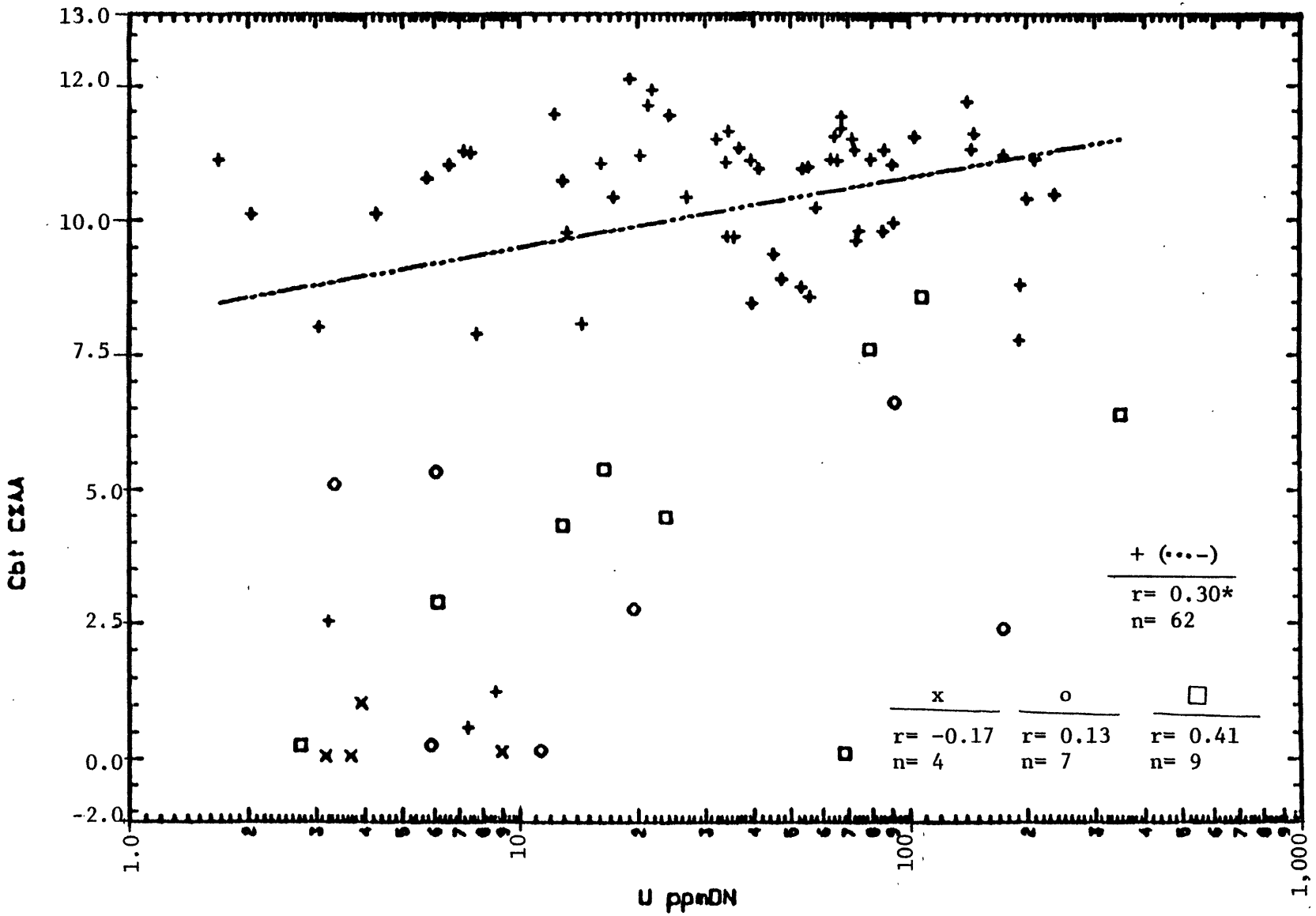

Figure 2-R.--Scatter diagram for U versus carbonate carbon for monchiquite (x), limburgite tuff (o), clastic (□) and travertine (+) samples.

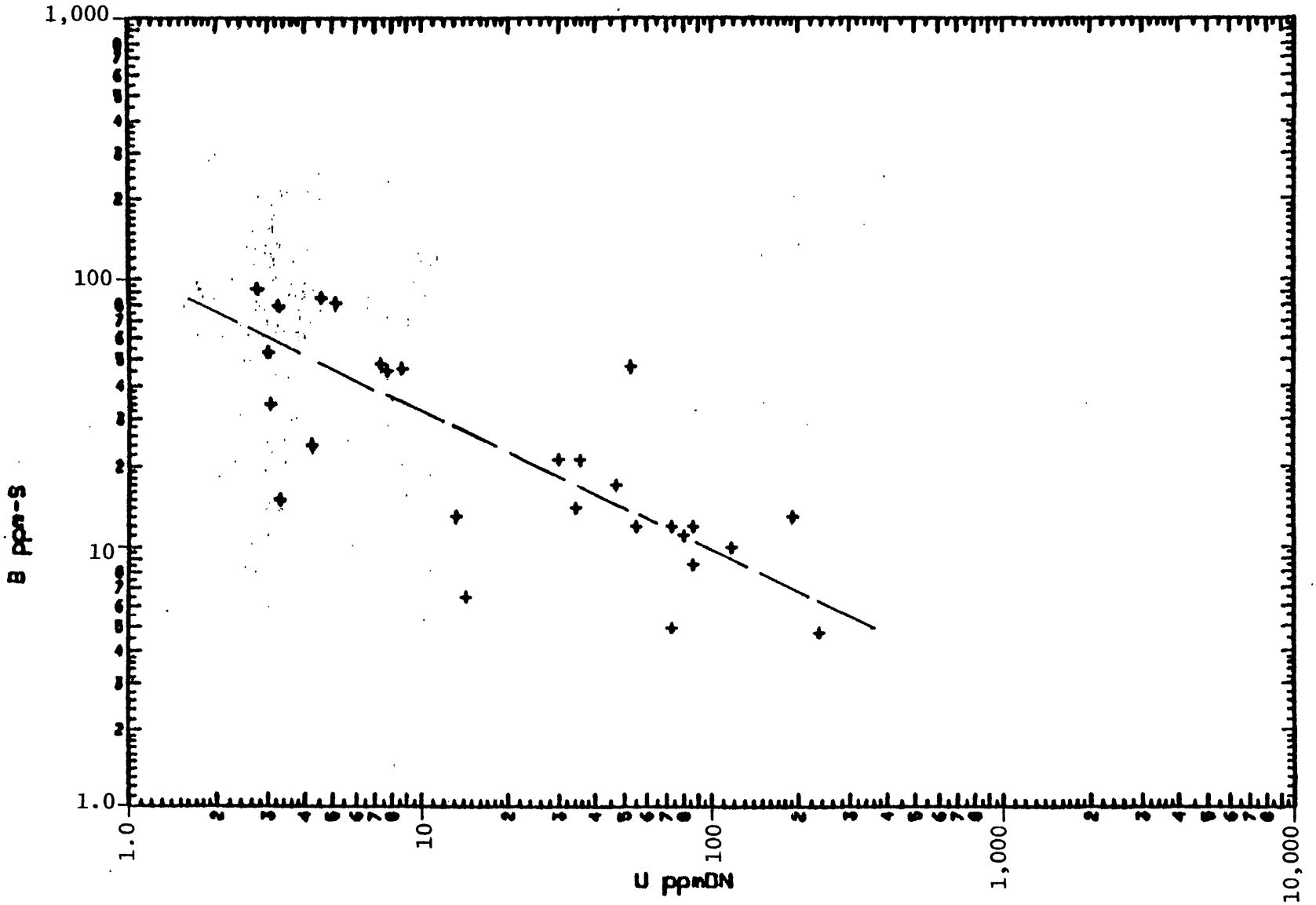

Figure 2-S.--Scatter diagram of U versus B for travertine (+) samples. Regression line is hand drawn to best fit the data as a correlation coefficient was not calculated because >60% of the sample were less than the detection limit for B); the detection limit for some samples was 10 ppm and for others it was 4.6 ppm.

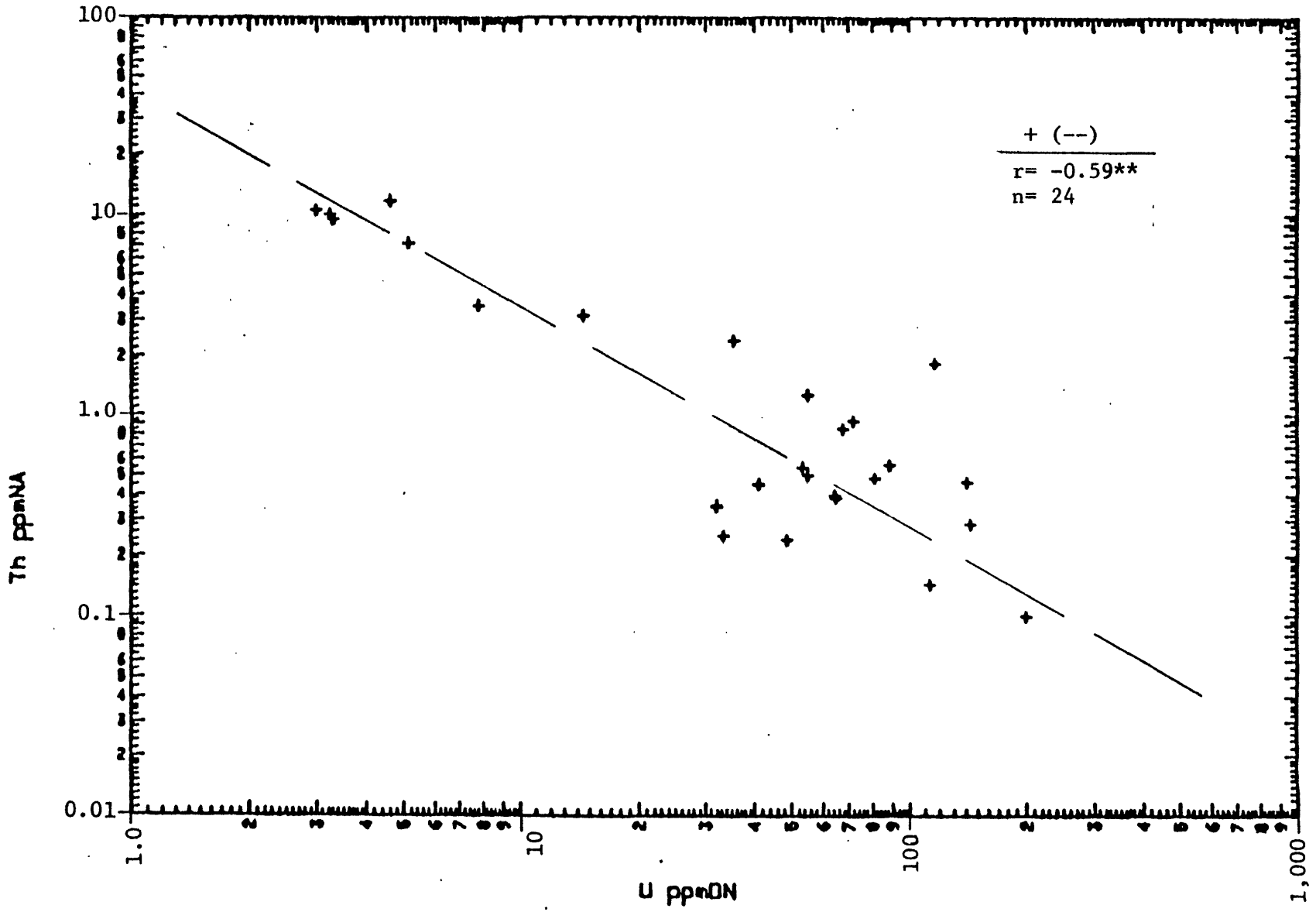

Figure 2-T.--Scatter diagram of U versus Th for travertine (+) samples. Regression line is hand drawn to best fit the data as a correlation coefficient was not calculated because 60% of the samples were not determined for Th by neutron activation. The correlation coefficient shown here was calculated on only the neutron activation data - no qualified data were used.

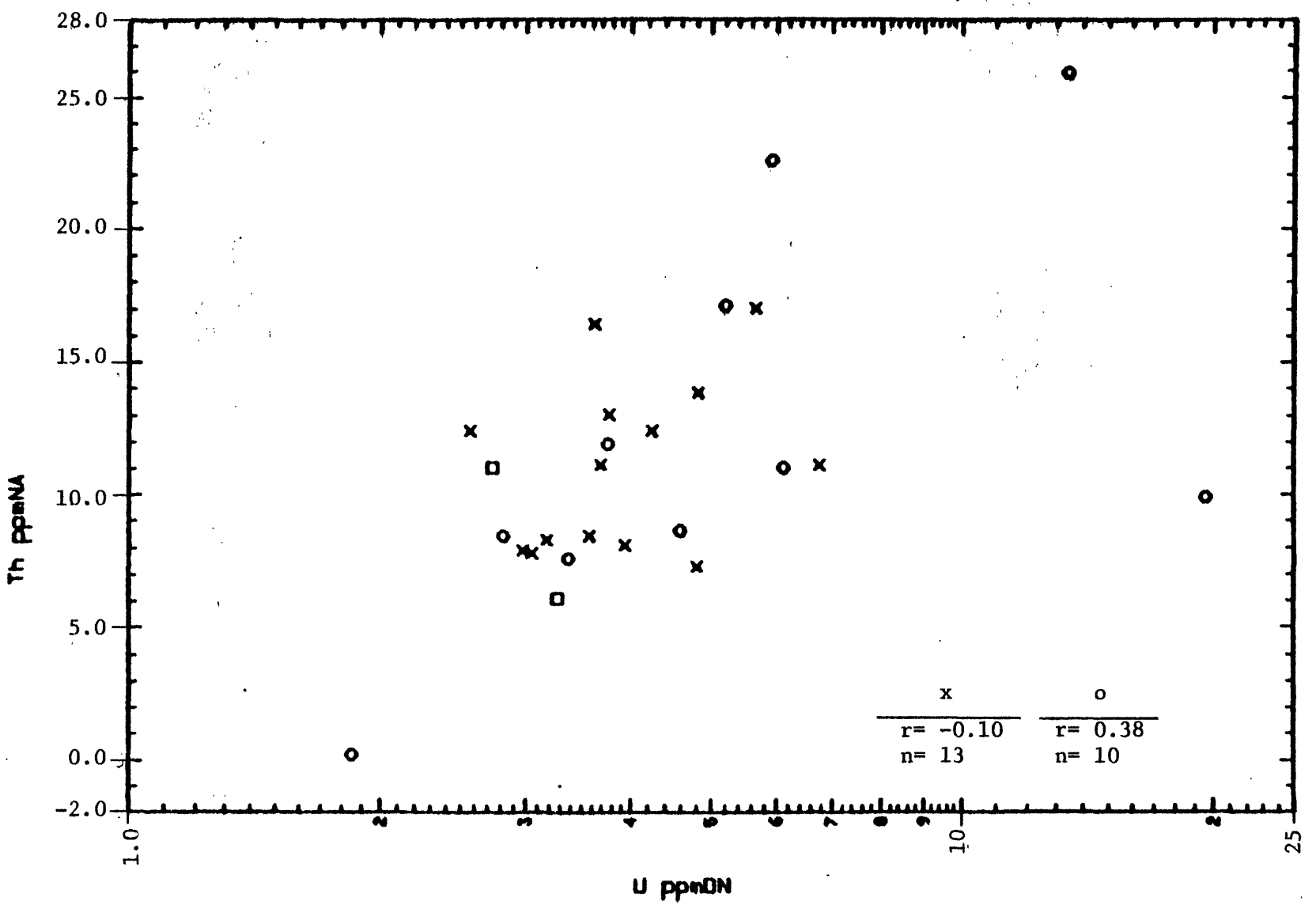

Figure 2-U.--Scatter diagram of U versus Th for monchiquite (x), limburgite tuff (o) and clastic (□) samples. The correlation coefficients were calculated on only the neutron activation data--no qualified data were used.

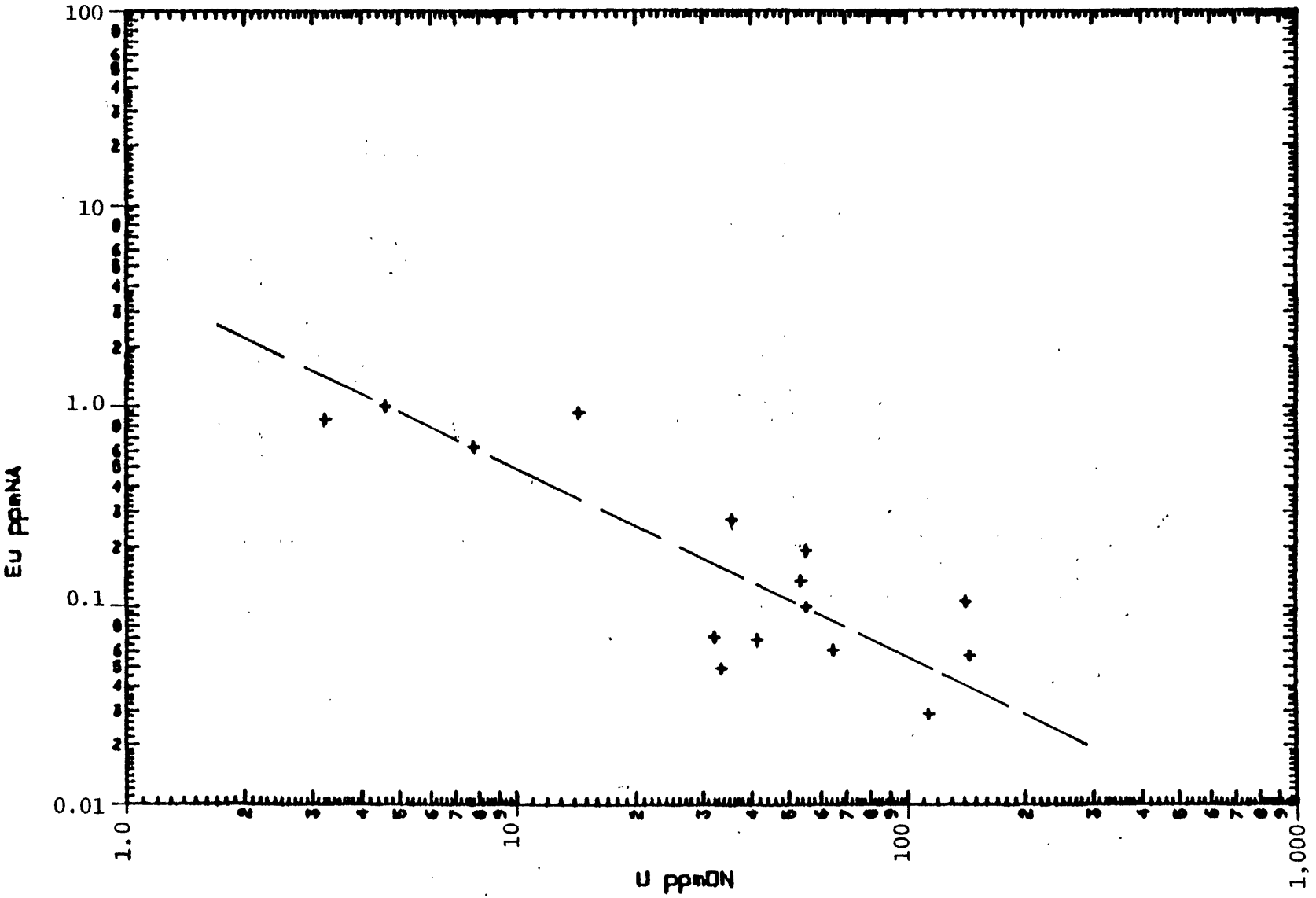

Figure 2-V.--Scatter diagram of U versus Eu for travertine (+) samples. Regression line is hand drawn to best fit the data as a correlation coefficient was not calculated because >60% of the samples were not determined for Eu by neutron activation.

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