

Geology
GJBX-113-113

GJBX-113 '78

**AERIAL RADIOMETRIC AND MAGNETIC
RECONNAISSANCE SURVEY
OF THE
EAGLE-DILLINGHAM AREA, ALASKA
BIG DELTA QUADRANGLE**

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VOLUME 2-D

**TEXAS INSTRUMENTS INCORPORATED
Dallas, Texas**

June 1978

**WORK PERFORMED UNDER
BENDIX FIELD ENGINEERING CORPORATION
GRAND JUNCTION OPERATIONS, GRAND JUNCTION, COLORADO
Subcontract No. 77-060-L and Bendix Contract EY-76-C-13-1664**

**PREPARED FOR THE
U.S. DEPARTMENT OF ENERGY
Grand Junction, Colorado 81501**

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Texas Instruments Incorporated
Airborne Geophysical Services
P.O. Box 225621 Mail Station 975
Dallas, Texas 75265

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ABSTRACT

The results of a high-sensitivity aerial gamma-ray spectrometer and magnetometer survey of the Big Delta Quadrangle, Alaska, are presented. Instrumentation and methods are described in Volume 1 of this final report. This work was done by Texas Instruments Incorporated under Bendix Field Engineering Corporation Subcontract No. 77-060-L as part of the U.S. Department of Energy National Uranium Resource Evaluation (NURE) Program.

Statistical and geological analysis of the radiometric data revealed two uranium anomalies worthy of field checking as possible prospects. One is located over Tertiary-Mesozoic granite which is believed to have the best potential for future economic uranium deposits. The other uranium anomaly is associated with Paleozoic-Precambrian (PzPc) schist and may be related to an unmapped granitic intrusion within it.



NARRATIVE

NARRATIVE

SECTION I INTRODUCTION

A. GENERAL

This volume contains information and survey results pertaining specifically to the Big Delta NTMS 1:250,000 scale Quadrangle, one of a group of 13 such quadrangles, portions of the region between Eagle and Dillingham, Alaska, included in an aerial radiometric and magnetic reconnaissance survey. Information of a general nature concerning the instrumentation and methods used in data acquisition, processing, and interpretation is presented in Volume 1 of this final report.

The survey was conducted by Texas Instruments Incorporated under Bendix Field Engineering Corporation Subcontract No. 77-060-L as part of the U.S. Department of Energy National Uranium Resource Evaluation (NURE) Program.

B. URANIUM GEOLOGY AND OCCURRENCES

1. Uranium Occurrences

Wedow and Matzko (1947, in Eakins, 1975) reported 0.004 percent eU from granite and 0.02 percent eU in the heavy-mineral fraction from a placer deposit in the Harding Lake-Richardson area to the northwest of Big Delta.

There are no reported uranium deposits in the Big Delta Quadrangle (Eakins, 1969; 1975; Cobb, 1970).

2. Geologic Mapping

The geologic map used for the survey of the Big Delta Quadrangle was adapted mainly from the preliminary geologic map of the southeast quadrant of Alaska (Beikman, 1974) using photogeologic interpretation of 1:250,000 scale LANDSAT imagery. Also used were the reconnaissance geologic map of the Big Delta A-1 and B-1 Quadrangles (Weber et al., 1975) and the preliminary engineering geologic maps of the proposed trans-Alaska pipeline route (Weber, 1971). Table T-1 (TABLES Section) lists the mapped geologic units for both the Big Delta and Mt. Hayes Quadrangles, which constituted a single geologic cell in the interpretation of the gamma-ray data.

This quadrangle is part of the Yukon-Tanana Upland located north of the Denali Fault. Rocks exposed here include mainly Paleozoic-Precambrian metamorphic rocks and a series of Tertiary-Mesozoic intrusives.

3. Potential Uranium-Bearing Units

a. Deposits Associated With Igneous Rocks

Tertiary-Mesozoic intrusives in the eastern part of the quadrangle are probably related to the Mesozoic granites of the Eagle Quadrangle. Eakins (1975) suggested that these granites,

which include diorite and related rocks, have potential as host rocks for vein-type uranium. Eakins concluded that descriptions of most rocks older than Cretaceous do not suggest that they would be favorable hosts for uranium. However, he does recommend that any study of the uranium content of the Yukon-Tanana Paleozoic-Precambrian granitic gneisses should start with the gneiss mapped as "augen gneiss" on Foster's (1970, 1972) geologic maps of the Tanacross and Eagle Quadrangles.

b. Deposits Associated With Sediments

The middle Tanana Basin to the south of the Tanana River contains nonmarine Tertiary sandstones, volcanic ash, and coal. However, Eakins (1975) considers the uranium potential of the Tanana Basin to be problematical; the source of the sediments may have been as far distant from the lowlands as Livengood, and some of the source areas contain granitic rocks. The very shallow water table (0 to 50 feet) in the valleys is an unfavorable factor for the occurrence of sedimentary uranium (Eakins, 1975).

SECTION II
RADIOMETRIC DATA INTERPRETATION

A. SELECTION OF URANIUM ANOMALIES

1. Statistical Considerations

Each of the equivalent uranium, equivalent uranium/equivalent thorium, and equivalent uranium/potassium data sets was computer processed to identify and outline all individual, or groups, of statistically high data points on the following basis. If a single statistically high point is considered in terms of multiples of the standard deviation above the mean (i.e., significance factor), the probability that its value was caused by random variation of the background is shown in Table 2-1.

TABLE 2-1. PROBABILITY THAT A SINGLE STATISTICALLY HIGH POINT IS CAUSED BY RANDOM DEVIATIONS*

| Point Value | Probability |
|------------------------------|-----------------|
| Mean + 1 standard deviation | 0.1587 or 1:6.3 |
| Mean + 2 standard deviations | 0.0228 or 1:44 |
| Mean + 3 standard deviations | 0.0013 or 1:768 |

*A probability is determined as the area under the standardized normal distribution curve above the indicated value.

The maximum probability of 1:768 was used to judge the reliability of single, isolated, statistically high points in the data interpretation.

Spatial groupings of statistically high values are less probable than is a scattering of the same values over the map unit. If a spatial grouping consists of adjacent statistically high points, the probability (P) that all the points were caused by random fluctuations is:

$$P = P_1 \cdot P_2 \cdot P_3 \dots P_n$$

where P_1, P_2, \dots, P_n represent the single-point probabilities for n points.

Assuming the same certainty criterion of 1:768, Table 2-2 gives the minimum requirements for all adjacent points in a reliable anomaly. This allows groups of statistically high (or low) points more than 0.87 standard deviation from the mean to be evaluated.

2. Uranium Anomalies

Data for the Big Delta Quadrangle, including eU,* eU/eTh,* and eU/K,* were searched by the computer and all acceptable significant anomalies were identified. These were printed out on the "preferred-anomaly" map (Figure 2-1) as asterisk symbols for each data point constituting a

*eU = Equivalent uranium measured by bismuth-214.
eTh = Equivalent thorium measured by thallium-208.
K = Potassium measured by potassium-40.

TABLE 2-2. MINIMUM DEVIATION FROM THE MEAN FOR ALL POINTS FOR LIMITING PROBABILITY OF 1:768 (Elkins, 1940)

| Number of Points Supporting Anomaly | Minimum Deviation |
|-------------------------------------|--------------------------|
| 1 | 3.00 standard deviations |
| 2 | 1.79 standard deviations |
| 3 | 1.22 standard deviations |
| 4 | 0.87 standard deviation |

valid anomaly. The eU anomalies are indicated by asterisks along the flight line, and eU/eTh anomalies are shown by asterisks N of E-W flight lines and E of N-S flight lines. The eU/K anomalies are indicated by asterisks S of E-W flight lines and W of N-S flight lines.

Next, those eU anomalies that showed a geochemical enrichment of eU over the eTh and/or K present were identified. First-priority anomalies are those that show simultaneous statistically valid eU, eU/eTh, and eU/K anomalies. The preferred-anomaly map (Figure 2-1) has been marked to indicate the locations of all first-priority anomalies, and they are described in Table 2-3.

The data user can outline these anomalies on the appropriate profile maps to evaluate more quantitatively the relative magnitudes of the anomalies. The profile maps also are useful in delineating areas relatively depleted of uranium by geochemical activity to be concentrated in nearby deposits. Recent study has shown that the Gas Hills and Shirley Basin uranium districts are accompanied by uranium-barren altered areas detectable by aerial gamma-ray spectrometry (Texas Instruments, 1977).

Second-priority anomalies that, under special circumstances, may indicate potential uranium prospects are those which show only a combination of two statistically valid anomalies out of the three parameters, eU, eU/eTh, and eU/K. These are easily identifiable on the preferred-anomaly map. Examples of special situations where second-priority anomalies can be important indicators of uranium prospects are given in Table 2-4.

B. DATA TABLES AND HISTOGRAMS

1. General

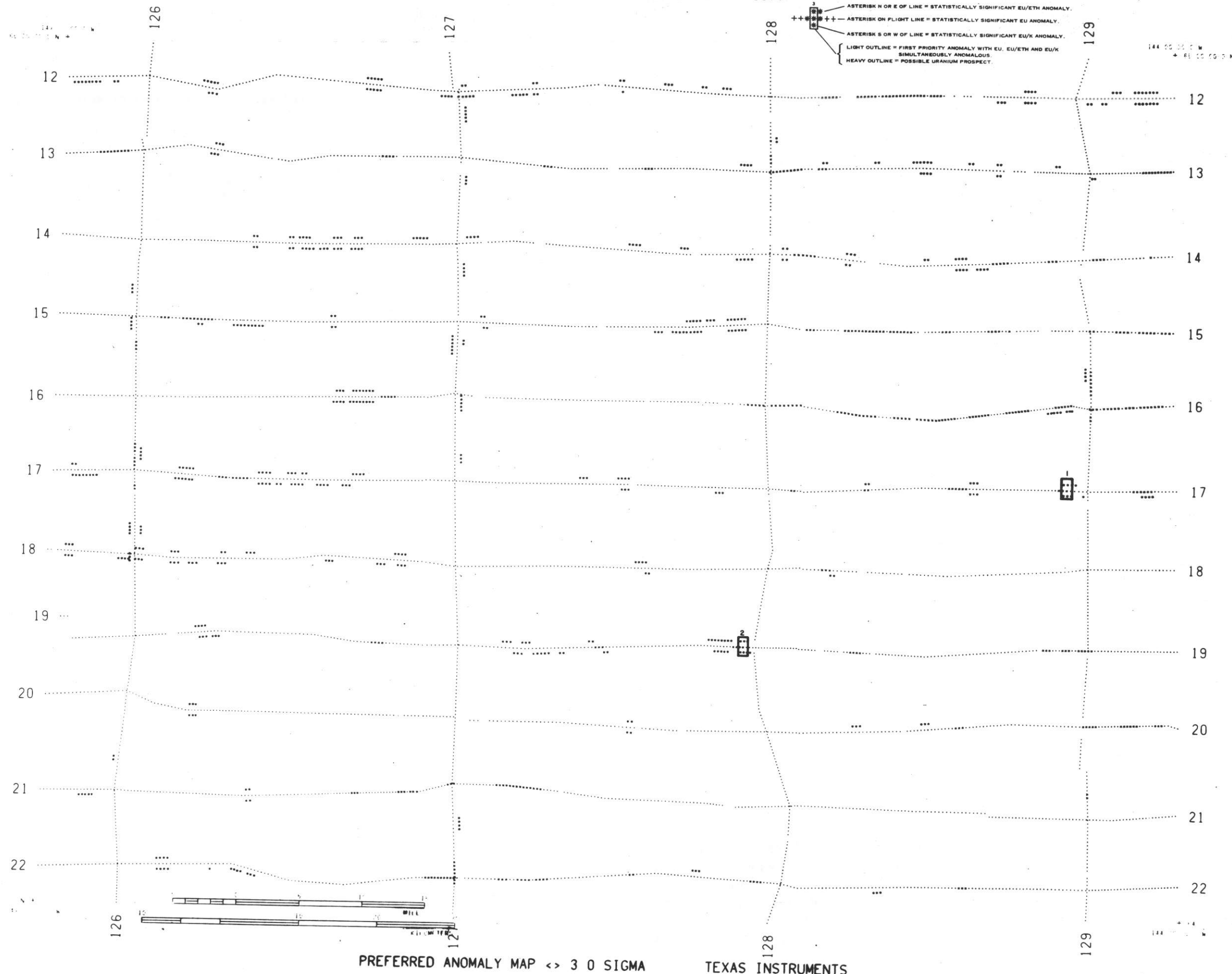
Microfiche copies of the single-record and averaged-record data listings are included in Volume 1 of this report. Statistical summary tables, flight-line mean values, and histograms for

TABLE 2-3. PREFERRED eU ANOMALIES—BIG DELTA QUADRANGLE

| Anomaly No. | Line No. | Geologic Unit(s) | Highest eU S.F.* | Number of Averaged Records | Remarks |
|-------------|----------|------------------|------------------|----------------------------|--|
| ① | 17 | TMzu | 1.5 | 2 | Possible U prospect |
| ② | 19 | PzpC | 1.5 | 2 | Possible granite outcrop or U prospect |

* Significance factor (from eU profile map, M-2; recorded to nearest 0.5 unit)
 ○ = Possible uranium prospect.

BIG DELTA EAGLE-DILLINGHAM 1977



PREFERRED ANOMALY MAP <> 3 0 SIGMA TEXAS INSTRUMENTS

Figure 2-1. Preferred Anomaly Map

TABLE 2-4. EXAMPLES OF POTENTIALLY IMPORTANT SECOND-PRIORITY ANOMALIES (Texas Instruments, 1977)

| Valid Anomalies | No Anomaly | Locality Description |
|-----------------|------------|---|
| eU + eU/K | eU/eTh | Shirley Basin, Wyoming; high thorium due to surface layer of monazite yields normal eU/eTh even in areas where eU is anomalously high. |
| eU + eU/eTh | eU/K | Regions with surface evaporite deposits rich in potash yield normal eU/K even when eU is anomalously high. |
| eU/eTh + eU/K | eU | Areas of water-saturated surface material or heavy vegetation can shield eU, eTh, and K radiations simultaneously, but the ratios will still reflect the hidden relative eU enrichment. |

the gamma-ray parameters are presented by geologic unit in this volume. Further explanatory details are given in Volume 1.

2. Statistical Summary Tables

Tables showing the distribution types, statistical parameters, and number of samples for each geologic formation are presented for eU, eTh, K, eU/eTh, eU/K, and eTh/K in the TABLES Section. These are useful in studying the magnitudes and variations of the radioactivity of the formations relative to one another and to the normal U, Th, and K abundances in the lithologic types presented. Approximate conversion factors from counts per second to concentration units are given in Table 2-5.

Examination of the Statistical summary tables shows TMzg-2 (Tertiary-Mesozoic granites), TMzg-3 (Tertiary-Mesozoic alkali igneous rocks), and Mzg-2 (Mesozoic alkali igneous rocks) to have the highest median eU contents. None of the other units has eU values that are abnormally high for its lithology (see also Subsection II.B.4).

3. Flight-Line Averages

Mean values for eU, eTh, K, eU/eTh, eU/K, and eTh/K by geologic unit for each flight line in the Big Delta Quadrangle are given in the TABLES Section. These may be used to study the variation in gamma-ray parameters within a formation as one crosses the quadrangle from N to S or from E to W.

4. Histograms

Histograms for each radiometric parameter are presented for each geologic unit in the HISTOGRAMS Section. Several histograms showed multimodal distributions which indicated the presence of more than one distinct lithology in that geologic unit. In situations where the multimodal characteristic of a histogram was obvious, the unit was divided into two or more populations by splitting the histogram, based on eTh or K but not eU. For example, in the case of Tertiary-Mesozoic granite (TMzg) the eTh histogram could be reasonably split at two points.

TABLE 2-5. CALIBRATION CONSTANTS*

| Element | Constant |
|---------|--------------|
| eU | 10.5 cps/ppm |
| eTh | 4.7 cps/ppm |
| K | 81.3 cps/% |

*Based on Lake Mead Test Strip calibration of 25 May 1977.

The distribution of the unsplit unit is shown in H-15, and the distributions after splitting are shown in H-16 to H-18. New means and standard deviations were calculated before computerized geologic analysis of the data. Table 2-6 summarizes all the histogram splits for the quadrangle. The eU, eTh, and K medians for the resulting subunits are given in concentration units computed from the Statistical Summary Tables and the calibration constants in Table 2-5. Comparing the values in Table 2-6 to the estimated crustal averages for various rock types (Table 2-7) compiled by Kogan et al. (1971; see also Saunders and Potts, 1978) allows at least a reasonable guess as to the probable average lithology of the units. For example, the geologic unit TMzg (Tertiary-Mesozoic granites) probably includes a wide range of igneous intrusions from alkalic igneous rocks (TMzg-3) to intermediate igneous rocks (TMzg-1). Bohse et al. (1974) and Sorenson (1970) discuss the behavior of U and Th during magma crystallization.

TABLE 2-6. RADIOMETRIC ANALYSIS OF SELECTED MAP UNITS

| Geologic Unit | Split on (cps) | Median Values | | | eTh/eU | Probable Lithology |
|---------------|----------------|---------------|----------|------|--------|--------------------------|
| | | eU(ppm) | eTh(ppm) | K(%) | | |
| Q-1 | K = 180 | 2.1 | 5.4 | 0.81 | 2.6 | Calcareous sand |
| Q-2 | | 3.5 | 12.8 | 2.53 | 3.7 | Sand |
| Q'-1 | K = 120 | 1.7 | 4.2 | 0.66 | 2.5 | Calcareous sand |
| Q'-2 | | 3.3 | 9.7 | 1.72 | 2.9 | Sand (wet) |
| Tf-1 | K = 137 | 2.2 | 6.4 | 0.97 | 2.9 | Dacite |
| Tf-2 | | 4.1 | 17.0 | 2.56 | 4.1 | Rhyolite |
| TMzg-1 | Th = 105 | 2.8 | 9.3 | 1.59 | 3.3 | Diorite |
| TMzg-2 | Th = 135 | 7.7 | 25.2 | 3.25 | 3.3 | Quartz monzonite |
| TMzg-3 | | 11.7 | 32.9 | 4.19 | 2.8 | Alkalic igneous rocks |
| TMzg'-1 | K = 100 | 1.8 | 4.9 | 0.67 | 2.7 | Diorite (wet) |
| TMzg'-2 | K = 215 | 3.4 | 13.4 | 2.10 | 3.9 | Granite (wet) |
| TMzg'-3 | | 4.5 | 19.9 | 3.05 | 4.4 | Granite |
| TMzu-1 | K = 140 | 2.0 | 6.7 | 1.13 | 3.4 | Diorite |
| TMzu-2 | | 3.4 | 14.0 | 2.52 | 4.1 | Granite |
| Mzg-1 | K = 240 | 3.5 | 15.2 | 2.32 | 4.3 | Diorite-granodiorite |
| Mzg-2 | | 5.8 | 25.2 | 3.68 | 4.3 | Alkalic igneous rocks |
| Um-1 | K = 35 | 0.7 | 1.2 | 0.20 | 5.2 | Ultramafic igneous rocks |
| Um-2 | | 2.0 | 6.0 | 0.92 | 3.0 | Mafic igneous rocks |

TABLE 2-7. AVERAGE U, Th, K CONTENT OF ROCKS
(after Kogan et al., 1971)

| Rock Type | U (ppm) | Average Values | | Th/U |
|--------------------------------|------------|----------------|----------|------|
| | | Th (ppm) | K (%) | |
| Continental Crust | 2.5 | 13.0 | 2.5 | 5.2 |
| Igneous Rocks | | | | |
| Acidic (granites) | 3.5 | 18.0 | 3.34 | 5.1 |
| Intermed. (diorites) | 1.8 | 7.0 | 2.31 | 4.0 |
| Basic (basalt-gabbro) | 0.5 | 3.0 | 0.83 | 6.0 |
| Ultrabasic (dunite-peridotite) | 0.003 | 0.005 | 0.03 | 1.7 |
| Sediments | | | | |
| Shale, clay | 4.0 | 11.0 | 3.2 | 2.8 |
| Sandstone | 3.0 | 10.0 | 1.2 | 3.3 |
| Limestone | 1.4 | 1.8 | 0.3 | 1.3 |
| Evaporite | 0.1 | 0.4 | 0.1 | 4.0 |

C. MAPS AND PROFILES

1. General

Explanatory details concerning the generation and presentation of maps and profiles are given in Volume 1.

2. Profile Maps

Profile maps showing the significance-factor levels for eU, eTh, K; eU/eTh, eU/K, and eTh/K on geologic bases are presented in the MAPS Section, along with a map showing the record locations and geology (M-1 through M-7). These may be compared directly with the preferred-anomaly map (Figure 2-1) to determine the relative strengths of the eU, eU/eTh, and eU/K anomalies and their geologic locations. They are also useful in studying the geographic variations in the other radiometric parameters.

3. Radiometric Stacked Profiles

Stacked profiles showing the variation in absolute magnitudes of eU, eTh, K, eU/eTh, eU/K, and eTh/K, as well as gross count, residual magnetic field, terrain clearance, eU-air values, and geology along each flight line are presented in the PROFILES section (P-1 through P-15). This presentation provides a convenient way of examining simultaneously all the data at each averaged-record location. The data, as shown, are not corrected for geology (as in the case with the profile maps) and provide an opportunity to study the relative differences in counting rate among the geologic units.

The altitude (terrain-clearance) trace allows identification of portions of flight lines where terrain-clearance requirements were exceeded and the data were discarded in the statistical processing. The averaged-record locations are flagged along the baseline. The eU, eTh, and K

TABLE 2-8. GEOLOGIC UNITS
WITH eU ANOMALIES

| Geologic | Number of First-Priority Anomalies | Total Number of eU Records in Unit |
|----------|--|--|
| Q | — | 5,850 |
| Q' | — | 9,257 |
| Tn | — | 630 |
| Tf | — | 230 |
| Tkg | — | 894 |
| TMzg | — | 928 |
| TMzg' | — | 100 |
| TMzu | 1 | 1,217 |
| Mzg | — | 60 |
| Pz | — | 5,805 |
| PzpE | 1 | 18,117 |
| PzpE' | — | 618 |
| Um | — | 495 |
| PzpEg | — | 50 |
| PzpEg' | — | 10 |

traces are similarly flagged for data discarded because of Currie significance test failure. The discarded data points are included in the stacked profiles and may be examined, keeping in mind that they are generally statistically unreliable. If the rock types are sufficiently radioactive, normal terrain clearance may be exceeded somewhat with reasonably reliable data statistics, and the added information may be useful.

2. Uraniferous Provinces

There are no clear groupings of first- and second-priority anomalies to suggest any uranium provinces.

3. Suggestions for Further Work

Follow-up studies should include ground checks of the most promising eU anomalies as well as checks of second-priority eU/eTh + eU/K anomalies to determine if the lack of eU anomalies is caused by vegetative or shallow-groundwater shielding of gamma-rays emanating from possible prospects or uranium source rocks.

If the ground checks prove fruitful, it could be advantageous to fly detailed aerial radiometric surveys over the areas surrounding the most promising anomalies. This survey covered only a small percentage of the surface and closer line spacing would delineate all anomalies that might represent potential uranium deposits.

Summary discussions of possible follow-up exploration methods are presented by Saunders and Potts (1978).

4. Magnetic Stacked Profiles

The single-record (unaveraged) data on flight-level air temperature, flight-level barometric pressure, average terrain clearance, diurnal magnetics, residual total magnetic field, and geology are shown for each flight line in the PROFILES Section (P-16 through P-30).

D. CONCLUSIONS

1. General

Table 2-8 lists the number of first-priority anomalies and the total number of eU records in each formation. Both of the

SECTION III
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TABLES

TABLES

TABLE T-1. GEOLOGIC MAP UNITS—BIG DELTA QUADRANGLE

| Computer Symbol | Map Symbol | Description |
|-----------------------------|------------|---|
| Quaternary | | |
| Q | Q | <u>Undifferentiated Quaternary Deposits</u> : Includes unconsolidated sand, gravel and silt; alluvium of streams, glacial moraines, outwash gravel, and the marine Bootlegger clay. |
| QG | Qg | <u>Glaciers</u> : Areas of active glaciation. |
| Tertiary Sedimentary | | |
| TN | Tn | <u>Nenana Gravel</u> : Continental deposits. Includes poorly consolidated pebble to boulder conglomerate and coarse sandstone, with interbedded mudflows, claystone, and local thin lignite beds. |
| TC | Tc | <u>Cantwell Formation</u> : Continental deposits. Includes interbedded sand, gravel, and clay and may include the Nenana gravel. |
| TS | Ts | <u>Cantwell Formation</u> : Includes numerous beds of coal locally. |
| TKC | TKc | <u>Tertiary and Upper Cretaceous Conglomerate</u> : Continental deposits. Includes breccia, sandstone, mudstone, shale, tuffaceous sediments, and conglomerate. |
| Intrusives | | |
| TF | Tf | <u>Felsic Rocks</u> : Plugs and sills composed of porphyritic rhyolite, dacite, and latite. |
| TG | Tg | <u>Granitic Rocks</u> : Quartz diorite to granite. |
| TKG | TKg | <u>Tertiary-Cretaceous Granitic Rocks</u> : Quartz diorite to granite. |
| TMZG | TMzg | <u>Tertiary-Mesozoic Granitic Rocks</u> : Includes quartz monzonite, granodiorite, and quartz diorite with subordinate granite and diorite. |
| TMZU | TMzu | <u>Tertiary-Mesozoic Undifferentiated Granitic Rocks</u> : Includes quartz monzonite and granodiorite |
| Mesozoic Sedimentary | | |
| UMZ | uMz | <u>Undifferentiated Mesozoic Rocks</u> : Mainly Cretaceous and Jurassic argillite, shale, graywacke, conglomerate, lava, tuff, and agglomerate; some rocks metamorphosed to the amphibolite facies. |

TABLE T-1. GEOLOGIC MAP UNITS—BIG DELTA QUADRANGLE (Continued)

| Computer Symbol | Map Symbol | Description |
|---|------------|---|
| Mesozoic Sedimentary (continued) | | |
| MZPZ | MzPz | <u>Mesozoic-Paleozoic Rocks</u> : Undifferentiated sedimentary rocks with interstratified volcanic rocks and many intrusives; chiefly hard limy argillite, hard sandy or tuffaceous beds, limy grit or conglomerate, limestone, sandstone or quartzite, volcanic breccias, and limy tuff; many intrusive dikes and sills. |
| Intrusive | | |
| MZG | Mzg | <u>Granites</u> : Light colored, coarse-grained diorite, quartz diorite, and related intrusives; markedly porphyritic in places. |
| MZI | Mzi | <u>Intrusive Rocks</u> : Includes gabbro, basalt, and basaltic breccia. |
| MZPZI | MzPzi | <u>Mesozoic-Paleozoic Intrusives</u> : Undifferentiated crystalline rocks of various types, with diorite, basic intrusive rocks, lavas, and tuffs. |
| Extrusive | | |
| TRV | Trv | <u>Triassic Volcanics</u> : Includes amygdaloidal basaltic lava, chabase, and intercalated tuffaceous and shaly beds. Includes nikolai greenstone. |
| MZV | Mzv | <u>Volcanics</u> : Of uncertain age and type. |
| Permian | | |
| PL | Pl | <u>Limestone</u> |
| PS | Ps | <u>Sediments</u> : Includes shale, arkosic sandstone and conglomerate, with basaltic flows and intrusives. |
| Paleozoic | | |
| PZ | Pz | <u>Undifferentiated Rocks</u> : North of McKinley Strand—Denali Fault. It includes lower paleozoic rocks from Cambrian to Devonian: argillite, graywacke, phyllite, quartzite, slate, limestone, and chert. South of the fault, it includes rocks of Permian to Precambrian age including slate, argillite, conglomerate, volcanics, intrusions, schist, and limestone. |
| PZL | Pzl | <u>Limestone</u> |

TABLE T-1. GEOLOGIC MAP UNITS—BIG DELTA QUADRANGLE (Continued)

| Computer Symbol | Map Symbol | Description |
|------------------------------|------------|--|
| Paleozoic (continued) | | |
| PZV | Pzv | <u>Volcanic Rocks</u> : Includes greenstones, with minor quartzite chert and phyllite; also amygdaloidal basalts, tuffs, and intrusives; may include some shale. |
| PZU | Pzu | <u>Ultramafic Rocks</u> : Metamorphosed. Chiefly altered peridotite. |
| PZPC | PzpC | <u>Paleozoic—Precambrian Rocks</u> : Undifferentiated, chiefly schist derived from argillaceous and quartzite rocks. |
| PZPCG | PzpCg | <u>Paleozoic—Precambrian Gneiss</u> : Includes augen gneiss and biotite gneiss derived from metamorphism of granitic intrusive rocks. |
| Precambrian | | |
| UM | Um | <u>Ultramafic Rocks</u> : Includes dunite, serpentinite and peridotite of uncertain age. |

TABLE T-2. STATISTICAL SUMMARIES

| GEOLOGIC UNIT | DISTRIBUTION TYPES OF GAMMA-RAY PARAMETERS | | | | | |
|---------------|--|------|------|------|------|------|
| | TH | U | K | U/K | U/TH | TH/K |
| Q-1 | LN | N | LN | LN | LN | LN |
| Q-2 | LN | N | LN | N | N | LN |
| Q'-1 | N | N | N | LN | LN | LN |
| Q'-2 | LN | N | LN | LN | LN | LN |
| TN | LN | N | N | LN | LN | LN |
| TMZU-1 | N | LN | N | LN | LN | N |
| TMZU-2 | N | N | N | LN | LN | N |
| TF-1 | LN | LN | LN | N | N | LN |
| TF-2 | N | LN | N | LN | LN | LN |
| TKG | LN | N | LN | LN | LN | N |
| TMZG-1 | LN | LN | LN | LN | LN | LN |
| TMZG-2 | LN | N | N | N | N | N |
| TMZG-3 | LN | N | N | N | LN | N |
| TMZG'-1 | LN | LN | LN | N | LN | LN |
| TMZG'-2 | (LN) | (LN) | (LN) | (LN) | (LN) | (LN) |
| TMZG'-3 | LN | LN | LN | N | N | LN |
| MZG-1 | (LN) | (LN) | (LN) | (LN) | (LN) | (LN) |
| MZG-2 | LN | LN | LN | LN | N | N |
| PZ | LN | LN | LN | LN | LN | LN |
| PZPC | LN | N | LN | LN | LN | N |
| PZPC' | LN | LN | LN | LN | LN | LN |
| UM-1 | LN | LN | LN | LN | LN | LN |
| UM-2 | LN | N | LN | N | N | N |
| PZPCG | LN | N | N | LN | N | N |
| PZPCG' | (LN) | (LN) | (LN) | (LN) | (LN) | (LN) |

GEOLOGIC UNITS ARE ABBREVIATIONS. FOR ACTUAL NAMES AND DESCRIPTIONS SEE TEXT.
 N=NORMAL; LN=LOGNORMAL. (LN) INDICATES ASSUMED DISTRIBUTION TYPE; INSUFFICIENT
 DATA AVAILABLE FOR VALID STATISTICAL TEST

TABLE T-2. STATISTICAL SUMMARIES (Continued)

| STATISTICAL SUMMARY FOR THORIUM | | | | | | | | |
|---------------------------------|--------------|---------|---------|---------|---------|---------|---------|---------|
| GEOL UNIT | NUM. SAMPLES | -3 S.D. | -2 S.D. | -1 S.D. | MEDIAN | +1 S.D. | +2 S.D. | +3 S.D. |
| Q-1 | 5669. | 7.090 | 10.824 | 16.524 | 25.228 | 38.515 | 58.800 | 89.769 |
| Q-2 | 181. | 34.211 | 41.339 | 49.951 | 60.358 | 72.933 | 88.128 | 106.488 |
| Q'-1 | 8978. | -1.302 | 5.734 | 12.770 | 19.805 | 26.841 | 33.877 | 40.913 |
| Q'-2 | 274. | 32.816 | 36.658 | 40.950 | 45.745 | 51.100 | 57.083 | 63.766 |
| TN | 630. | 9.266 | 11.385 | 13.987 | 17.186 | 21.115 | 25.942 | 31.874 |
| TMZU-1 | 1026. | 13.176 | 19.725 | 26.274 | 32.823 | 39.372 | 45.921 | 52.470 |
| TMZU-2 | 191. | 20.110 | 35.202 | 50.295 | 65.388 | 80.481 | 95.574 | 110.667 |
| TF-1 | 104. | 11.901 | 16.175 | 21.985 | 29.882 | 40.615 | 55.203 | 75.031 |
| TF-2 | 126. | 43.401 | 55.583 | 67.765 | 79.946 | 92.128 | 104.309 | 116.491 |
| TKG | 894. | 16.047 | 22.699 | 32.108 | 45.419 | 64.247 | 90.880 | 128.554 |
| TMZG-1 | 745. | 12.125 | 18.578 | 28.467 | 43.620 | 66.838 | 102.415 | 156.929 |
| TMZG-2 | 95. | 97.559 | 104.038 | 110.948 | 118.317 | 126.175 | 134.555 | 143.491 |
| TMZG-3 | 88. | 118.638 | 129.589 | 141.551 | 154.618 | 168.890 | 184.480 | 201.509 |
| TMZG'-1 | 50. | 15.364 | 17.620 | 20.207 | 23.174 | 26.577 | 30.479 | 34.954 |
| TMZG'-2 | 20. | 44.886 | 50.205 | 56.154 | 62.808 | 70.251 | 78.575 | 87.886 |
| TMZG'-3 | 30. | 72.280 | 78.708 | 85.706 | 93.327 | 101.626 | 110.663 | 120.503 |
| MZG-1 | 18. | 49.091 | 55.675 | 63.142 | 71.611 | 81.215 | 92.108 | 104.462 |
| MZG-2 | 42. | 54.124 | 70.278 | 91.254 | 118.490 | 153.855 | 199.775 | 259.401 |
| PZ | 5818. | 6.764 | 11.086 | 18.171 | 29.783 | 48.817 | 80.015 | 131.151 |
| PZPC | 18138. | 9.971 | 15.112 | 22.903 | 34.711 | 52.608 | 79.730 | 120.837 |
| PZPC' | 644. | 2.576 | 4.510 | 7.897 | 13.826 | 24.207 | 42.382 | 74.204 |
| UM-1 | 128. | 1.817 | 2.647 | 3.858 | 5.621 | 8.191 | 11.935 | 17.390 |
| UM-2 | 367. | 8.592 | 12.775 | 18.996 | 28.246 | 42.001 | 62.453 | 92.865 |
| PZPCG | 50. | 25.538 | 30.542 | 36.526 | 43.684 | 52.243 | 62.480 | 74.722 |
| PZPCG' | 10. | 37.340 | 38.250 | 39.182 | 40.137 | 41.115 | 42.117 | 43.144 |

| STATISTICAL SUMMARY FOR URANIUM | | | | | | | | |
|---------------------------------|--------------|---------|---------|---------|---------|---------|---------|---------|
| GEOL UNIT | NUM. SAMPLES | -3 S.D. | -2 S.D. | -1 S.D. | MEDIAN | +1 S.D. | +2 S.D. | +3 S.D. |
| Q-1 | 5669. | 2.151 | 8.806 | 15.461 | 22.116 | 28.771 | 35.426 | 42.081 |
| Q-2 | 181. | 2.809 | 14.215 | 25.621 | 37.027 | 48.433 | 59.839 | 71.245 |
| Q'-1 | 8983. | 1.382 | 6.798 | 12.214 | 17.631 | 23.047 | 28.463 | 33.879 |
| Q'-2 | 274. | 16.484 | 22.470 | 28.456 | 34.443 | 40.429 | 46.416 | 52.402 |
| TN | 630. | 5.888 | 8.979 | 12.070 | 15.161 | 18.253 | 21.344 | 24.435 |
| TMZU-1 | 1026. | 10.119 | 13.059 | 16.853 | 21.749 | 28.068 | 36.223 | 46.747 |
| TMZU-2 | 191. | 10.348 | 18.550 | 26.751 | 34.953 | 43.154 | 51.356 | 59.557 |
| TF-1 | 104. | 13.131 | 15.942 | 19.355 | 23.499 | 28.530 | 34.637 | 42.052 |
| TF-2 | 126. | 17.415 | 23.502 | 31.717 | 42.802 | 57.762 | 77.950 | 105.194 |
| TKG | 894. | 1.553 | 12.735 | 23.918 | 35.100 | 46.282 | 57.464 | 68.647 |
| TMZG-1 | 745. | 10.968 | 15.268 | 21.253 | 29.584 | 41.182 | 57.325 | 79.798 |
| TMZG-2 | 95. | 19.464 | 39.265 | 60.067 | 80.868 | 101.670 | 122.471 | 143.272 |
| TMZG-3 | 88. | 45.166 | 70.886 | 96.606 | 122.327 | 148.047 | 173.767 | 199.487 |
| TMZG'-1 | 50. | 13.421 | 15.035 | 16.842 | 18.866 | 21.134 | 23.675 | 26.520 |
| TMZG'-2 | 20. | 26.013 | 28.862 | 32.022 | 35.528 | 39.418 | 43.734 | 48.523 |
| TMZG'-3 | 30. | 38.925 | 41.410 | 44.054 | 46.867 | 49.859 | 53.043 | 56.429 |
| MZG-1 | 18. | 28.758 | 31.128 | 33.693 | 36.469 | 39.474 | 42.727 | 46.247 |
| MZG-2 | 42. | 23.698 | 32.536 | 44.671 | 61.332 | 84.206 | 115.613 | 158.733 |
| PZ | 5805. | 6.983 | 10.269 | 15.100 | 22.204 | 32.652 | 48.014 | 70.605 |
| PZPC | 18117. | -1.834 | 7.317 | 16.467 | 25.617 | 34.768 | 43.918 | 53.068 |
| PZPC' | 618. | 2.940 | 4.734 | 7.624 | 12.279 | 19.775 | 31.846 | 51.288 |
| UM-1 | 128. | 1.478 | 2.533 | 4.341 | 7.438 | 12.747 | 21.845 | 37.436 |
| UM-2 | 367. | 2.040 | 8.321 | 14.602 | 20.882 | 27.163 | 33.444 | 39.725 |
| PZPCG | 50. | 13.992 | 19.123 | 24.254 | 29.385 | 34.516 | 39.646 | 44.777 |
| PZPCG' | 10. | 15.833 | 19.038 | 22.892 | 27.527 | 33.099 | 39.799 | 47.856 |

VALUES LISTED ARE STATISTICALLY DERIVED ABSOLUTE COUNTING RATES AT 1, 2, AND 3 STD. DEVIATIONS ABOVE AND BELOW THE RESPECTIVE MEANS. ANY NEGATIVE VALUES ARE THE RESULT OF STATISTICS ONLY AND HAVE NO REAL MEANING. RELATIVE MAGNITUDES OF THE LISTED MEDIAN VALUES ARE INDICATORS OF RELATIVE CONCENTRATIONS OF THE ELEMENTS IN THE VARIOUS GEOLOGIC ROCK UNITS.

TABLE T-2. STATISTICAL SUMMARIES (Continued)

| STATISTICAL SUMMARY FOR POTASSIUM | | | | | | | | | STATISTICAL SUMMARY FOR URAN./POT. | | | | | | | | |
|-----------------------------------|--------------|---------|---------|---------|---------|---------|---------|---------|------------------------------------|--------------|---------|---------|---------|--------|---------|---------|---------|
| GEOL UNIT | NUM. SAMPLES | -3 S.D. | -2 S.D. | -1 S.D. | MEDIAN | +1 S.D. | +2 S.D. | +3 S.D. | GEOL UNIT | NUM. SAMPLES | -3 S.D. | -2 S.D. | -1 S.D. | MEDIAN | +1 S.D. | +2 S.D. | +3 S.D. |
| Q-1 | 5671. | 16.476 | 26.186 | 41.618 | 66.144 | 105.126 | 167.080 | 265.545 | Q-1 | 5669. | 0.113 | 0.160 | 0.226 | 0.319 | 0.450 | 0.635 | 0.896 |
| Q-2 | 181. | 160.743 | 174.621 | 189.697 | 206.075 | 223.866 | 243.194 | 264.191 | Q-2 | 181. | 0.027 | 0.077 | 0.128 | 0.179 | 0.229 | 0.280 | 0.330 |
| Q'-1 | 8956. | -8.450 | 12.192 | 32.834 | 53.475 | 74.117 | 94.759 | 115.400 | Q'-1 | 8949. | 0.127 | 0.177 | 0.247 | 0.344 | 0.480 | 0.669 | 0.932 |
| Q'-2 | 274. | 107.506 | 117.431 | 128.273 | 140.115 | 153.051 | 167.182 | 182.616 | Q'-2 | 274. | 0.151 | 0.177 | 0.207 | 0.242 | 0.283 | 0.331 | 0.388 |
| TN | 630. | 13.357 | 26.071 | 38.786 | 51.500 | 64.215 | 76.929 | 89.644 | TN | 630. | 0.123 | 0.165 | 0.222 | 0.298 | 0.399 | 0.536 | 0.719 |
| TMZU-1 | 1026. | 30.676 | 51.653 | 72.631 | 93.608 | 114.586 | 135.563 | 156.541 | TMZU-1 | 1026. | 0.097 | 0.131 | 0.177 | 0.239 | 0.323 | 0.436 | 0.588 |
| TMZU-2 | 191. | 28.793 | 87.085 | 145.378 | 203.671 | 261.964 | 320.257 | 378.550 | TMZU-2 | 191. | 0.097 | 0.118 | 0.143 | 0.173 | 0.210 | 0.254 | 0.309 |
| TF-1 | 104. | 37.675 | 48.206 | 61.680 | 78.921 | 100.980 | 129.206 | 165.321 | TF-1 | 104. | 0.179 | 0.219 | 0.260 | 0.301 | 0.341 | 0.382 | 0.422 |
| TF-2 | 126. | 112.724 | 144.440 | 176.155 | 207.870 | 239.586 | 271.301 | 303.017 | TF-2 | 126. | 0.077 | 0.107 | 0.149 | 0.208 | 0.291 | 0.405 | 0.565 |
| TKG | 894. | 42.189 | 61.898 | 90.813 | 133.237 | 195.479 | 286.798 | 420.777 | TKG | 894. | 0.109 | 0.143 | 0.189 | 0.250 | 0.330 | 0.437 | 0.577 |
| TMZG-1 | 745. | 27.650 | 46.212 | 77.236 | 129.088 | 215.750 | 360.593 | 602.675 | TMZG-1 | 745. | 0.073 | 0.107 | 0.156 | 0.229 | 0.336 | 0.493 | 0.723 |
| TMZG-2 | 95. | 189.278 | 214.334 | 239.390 | 264.447 | 289.503 | 314.559 | 339.615 | TMZG-2 | 95. | 0.102 | 0.169 | 0.237 | 0.305 | 0.373 | 0.441 | 0.509 |
| TMZG-3 | 88. | 249.959 | 280.133 | 310.308 | 340.482 | 370.656 | 400.831 | 431.005 | TMZG-3 | 88. | 0.145 | 0.216 | 0.287 | 0.358 | 0.429 | 0.500 | 0.571 |
| TMZG'-1 | 50. | 26.486 | 33.619 | 42.673 | 54.164 | 68.751 | 87.265 | 110.766 | TMZG'-1 | 50. | 0.082 | 0.175 | 0.268 | 0.361 | 0.454 | 0.547 | 0.640 |
| TMZG'-2 | 20. | 134.842 | 145.823 | 157.699 | 170.541 | 184.429 | 199.448 | 215.690 | TMZG'-2 | 20. | 0.170 | 0.182 | 0.195 | 0.208 | 0.223 | 0.239 | 0.255 |
| TMZG'-3 | 30. | 211.024 | 222.621 | 234.856 | 247.763 | 261.380 | 275.745 | 290.899 | TMZG'-3 | 30. | 0.155 | 0.167 | 0.178 | 0.189 | 0.201 | 0.212 | 0.224 |
| MZG-1 | 18. | 110.533 | 132.003 | 157.643 | 188.263 | 224.830 | 268.500 | 320.652 | MZG-1 | 18. | 0.133 | 0.151 | 0.171 | 0.194 | 0.220 | 0.249 | 0.282 |
| MZG-2 | 42. | 210.041 | 236.429 | 266.132 | 299.566 | 337.201 | 379.564 | 427.250 | MZG-2 | 42. | 0.091 | 0.119 | 0.156 | 0.205 | 0.268 | 0.351 | 0.460 |
| PZ | 5818. | 19.414 | 31.208 | 50.166 | 80.642 | 129.632 | 208.363 | 334.976 | PZ | 5805. | 0.093 | 0.134 | 0.192 | 0.275 | 0.394 | 0.565 | 0.810 |
| PZPC | 18139. | 20.944 | 34.671 | 57.393 | 95.007 | 157.272 | 260.344 | 430.965 | PZPC | 18116. | 0.088 | 0.125 | 0.178 | 0.254 | 0.361 | 0.515 | 0.734 |
| PZPC' | 641. | 5.425 | 10.400 | 19.936 | 38.216 | 73.259 | 140.437 | 269.213 | PZPC' | 613. | 0.095 | 0.139 | 0.205 | 0.302 | 0.445 | 0.656 | 0.966 |
| UM-1 | 138. | 5.965 | 8.330 | 11.634 | 16.247 | 22.691 | 31.689 | 44.256 | UM-1 | 128. | 0.089 | 0.154 | 0.267 | 0.463 | 0.801 | 1.388 | 2.406 |
| UM-2 | 367. | 24.955 | 35.948 | 51.784 | 74.596 | 107.457 | 154.794 | 222.984 | UM-2 | 367. | 0.032 | 0.114 | 0.197 | 0.279 | 0.361 | 0.443 | 0.525 |
| PZPCG | 50. | 83.377 | 95.588 | 107.800 | 120.011 | 132.223 | 144.434 | 156.645 | PZPCG | 50. | 0.146 | 0.173 | 0.205 | 0.242 | 0.287 | 0.339 | 0.402 |
| PZPCG' | 10. | 94.430 | 98.620 | 102.997 | 107.568 | 112.341 | 117.326 | 122.533 | PZPCG' | 10. | 0.165 | 0.191 | 0.221 | 0.256 | 0.296 | 0.343 | 0.397 |

VALUES LISTED ARE STATISTICALLY DERIVED ABSOLUTE COUNTING RATES AT 1, 2, AND 3 STD. DEVIATIONS ABOVE AND BELOW THE RESPECTIVE MEANS. ANY NEGATIVE VALUES ARE THE RESULT OF STATISTICS ONLY AND HAVE NO REAL MEANING. RELATIVE MAGNITUDES OF THE LISTED MEDIAN VALUES ARE INDICATORS OF RELATIVE CONCENTRATIONS OF THE ELEMENTS IN THE VARIOUS GEOLOGIC ROCK UNITS.

TABLE T-2. STATISTICAL SUMMARIES (Continued)

| STATISTICAL SUMMARY FOR URAN./THOR. | | | | | | | | | STATISTICAL SUMMARY FOR THOR./POT. | | | | | | | | |
|-------------------------------------|--------------|---------|---------|---------|--------|---------|---------|---------|------------------------------------|--------------|---------|---------|---------|--------|---------|---------|---------|
| GEOL UNIT | NUM. SAMPLES | -3 S.D. | -2 S.D. | -1 S.D. | MEDIAN | +1 S.D. | +2 S.D. | +3 S.D. | GEOL UNIT | NUM. SAMPLES | -3 S.D. | -2 S.D. | -1 S.D. | MEDIAN | +1 S.D. | +2 S.D. | +3 S.D. |
| Q-1 | 5667. | 0.352 | 0.470 | 0.626 | 0.836 | 1.115 | 1.487 | 1.983 | Q-1 | 5669. | 0.210 | 0.256 | 0.312 | 0.381 | 0.466 | 0.568 | 0.694 |
| Q-2 | 181. | 0.270 | 0.378 | 0.486 | 0.594 | 0.702 | 0.810 | 0.918 | Q-2 | 181. | 0.183 | 0.214 | 0.251 | 0.293 | 0.342 | 0.400 | 0.468 |
| Q'-1 | 8970. | 0.394 | 0.521 | 0.689 | 0.912 | 1.206 | 1.595 | 2.110 | Q'-1 | 8943. | 0.207 | 0.253 | 0.310 | 0.379 | 0.463 | 0.566 | 0.693 |
| Q'-2 | 274. | 0.482 | 0.557 | 0.642 | 0.741 | 0.855 | 0.986 | 1.138 | Q'-2 | 274. | 0.252 | 0.275 | 0.300 | 0.326 | 0.356 | 0.388 | 0.422 |
| TN | 630. | 0.399 | 0.517 | 0.668 | 0.864 | 1.117 | 1.444 | 1.867 | TN | 630. | 0.200 | 0.240 | 0.287 | 0.345 | 0.413 | 0.495 | 0.594 |
| TMZU-1 | 1026. | 0.305 | 0.397 | 0.518 | 0.676 | 0.882 | 1.150 | 1.500 | TMZU-1 | 1026. | 0.198 | 0.251 | 0.304 | 0.357 | 0.410 | 0.464 | 0.517 |
| TMZU-2 | 191. | 0.296 | 0.360 | 0.438 | 0.533 | 0.648 | 0.789 | 0.960 | TMZU-2 | 191. | 0.201 | 0.243 | 0.285 | 0.327 | 0.370 | 0.412 | 0.454 |
| TF-1 | 104. | 0.127 | 0.358 | 0.589 | 0.820 | 1.051 | 1.282 | 1.513 | TF-1 | 104. | 0.175 | 0.227 | 0.293 | 0.379 | 0.489 | 0.633 | 0.818 |
| TF-2 | 126. | 0.279 | 0.348 | 0.434 | 0.542 | 0.676 | 0.844 | 1.054 | TF-2 | 126. | 0.252 | 0.290 | 0.334 | 0.385 | 0.443 | 0.510 | 0.587 |
| TKG | 894. | 0.330 | 0.431 | 0.562 | 0.734 | 0.958 | 1.250 | 1.632 | TKG | 894. | 0.130 | 0.203 | 0.276 | 0.350 | 0.423 | 0.496 | 0.569 |
| TMZG-1 | 745. | 0.300 | 0.394 | 0.517 | 0.678 | 0.890 | 1.168 | 1.532 | TMZG-1 | 745. | 0.159 | 0.205 | 0.263 | 0.338 | 0.434 | 0.558 | 0.717 |
| TMZG-2 | 95. | 0.174 | 0.344 | 0.513 | 0.683 | 0.852 | 1.022 | 1.192 | TMZG-2 | 95. | 0.351 | 0.384 | 0.418 | 0.451 | 0.484 | 0.517 | 0.550 |
| TMZG-3 | 88. | 0.361 | 0.464 | 0.597 | 0.767 | 0.986 | 1.268 | 1.630 | TMZG-3 | 88. | 0.343 | 0.381 | 0.419 | 0.458 | 0.496 | 0.534 | 0.572 |
| TMZG'-1 | 50. | 0.466 | 0.561 | 0.676 | 0.814 | 0.981 | 1.182 | 1.424 | TMZG'-1 | 50. | 0.266 | 0.311 | 0.365 | 0.428 | 0.502 | 0.588 | 0.689 |
| TMZG'-2 | 20. | 0.483 | 0.509 | 0.537 | 0.566 | 0.596 | 0.628 | 0.662 | TMZG'-2 | 20. | 0.321 | 0.336 | 0.352 | 0.368 | 0.386 | 0.404 | 0.423 |
| TMZG'-3 | 30. | 0.358 | 0.407 | 0.456 | 0.505 | 0.553 | 0.602 | 0.651 | TMZG'-3 | 30. | 0.330 | 0.345 | 0.360 | 0.377 | 0.394 | 0.411 | 0.430 |
| MZG-1 | 18. | 0.400 | 0.433 | 0.470 | 0.509 | 0.552 | 0.598 | 0.649 | MZG-1 | 18. | 0.303 | 0.327 | 0.353 | 0.380 | 0.410 | 0.443 | 0.477 |
| MZG-2 | 42. | 0.326 | 0.391 | 0.456 | 0.522 | 0.587 | 0.652 | 0.718 | MZG-2 | 42. | 0.154 | 0.237 | 0.320 | 0.403 | 0.486 | 0.570 | 0.653 |
| PZ | 5805. | 0.275 | 0.384 | 0.534 | 0.744 | 1.036 | 1.443 | 2.009 | PZ | 5818. | 0.185 | 0.233 | 0.294 | 0.370 | 0.465 | 0.586 | 0.738 |
| PZPC | 18116. | 0.279 | 0.379 | 0.514 | 0.698 | 0.947 | 1.285 | 1.743 | PZPC | 18137. | 0.135 | 0.213 | 0.291 | 0.370 | 0.448 | 0.527 | 0.605 |
| PZPC' | 617. | 0.311 | 0.434 | 0.606 | 0.845 | 1.179 | 1.644 | 2.294 | PZPC' | 639. | 0.166 | 0.216 | 0.280 | 0.363 | 0.472 | 0.612 | 0.794 |
| UM-1 | 118. | 0.313 | 0.509 | 0.829 | 1.350 | 2.198 | 3.578 | 5.825 | UM-1 | 128. | 0.113 | 0.164 | 0.238 | 0.345 | 0.501 | 0.727 | 1.054 |
| UM-2 | 367. | 0.079 | 0.298 | 0.518 | 0.737 | 0.957 | 1.176 | 1.396 | UM-2 | 367. | 0.206 | 0.265 | 0.325 | 0.384 | 0.443 | 0.503 | 0.562 |
| PZPCG | 50. | 0.319 | 0.436 | 0.554 | 0.672 | 0.789 | 0.907 | 1.025 | PZPCG | 50. | 0.239 | 0.282 | 0.325 | 0.369 | 0.412 | 0.455 | 0.498 |
| PZPCG' | 10. | 0.391 | 0.472 | 0.569 | 0.686 | 0.827 | 0.997 | 1.201 | PZPCG' | 10. | 0.318 | 0.335 | 0.354 | 0.373 | 0.394 | 0.415 | 0.438 |

VALUES LISTED ARE STATISTICALLY DERIVED ABSOLUTE COUNTING RATES AT 1, 2, AND 3 STD. DEVIATIONS ABOVE AND BELOW THE RESPECTIVE MEANS. ANY NEGATIVE VALUES ARE THE RESULT OF STATISTICS ONLY AND HAVE NO REAL MEANING. RELATIVE MAGNITUDES OF THE LISTED MEDIAN VALUES ARE INDICATORS OF RELATIVE CONCENTRATIONS OF THE ELEMENTS IN THE VARIOUS GEOLOGIC ROCK UNITS.

TABLE T-3. FLIGHT-LINE AVERAGES

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 12

| GEOLOGIC UNIT | TH AVG. | SAMPLES | U AVG. | SAMPLES | K AVG. | SAMPLES | U/K AVG. | SAMPLES | U/TH AVG. | SAMPLES | TH/K AVG. | SAMPLES |
|---------------|---------|---------|--------|---------|--------|---------|----------|---------|-----------|---------|-----------|---------|
| Q-1 | 18.4 | 651. | 18.1 | 651. | 46.1 | 651. | 0.43 | 651. | 1.02 | 651. | 0.42 | 651. |
| Q-2 | 67.2 | 29. | 9.4 | 29. | 181.2 | 29. | 0.05 | 29. | 0.15 | 29. | 0.38 | 29. |
| Q'-1 | 16.8 | 360. | 17.8 | 360. | 42.7 | 360. | 0.47 | 360. | 1.11 | 360. | 0.42 | 360. |
| TMZG-1 | 49.2 | 60. | 30.7 | 60. | 112.6 | 60. | 0.28 | 60. | 0.66 | 60. | 0.44 | 60. |
| PZ | 24.5 | 1360. | 18.7 | 1360. | 69.4 | 1360. | 0.31 | 1360. | 0.88 | 1360. | 0.36 | 1360. |
| PZPC | 49.5 | 690. | 31.3 | 690. | 156.8 | 690. | 0.24 | 690. | 0.69 | 690. | 0.35 | 690. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 13

| GEOLOGIC UNIT | TH AVG. | SAMPLES | U AVG. | SAMPLES | K AVG. | SAMPLES | U/K AVG. | SAMPLES | U/TH AVG. | SAMPLES | TH/K AVG. | SAMPLES |
|---------------|---------|---------|--------|---------|--------|---------|----------|---------|-----------|---------|-----------|---------|
| Q-1 | 21.1 | 310. | 19.0 | 310. | 58.5 | 310. | 0.37 | 310. | 0.98 | 310. | 0.38 | 310. |
| Q'-1 | 23.1 | 430. | 20.8 | 430. | 62.6 | 430. | 0.35 | 430. | 0.93 | 430. | 0.38 | 430. |
| TKG | 56.4 | 230. | 39.7 | 230. | 170.8 | 230. | 0.24 | 230. | 0.73 | 230. | 0.34 | 230. |
| TMZG-1 | 69.4 | 60. | 34.3 | 60. | 295.7 | 60. | 0.13 | 60. | 0.50 | 60. | 0.25 | 60. |
| PZ | 38.3 | 1670. | 26.8 | 1670. | 108.3 | 1670. | 0.27 | 1670. | 0.76 | 1670. | 0.36 | 1670. |
| PZPC | 38.3 | 490. | 27.3 | 490. | 118.2 | 490. | 0.28 | 490. | 0.82 | 490. | 0.35 | 490. |
| UM-1 | 5.8 | 130. | 8.1 | 130. | 16.5 | 130. | 0.55 | 130. | 1.46 | 130. | 0.38 | 130. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 14

| GEOLOGIC UNIT | TH AVG. | SAMPLES | U AVG. | SAMPLES | K AVG. | SAMPLES | U/K AVG. | SAMPLES | U/TH AVG. | SAMPLES | TH/K AVG. | SAMPLES |
|---------------|---------|---------|--------|---------|--------|---------|----------|---------|-----------|---------|-----------|---------|
| Q-1 | 25.3 | 460. | 21.3 | 460. | 67.1 | 460. | 0.37 | 460. | 0.93 | 460. | 0.39 | 460. |
| TKG | 39.9 | 60. | 34.3 | 60. | 126.3 | 60. | 0.29 | 60. | 0.90 | 60. | 0.33 | 60. |
| TMZG-1 | 85.4 | 53. | 64.7 | 53. | 221.1 | 53. | 0.30 | 53. | 0.77 | 53. | 0.39 | 53. |
| TMZG-2 | 118.3 | 78. | 87.7 | 78. | 266.3 | 78. | 0.33 | 78. | 0.74 | 78. | 0.45 | 78. |
| TMZG-3 | 156.4 | 79. | 129.8 | 79. | 346.9 | 79. | 0.38 | 79. | 0.83 | 79. | 0.45 | 79. |
| PZ | 26.2 | 910. | 21.3 | 910. | 66.5 | 910. | 0.34 | 910. | 0.85 | 910. | 0.41 | 910. |
| PZPC | 29.6 | 1250. | 21.0 | 1250. | 83.5 | 1250. | 0.28 | 1250. | 0.80 | 1250. | 0.36 | 1250. |
| UM-1 | 7.1 | 7. | 10.3 | 7. | 21.2 | 7. | 0.51 | 7. | 1.50 | 7. | 0.34 | 7. |
| UM-2 | 34.8 | 233. | 24.1 | 233. | 91.7 | 233. | 0.29 | 233. | 0.74 | 233. | 0.39 | 233. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 15

| GEOLOGIC UNIT | TH AVG. | SAMPLES | U AVG. | SAMPLES | K AVG. | SAMPLES | U/K AVG. | SAMPLES | U/TH AVG. | SAMPLES | TH/K AVG. | SAMPLES |
|---------------|---------|---------|--------|---------|--------|---------|----------|---------|-----------|---------|-----------|---------|
| Q-1 | 37.7 | 446. | 30.3 | 446. | 99.1 | 446. | 0.34 | 446. | 0.85 | 446. | 0.40 | 446. |
| Q-2 | 56.7 | 44. | 37.1 | 44. | 199.9 | 44. | 0.19 | 44. | 0.66 | 44. | 0.28 | 44. |
| Q'-1 | 19.5 | 60. | 19.8 | 60. | 49.0 | 60. | 0.41 | 60. | 1.03 | 60. | 0.40 | 60. |
| TKG | 45.3 | 190. | 35.3 | 190. | 124.7 | 190. | 0.29 | 190. | 0.79 | 190. | 0.37 | 190. |
| TMZG-1 | 33.1 | 10. | 29.8 | 10. | 89.5 | 10. | 0.33 | 10. | 0.90 | 10. | 0.37 | 10. |
| PZ | 52.6 | 490. | 31.2 | 490. | 128.8 | 490. | 0.25 | 490. | 0.60 | 490. | 0.41 | 490. |
| PZPC | 36.8 | 1940. | 26.5 | 1940. | 106.8 | 1940. | 0.28 | 1940. | 0.75 | 1940. | 0.36 | 1940. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 16

| GEOLOGIC UNIT | TH AVG. | SAMPLES | U AVG. | SAMPLES | K AVG. | SAMPLES | U/K AVG. | SAMPLES | U/TH AVG. | SAMPLES | TH/K AVG. | SAMPLES |
|---------------|---------|---------|--------|---------|--------|---------|----------|---------|-----------|---------|-----------|---------|
| Q-1 | 23.7 | 400. | 20.8 | 400. | 64.3 | 400. | 0.35 | 400. | 0.93 | 400. | 0.38 | 400. |
| Q-2 | 71.8 | 50. | 47.8 | 50. | 216.2 | 50. | 0.22 | 50. | 0.67 | 50. | 0.33 | 50. |
| Q'-1 | 24.3 | 170. | 21.2 | 170. | 60.2 | 170. | 0.37 | 170. | 0.92 | 170. | 0.41 | 170. |
| TF-2 | 81.6 | 10. | 38.2 | 10. | 248.7 | 10. | 0.15 | 10. | 0.47 | 10. | 0.33 | 10. |
| TKG | 81.5 | 40. | 42.6 | 40. | 228.1 | 40. | 0.19 | 40. | 0.53 | 40. | 0.36 | 40. |
| TMZG-1 | 70.0 | 10. | 51.8 | 10. | 223.2 | 10. | 0.23 | 10. | 0.74 | 10. | 0.31 | 10. |
| PZ | 39.7 | 250. | 34.7 | 250. | 96.8 | 250. | 0.37 | 250. | 0.89 | 250. | 0.41 | 250. |
| PZPC | 41.6 | 2240. | 30.9 | 2240. | 121.2 | 2240. | 0.28 | 2240. | 0.79 | 2240. | 0.36 | 2240. |

TABLE T-3. FLIGHT-LINE AVERAGES (Continued)

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 17

| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|------|------------|------|-----------|-------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 27.2 | 646. | 24.7 | 646. | 75.4 | 646. | 0.36 | 646. | 0.96 | 646. | 0.37 | 646. |
| Q-2 | 87.5 | 14. | 56.2 | 14. | 216.8 | 14. | 0.26 | 14. | 0.64 | 14. | 0.40 | 14. |
| Q'-1 | 17.6 | 349. | 19.4 | 349. | 44.3 | 349. | 0.54 | 349. | 1.52 | 349. | 0.40 | 349. |
| Q'-2 | 43.9 | 1. | 33.8 | 1. | 120.2 | 1. | 0.28 | 1. | 0.77 | 1. | 0.37 | 1. |
| TMZU-1 | 30.5 | 420. | 24.5 | 420. | 89.0 | 420. | 0.29 | 420. | 0.83 | 420. | 0.35 | 420. |
| TF-1 | 29.2 | 54. | 26.3 | 54. | 87.4 | 54. | 0.31 | 54. | 0.96 | 54. | 0.33 | 54. |
| TF-2 | 81.9 | 66. | 52.3 | 66. | 190.5 | 66. | 0.27 | 66. | 0.63 | 66. | 0.43 | 66. |
| TMZG-1 | 39.9 | 10. | 23.1 | 10. | 166.9 | 10. | 0.14 | 10. | 0.58 | 10. | 0.24 | 10. |
| PZPC | 35.9 | 1630. | 26.7 | 1630. | 95.9 | 1630. | 0.30 | 1630. | 0.78 | 1630. | 0.38 | 1630. |
| PZPC' | 17.1 | 40. | 17.6 | 40. | 38.0 | 40. | 0.48 | 40. | 1.06 | 40. | 0.45 | 40. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 18

| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|------|------------|------|-----------|-------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 28.7 | 740. | 22.6 | 740. | 78.2 | 740. | 0.30 | 740. | 0.83 | 740. | 0.37 | 740. |
| Q'-1 | 17.3 | 120. | 18.1 | 120. | 44.6 | 120. | 1.05 | 120. | 1.42 | 120. | 0.53 | 120. |
| TMZU-1 | 41.7 | 60. | 25.5 | 60. | 109.1 | 60. | 0.24 | 60. | 0.62 | 60. | 0.38 | 60. |
| TMZU-2 | 52.7 | 50. | 28.9 | 50. | 169.0 | 50. | 0.17 | 50. | 0.55 | 50. | 0.31 | 50. |
| TKG | 36.8 | 40. | 22.1 | 40. | 95.9 | 40. | 0.24 | 40. | 0.64 | 40. | 0.38 | 40. |
| TMZG-1 | 31.3 | 70. | 27.5 | 70. | 80.6 | 70. | 0.35 | 70. | 0.91 | 70. | 0.39 | 70. |
| PZPC | 37.0 | 2010. | 26.1 | 2010. | 98.2 | 2010. | 0.29 | 2010. | 0.75 | 2010. | 0.39 | 2010. |
| PZPC' | 17.6 | 10. | 19.9 | 10. | 36.3 | 10. | 0.62 | 10. | 1.17 | 10. | 0.52 | 10. |
| PZPCG | 55.4 | 10. | 32.2 | 10. | 129.9 | 10. | 0.25 | 10. | 0.58 | 10. | 0.43 | 10. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 19

| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|-------|------------|------|-----------|-------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 31.4 | 283. | 24.0 | 283. | 84.5 | 283. | 0.34 | 283. | 0.83 | 283. | 0.40 | 283. |
| Q-2 | 53.2 | 57. | 27.8 | 57. | 201.2 | 57. | 0.14 | 57. | 0.52 | 57. | 0.26 | 57. |
| Q'-1 | 16.8 | 810. | 16.1 | 810. | 44.7 | 810. | 0.46 | 810. | 1.06 | 810. | 0.42 | 810. |
| TMZU-2 | 83.6 | 50. | 44.2 | 50. | 289.4 | 50. | 0.15 | 50. | 0.53 | 50. | 0.29 | 50. |
| TMZG-1 | 51.4 | 252. | 31.2 | 252. | 169.6 | 252. | 0.20 | 252. | 0.64 | 252. | 0.31 | 252. |
| TMZG-2 | 117.0 | 9. | 50.6 | 9. | 246.7 | 9. | 0.21 | 9. | 0.43 | 9. | 0.49 | 9. |
| TMZG-3 | 145.0 | 9. | 56.6 | 9. | 284.6 | 9. | 0.20 | 9. | 0.39 | 9. | 0.51 | 9. |
| TMZG'-1 | 23.4 | 50. | 19.0 | 50. | 55.7 | 50. | 0.36 | 50. | 0.83 | 50. | 0.43 | 50. |
| PZPC | 47.4 | 1650. | 27.3 | 1650. | 121.9 | 1650. | 0.27 | 1650. | 0.68 | 1650. | 0.40 | 1650. |
| PZPC' | 18.1 | 50. | 15.5 | 50. | 43.1 | 50. | 0.38 | 50. | 0.87 | 50. | 0.44 | 50. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 20

| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|------|------------|------|-----------|-------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 35.0 | 420. | 24.4 | 420. | 92.6 | 420. | 0.29 | 420. | 0.77 | 420. | 0.39 | 420. |
| Q'-1 | 20.0 | 1100. | 16.8 | 1100. | 55.3 | 1100. | 0.32 | 1100. | 0.87 | 1100. | 0.37 | 1100. |
| TF-1 | 33.5 | 50. | 21.4 | 50. | 74.9 | 50. | 0.29 | 50. | 0.67 | 50. | 0.46 | 50. |
| TF-2 | 77.0 | 50. | 36.3 | 50. | 222.6 | 50. | 0.16 | 50. | 0.47 | 50. | 0.35 | 50. |
| TMZG-1 | 31.4 | 20. | 22.6 | 20. | 91.4 | 20. | 0.25 | 20. | 0.72 | 20. | 0.35 | 20. |
| TMZG'-2 | 63.2 | 20. | 35.7 | 20. | 171.1 | 20. | 0.21 | 20. | 0.57 | 20. | 0.37 | 20. |
| TMZG'-3 | 93.7 | 30. | 47.0 | 30. | 248.1 | 30. | 0.19 | 30. | 0.50 | 30. | 0.38 | 30. |
| PZPC | 34.2 | 1070. | 24.6 | 1070. | 94.5 | 1070. | 0.27 | 1070. | 0.75 | 1070. | 0.37 | 1070. |
| PZPC' | 13.1 | 350. | 10.5 | 350. | 40.9 | 350. | 0.32 | 350. | 0.86 | 350. | 0.38 | 350. |

TABLE T-3. FLIGHT-LINE AVERAGES (Continued)

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 21

| GEOLOGIC UNIT | TH | | U | | K | | U/K | | U/TH | | TH/K | |
|---------------|------|---------|------|---------|-------|---------|------|---------|------|---------|------|---------|
| | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES |
| Q-1 | 31.5 | 100. | 22.5 | 100. | 89.0 | 100. | 0.26 | 100. | 0.73 | 100. | 0.36 | 100. |
| Q'-1 | 19.7 | 1978. | 17.2 | 1978. | 54.5 | 1978. | 0.34 | 1978. | 0.91 | 1978. | 0.37 | 1978. |
| Q'-2 | 39.5 | 2. | 22.9 | 2. | 121.9 | 2. | 0.19 | 2. | 0.58 | 2. | 0.32 | 2. |
| TMZU-1 | 28.2 | 10. | 17.9 | 10. | 82.3 | 10. | 0.22 | 10. | 0.64 | 10. | 0.34 | 10. |
| TMZU-2 | 51.4 | 20. | 35.9 | 20. | 156.2 | 20. | 0.23 | 20. | 0.70 | 20. | 0.33 | 20. |
| TKG | 21.3 | 20. | 22.2 | 20. | 68.9 | 20. | 0.33 | 20. | 1.05 | 20. | 0.31 | 20. |
| TMZG-1 | 39.5 | 10. | 36.3 | 10. | 107.8 | 10. | 0.34 | 10. | 0.92 | 10. | 0.37 | 10. |
| PZPC | 35.5 | 1160. | 23.2 | 1160. | 109.6 | 1160. | 0.23 | 1160. | 0.68 | 1160. | 0.33 | 1160. |
| PZPC' | 29.1 | 60. | 23.9 | 60. | 85.5 | 60. | 0.28 | 60. | 0.84 | 60. | 0.34 | 60. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 22

| GEOLOGIC UNIT | TH | | U | | K | | U/K | | U/TH | | TH/K | |
|---------------|------|---------|------|---------|-------|---------|------|---------|------|---------|------|---------|
| | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES |
| Q-1 | 22.4 | 200. | 18.2 | 200. | 59.0 | 200. | 0.37 | 200. | 0.89 | 200. | 0.41 | 200. |
| Q'-1 | 20.6 | 1679. | 18.2 | 1679. | 56.2 | 1679. | 0.36 | 1679. | 0.94 | 1679. | 0.39 | 1679. |
| Q'-2 | 46.1 | 271. | 34.5 | 271. | 140.9 | 271. | 0.25 | 271. | 0.75 | 271. | 0.33 | 271. |
| TN | 18.0 | 360. | 15.7 | 360. | 52.1 | 360. | 0.32 | 360. | 0.90 | 360. | 0.35 | 360. |
| TMZU-1 | 36.8 | 176. | 24.3 | 176. | 103.2 | 176. | 0.24 | 176. | 0.67 | 176. | 0.36 | 176. |
| TMZU-2 | 44.0 | 4. | 22.7 | 4. | 141.1 | 4. | 0.16 | 4. | 0.52 | 4. | 0.31 | 4. |
| PZPC | 36.4 | 550. | 25.5 | 550. | 96.9 | 550. | 0.27 | 550. | 0.72 | 550. | 0.38 | 550. |
| PZPCG | 47.2 | 20. | 32.5 | 20. | 125.6 | 20. | 0.26 | 20. | 0.70 | 20. | 0.38 | 20. |
| PZPCG' | 40.1 | 10. | 28.0 | 10. | 107.7 | 10. | 0.26 | 10. | 0.70 | 10. | 0.37 | 10. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 126

| GEOLOGIC UNIT | TH | | U | | K | | U/K | | U/TH | | TH/K | |
|---------------|------|---------|------|---------|-------|---------|------|---------|------|---------|------|---------|
| | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES | AVG. | SAMPLES |
| Q-1 | 28.0 | 410. | 24.3 | 410. | 75.2 | 410. | 0.35 | 410. | 0.90 | 410. | 0.39 | 410. |
| Q'-1 | 19.9 | 830. | 18.7 | 830. | 51.1 | 830. | 0.39 | 830. | 0.98 | 830. | 0.40 | 830. |
| TN | 16.9 | 270. | 14.5 | 270. | 50.6 | 270. | 0.30 | 270. | 0.88 | 270. | 0.35 | 270. |
| TKG | 42.8 | 200. | 35.2 | 200. | 114.4 | 200. | 0.32 | 200. | 0.83 | 200. | 0.39 | 200. |
| TMZG-1 | 24.5 | 50. | 22.5 | 50. | 76.5 | 50. | 0.31 | 50. | 0.95 | 50. | 0.32 | 50. |
| PZ | 29.4 | 270. | 22.3 | 270. | 75.1 | 270. | 0.30 | 270. | 0.77 | 270. | 0.40 | 270. |
| PZPC | 32.2 | 470. | 23.3 | 470. | 81.3 | 470. | 0.30 | 470. | 0.74 | 470. | 0.40 | 470. |

TABLE T-3. FLIGHT-LINE AVERAGES (Continued)

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 127

| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|------|------------|------|-----------|------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 24.2 | 250. | 17.5 | 250. | 65.9 | 250. | 0.29 | 250. | 0.76 | 250. | 0.38 | 250. |
| Q'-1 | 21.1 | 760. | 17.8 | 760. | 56.7 | 760. | 0.33 | 760. | 0.87 | 760. | 0.38 | 760. |
| PZ | 24.6 | 330. | 20.2 | 330. | 79.0 | 330. | 0.27 | 330. | 0.87 | 330. | 0.32 | 330. |
| PZPC | 30.3 | 920. | 22.9 | 920. | 92.7 | 920. | 0.28 | 920. | 0.80 | 920. | 0.35 | 920. |
| PZPC' | 13.4 | 90. | 12.5 | 90. | 37.5 | 90. | 0.33 | 90. | 0.94 | 90. | 0.36 | 90. |
| UM-2 | 22.6 | 70. | 17.7 | 70. | 55.1 | 70. | 0.33 | 70. | 0.81 | 70. | 0.41 | 70. |

AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 128

| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|-------|------------|------|-----------|-------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 31.5 | 275. | 19.1 | 275. | 86.9 | 275. | 0.24 | 275. | 0.63 | 275. | 0.37 | 275. |
| Q-2 | 48.6 | 15. | 19.3 | 15. | 208.3 | 15. | 0.09 | 15. | 0.40 | 15. | 0.23 | 15. |
| Q'-1 | 19.7 | 350. | 13.0 | 350. | 53.5 | 350. | 0.27 | 350. | 0.69 | 350. | 0.39 | 350. |
| TMZU-1 | 29.9 | 90. | 17.9 | 90. | 77.5 | 90. | 0.23 | 90. | 0.60 | 90. | 0.39 | 90. |
| TKG | 46.6 | 130. | 31.3 | 130. | 171.1 | 130. | 0.18 | 130. | 0.73 | 130. | 0.29 | 130. |
| TMZG-1 | 48.7 | 22. | 28.4 | 22. | 130.2 | 22. | 0.23 | 22. | 0.66 | 22. | 0.36 | 22. |
| TMZG-2 | 123.0 | 8. | 48.7 | 8. | 266.7 | 8. | 0.18 | 8. | 0.40 | 8. | 0.46 | 8. |
| PZ | 43.3 | 240. | 24.5 | 240. | 113.6 | 240. | 0.23 | 240. | 0.59 | 240. | 0.39 | 240. |
| PZPC | 36.3 | 1350. | 19.5 | 1350. | 92.9 | 1350. | 0.22 | 1350. | 0.57 | 1350. | 0.40 | 1350. |
| PZPC' | 18.9 | 50. | 11.3 | 50. | 49.0 | 50. | 0.25 | 50. | 0.63 | 50. | 0.40 | 50. |
| UM-1 | 6.2 | 3. | 8.9 | 3. | 28.6 | 3. | 0.31 | 3. | 1.44 | 3. | 0.22 | 3. |
| UM-2 | 24.9 | 67. | 13.4 | 67. | 69.1 | 67. | 0.20 | 67. | 0.63 | 67. | 0.35 | 67. |

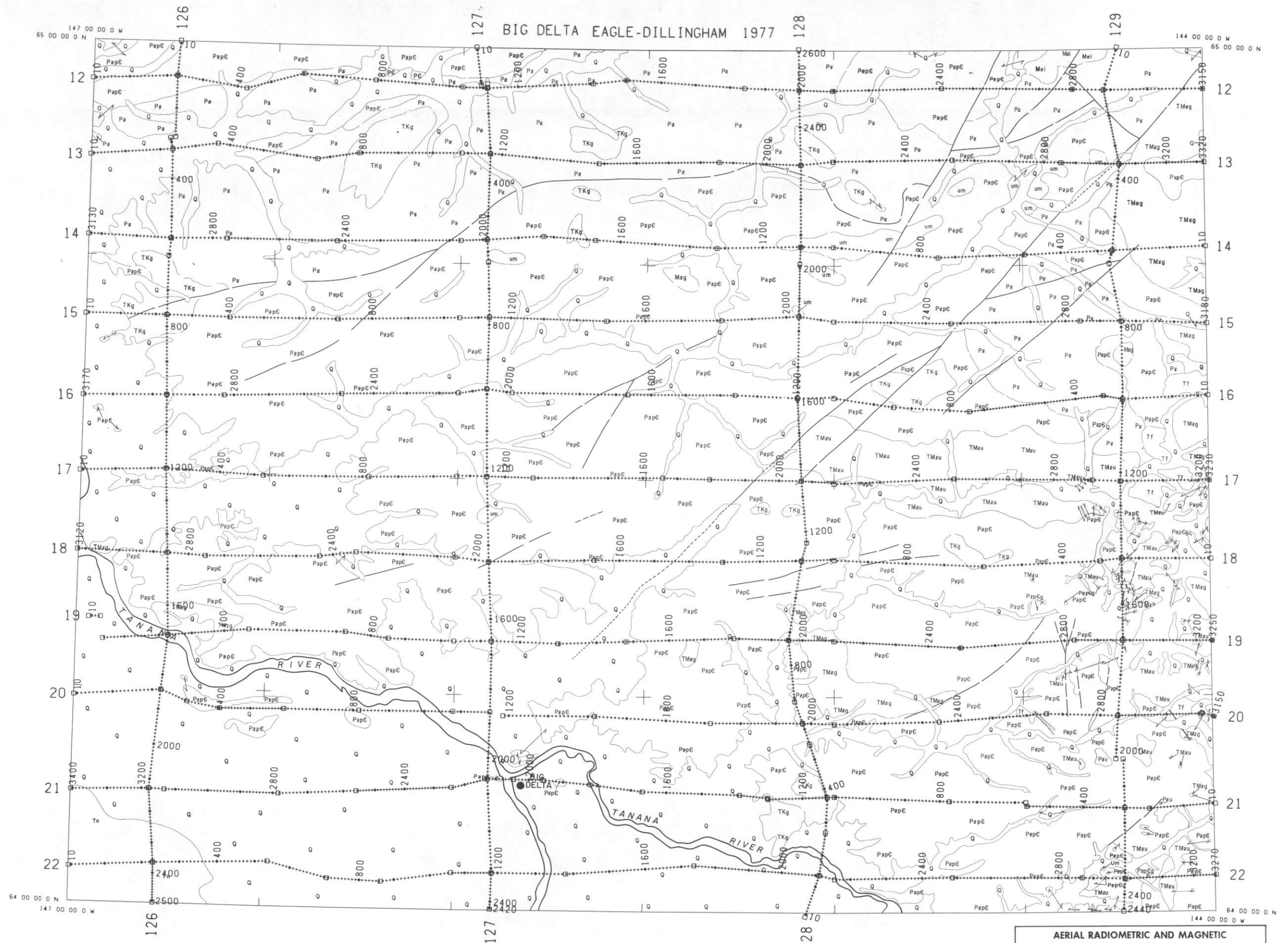
AVERAGE COUNTING RATES PER GEOLOGIC UNIT

FLIGHT LINE 129

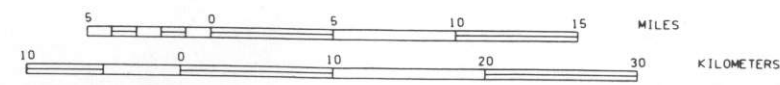
| GEOLOGIC UNIT | AVG. | TH SAMPLES | AVG. | U SAMPLES | AVG. | K SAMPLES | AVG. | U/K SAMPLES | AVG. | U/TH SAMPLES | AVG. | TH/K SAMPLES |
|---------------|-------|------------|------|-----------|-------|-----------|------|-------------|------|--------------|------|--------------|
| Q-1 | 32.7 | 360. | 19.9 | 360. | 85.8 | 360. | 0.25 | 360. | 0.66 | 360. | 0.39 | 360. |
| TMZU-1 | 33.0 | 280. | 19.1 | 280. | 98.6 | 280. | 0.20 | 280. | 0.58 | 280. | 0.34 | 280. |
| TMZU-2 | 66.6 | 90. | 32.1 | 90. | 182.9 | 90. | 0.18 | 90. | 0.49 | 90. | 0.37 | 90. |
| TMZG-1 | 35.0 | 120. | 23.5 | 120. | 92.5 | 120. | 0.28 | 120. | 0.69 | 120. | 0.40 | 120. |
| MZG-1 | 72.2 | 18. | 36.6 | 18. | 191.0 | 18. | 0.20 | 18. | 0.51 | 18. | 0.38 | 18. |
| MZG-2 | 122.9 | 42. | 64.6 | 42. | 301.7 | 42. | 0.21 | 42. | 0.52 | 42. | 0.40 | 42. |
| PZ | 47.3 | 410. | 27.8 | 410. | 105.9 | 410. | 0.27 | 410. | 0.66 | 410. | 0.42 | 410. |
| PZPC | 47.0 | 1100. | 24.8 | 1100. | 125.3 | 1100. | 0.22 | 1100. | 0.58 | 1100. | 0.38 | 1100. |
| PZPCG | 36.0 | 20. | 24.9 | 20. | 109.5 | 20. | 0.23 | 20. | 0.69 | 20. | 0.33 | 20. |

MAPS

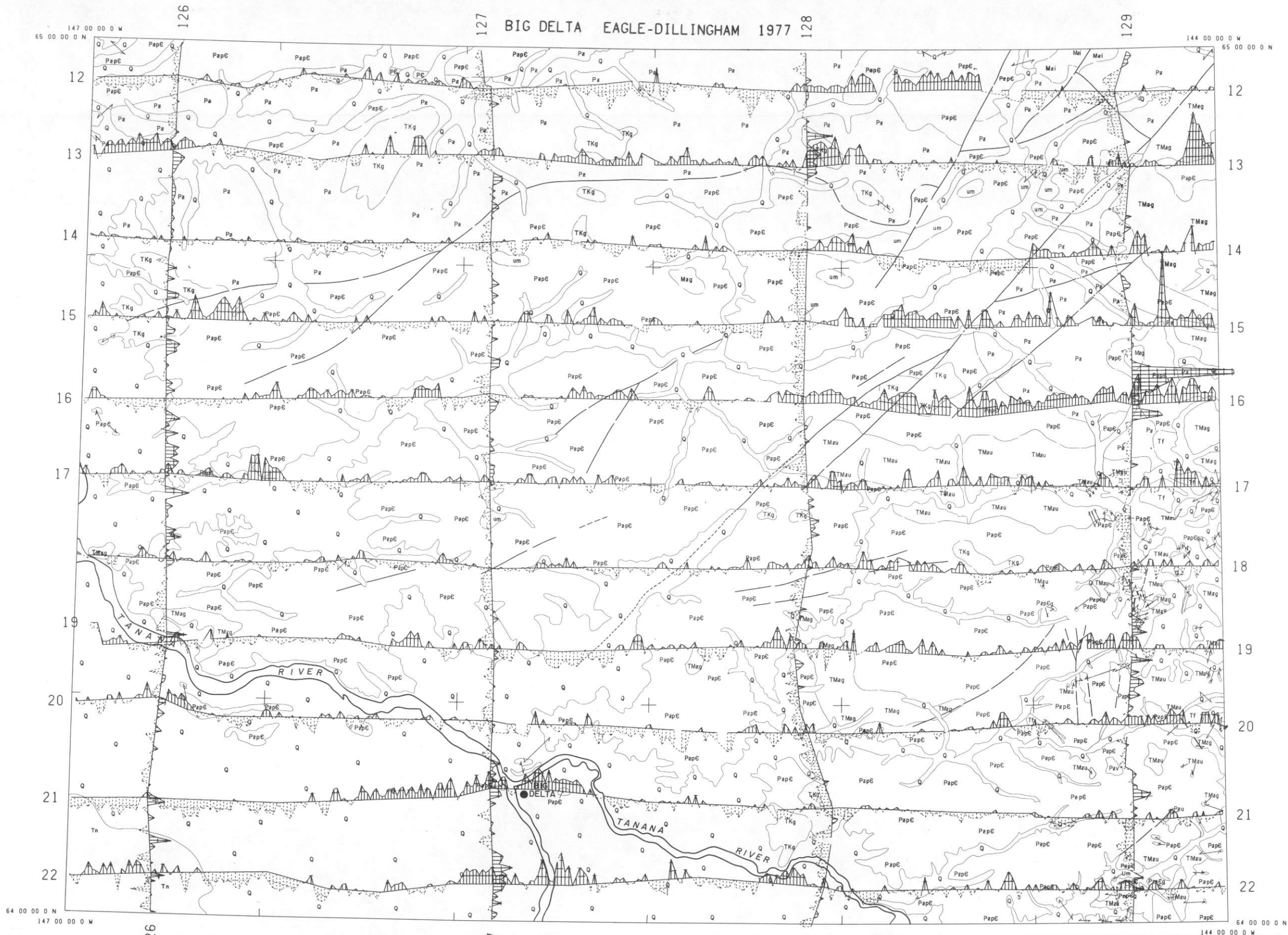
MAPS



RECORD LOCATION MAP



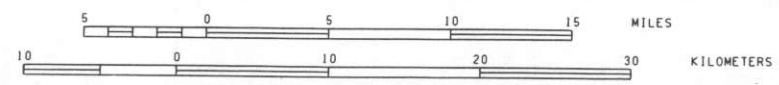
AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY
 PREPARED BY
 TEXAS INSTRUMENTS INCORPORATED
 DALLAS, TEXAS
 1977
 WORK PERFORMED UNDER
 BENDIX FIELD ENGINEERING CORPORATION
 SUBCONTRACT NO. 77-060-L
 PREPARED FOR
 U.S. DEPARTMENT OF ENERGY



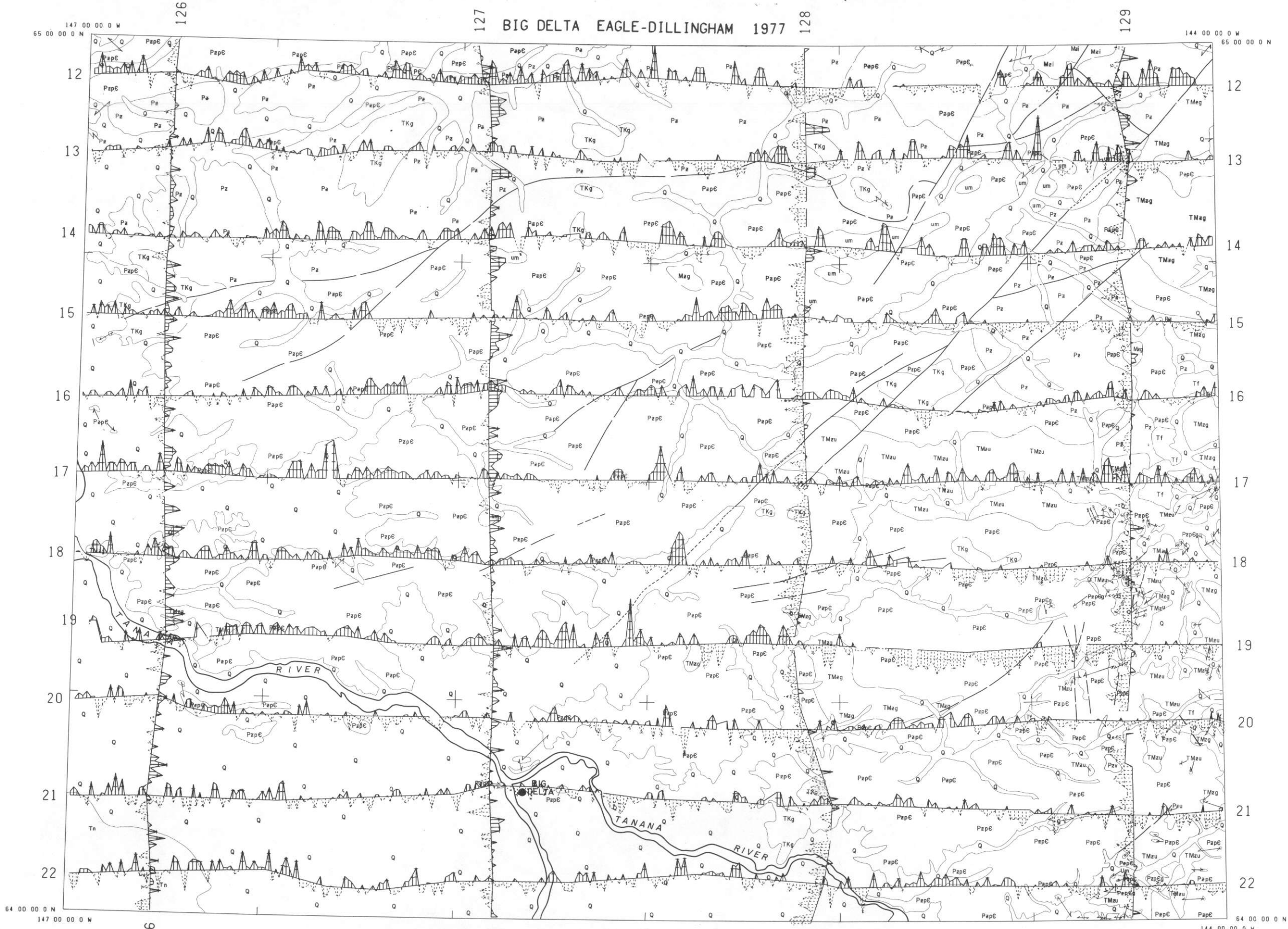
PROFILE MAP

URANIUM 6.0 S.D./IN. TEXAS INSTRUMENTS

LEGEND: POSITIVE SIGNIFICANCE FACTORS—SOLID LINES
 NEGATIVE SIGNIFICANCE FACTORS—DOTTED LINES



AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY
 PREPARED BY
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 SUBCONTRACT NO. 77-060-L
 PREPARED FOR
 U.S. DEPARTMENT OF ENERGY



147 00 00 0 W
65 00 00 0 N

126

127

BIG DELTA EAGLE-DILLINGHAM 1977

128

129

144 00 00 0 W
65 00 00 0 N

64 00 00 0 N
147 00 00 0 W

126

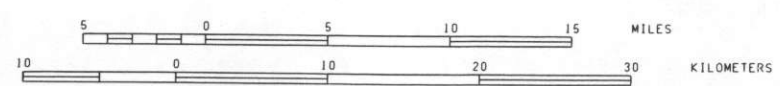
127

128

144 00 00 0 W
64 00 00 0 N

PROFILE MAP

U/TH 6.0 S.D./IN. TEXAS INSTRUMENTS



LEGEND: POSITIVE SIGNIFICANCE FACTORS—SOLID LINES
NEGATIVE SIGNIFICANCE FACTORS—DOTTED LINES

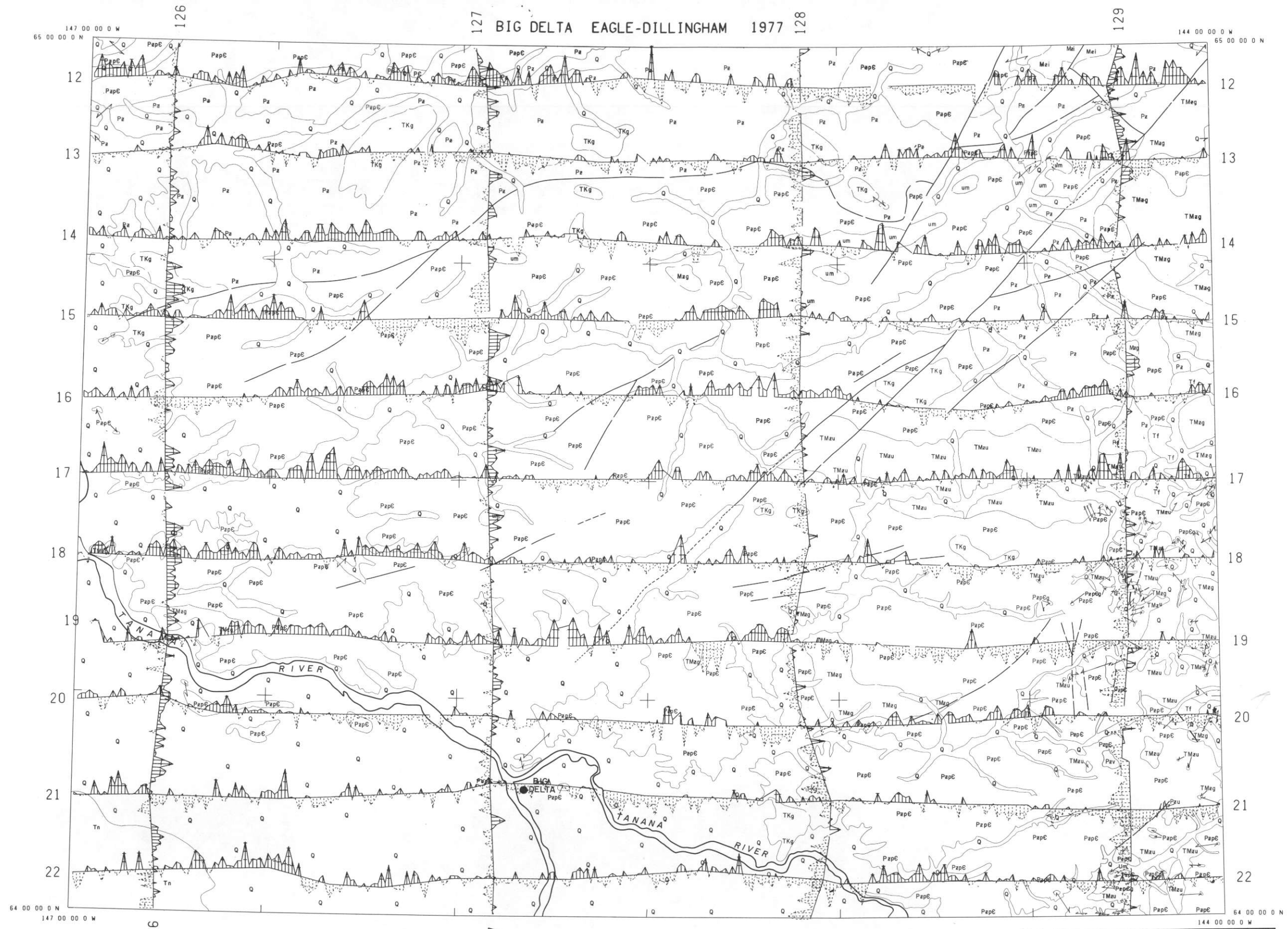
AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY

PREPARED BY
TEXAS INSTRUMENTS INCORPORATED
DALLAS, TEXAS
1977

WORK PERFORMED UNDER
BENDIX FIELD ENGINEERING CORPORATION
SUBCONTRACT NO. 77-060-L

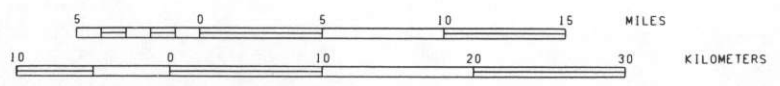
PREPARED FOR
U.S. DEPARTMENT OF ENERGY

M-3



PROFILE MAP

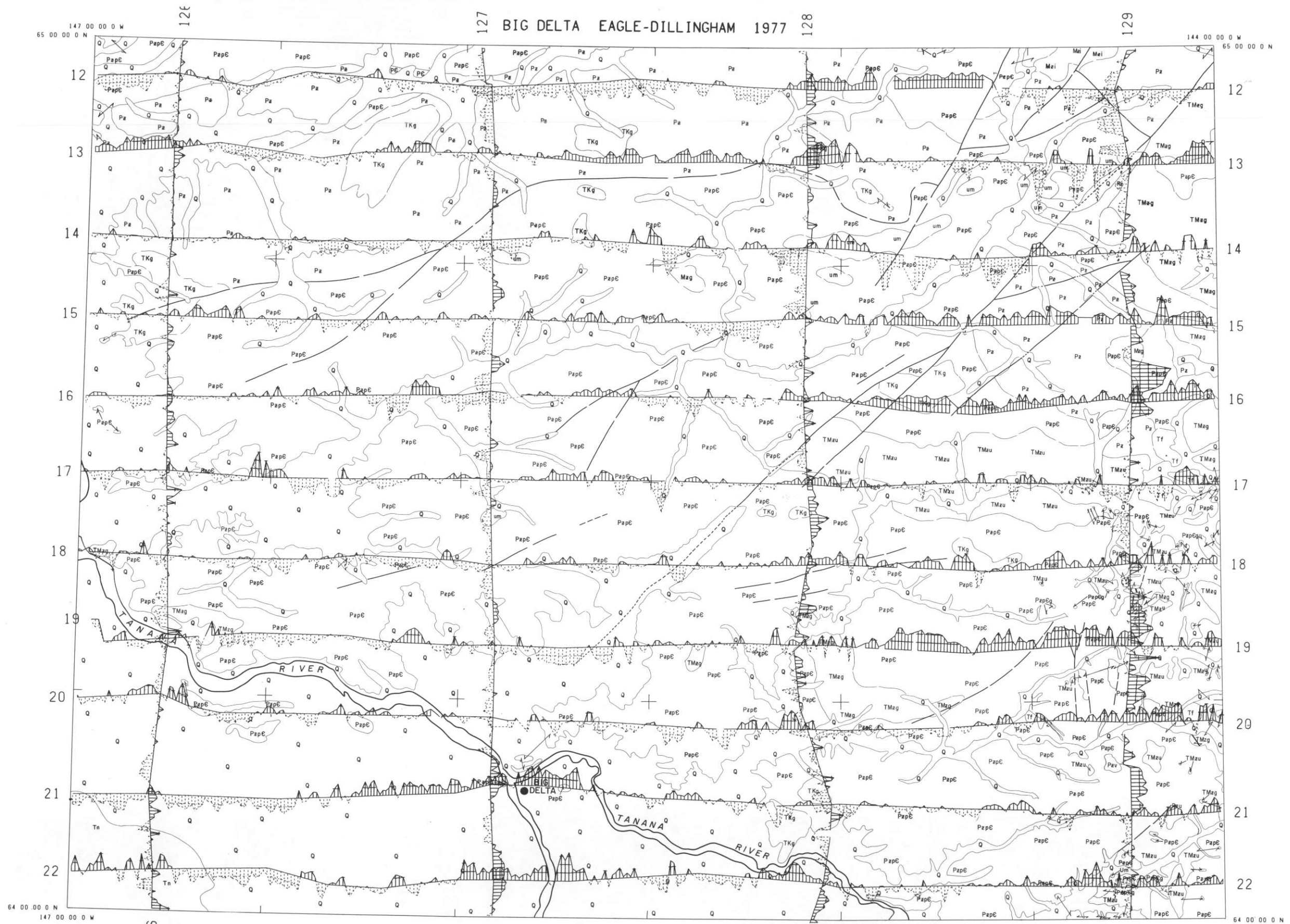
U/K 6.0 S.D./IN. TEXAS INSTRUMENTS



LEGEND: POSITIVE SIGNIFICANCE FACTORS—SOLID LINES
 NEGATIVE SIGNIFICANCE FACTORS—DOTTED LINES

AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY
 PREPARED BY
 TEXAS INSTRUMENTS INCORPORATED
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 1977
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 SUBCONTRACT NO. 77-060-L
 PREPARED FOR
 U.S. DEPARTMENT OF ENERGY

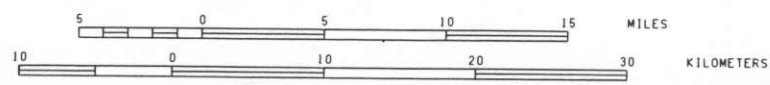
M-4



PROFILE MAP

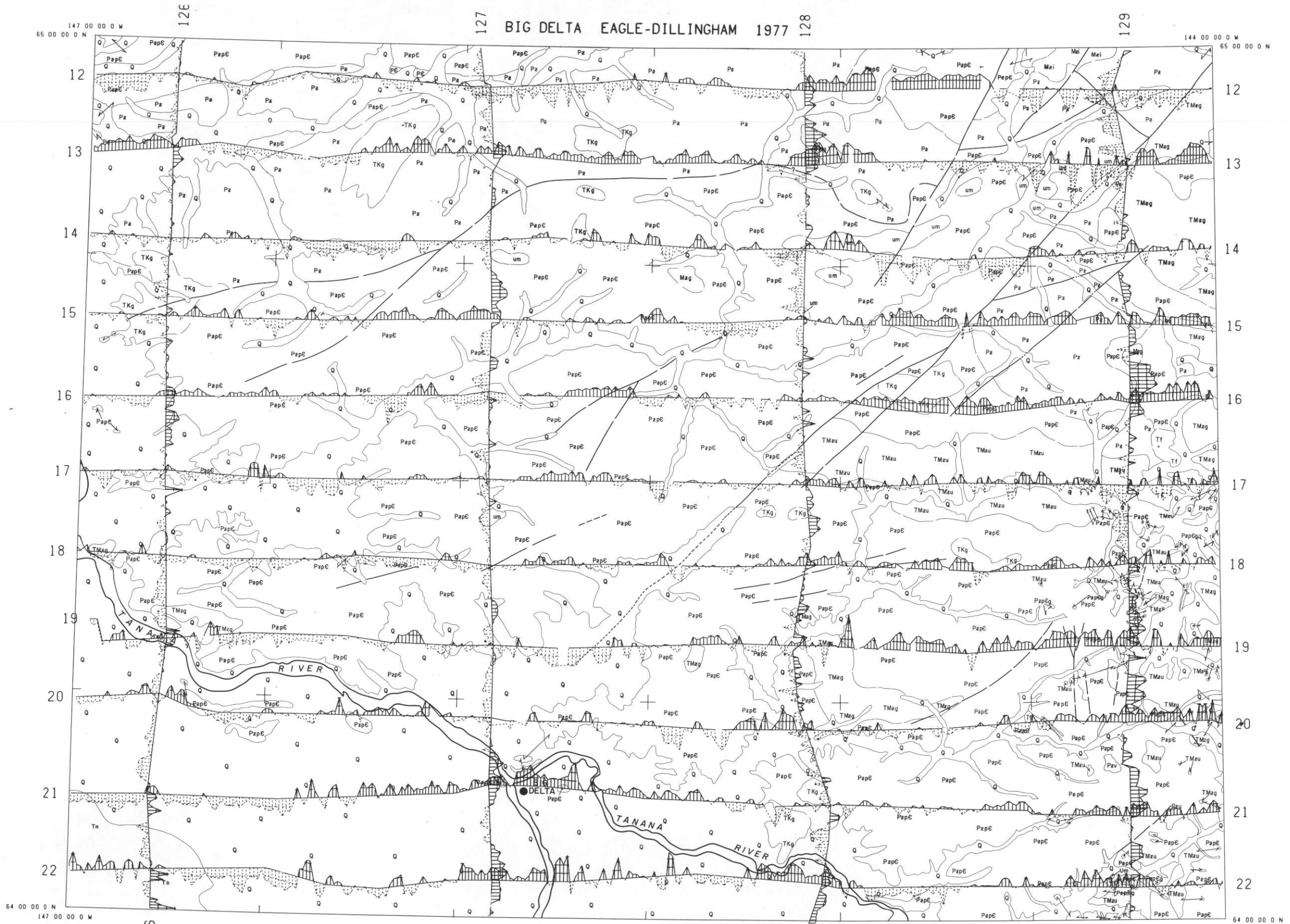
THORIUM 6.0 S.D./IN. TEXAS INSTRUMENTS

LEGEND: POSITIVE SIGNIFICANCE FACTORS—SOLID LINES
 NEGATIVE SIGNIFICANCE FACTORS—DOTTED LINES



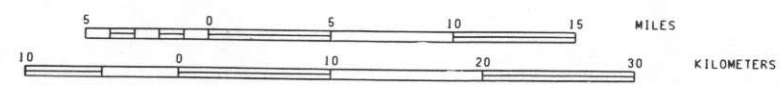
AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY
 PREPARED BY
 TEXAS INSTRUMENTS INCORPORATED
 DALLAS, TEXAS
 1977
 WORK PERFORMED UNDER
 BENDIX FIELD ENGINEERING CORPORATION
 SUBCONTRACT NO. 77-060-L
 PREPARED FOR
 U.S. DEPARTMENT OF ENERGY

M-5

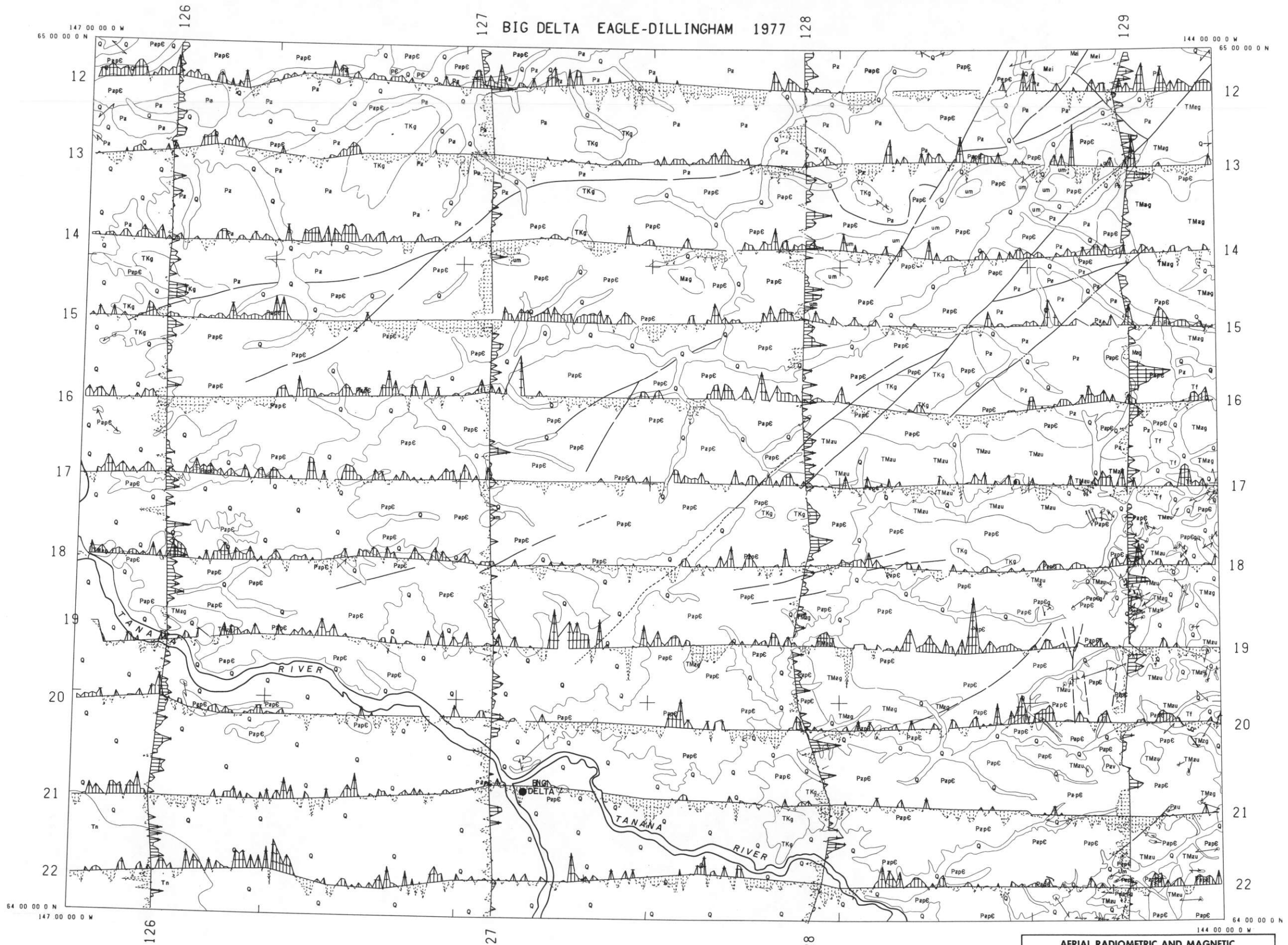


PROFILE MAP POTASSIUM 6.0 S.D./IN. TEXAS INSTRUMENTS

LEGEND: POSITIVE SIGNIFICANCE FACTORS—SOLID LINES
 NEGATIVE SIGNIFICANCE FACTORS—DOTTED LINES



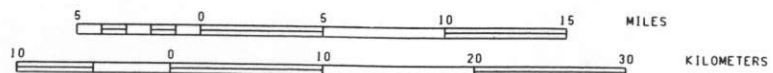
AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY
 PREPARED BY
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 DALLAS, TEXAS
 1977
 WORK PERFORMED UNDER
 BENDIX FIELD ENGINEERING CORPORATION
 SUBCONTRACT NO. 77-060-L
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PROFILE MAP

TH/K 6 0 S.D./IN. TEXAS INSTRUMENTS

LEGEND: POSITIVE SIGNIFICANCE FACTORS—SOLID LINES
 NEGATIVE SIGNIFICANCE FACTORS—DOTTED LINES



AERIAL RADIOMETRIC AND MAGNETIC RECONNAISSANCE SURVEY

PREPARED BY
 TEXAS INSTRUMENTS INCORPORATED
 DALLAS, TEXAS

1977

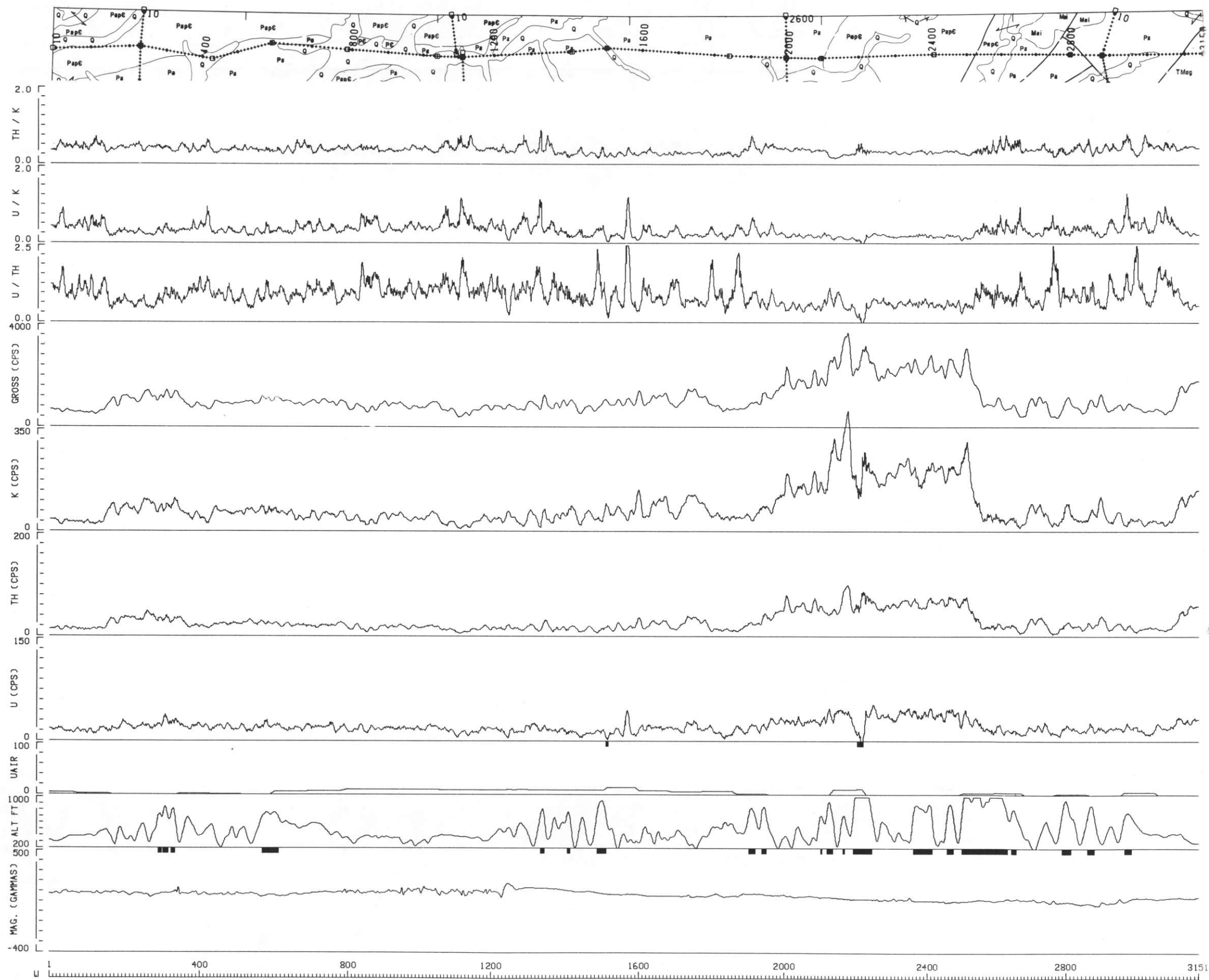
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 SUBCONTRACT NO. 77-060-L

PREPARED FOR
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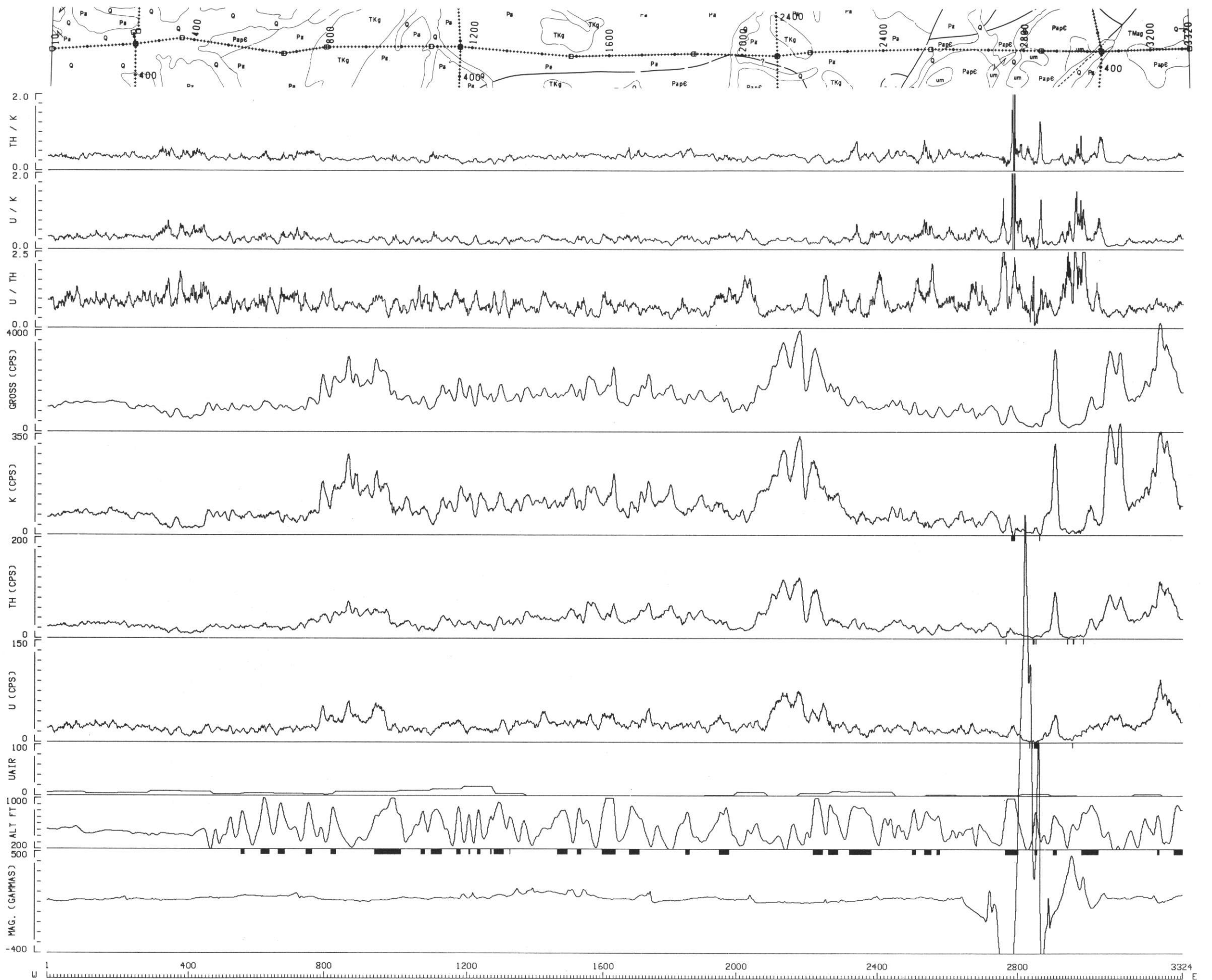
M-7

PROFILES

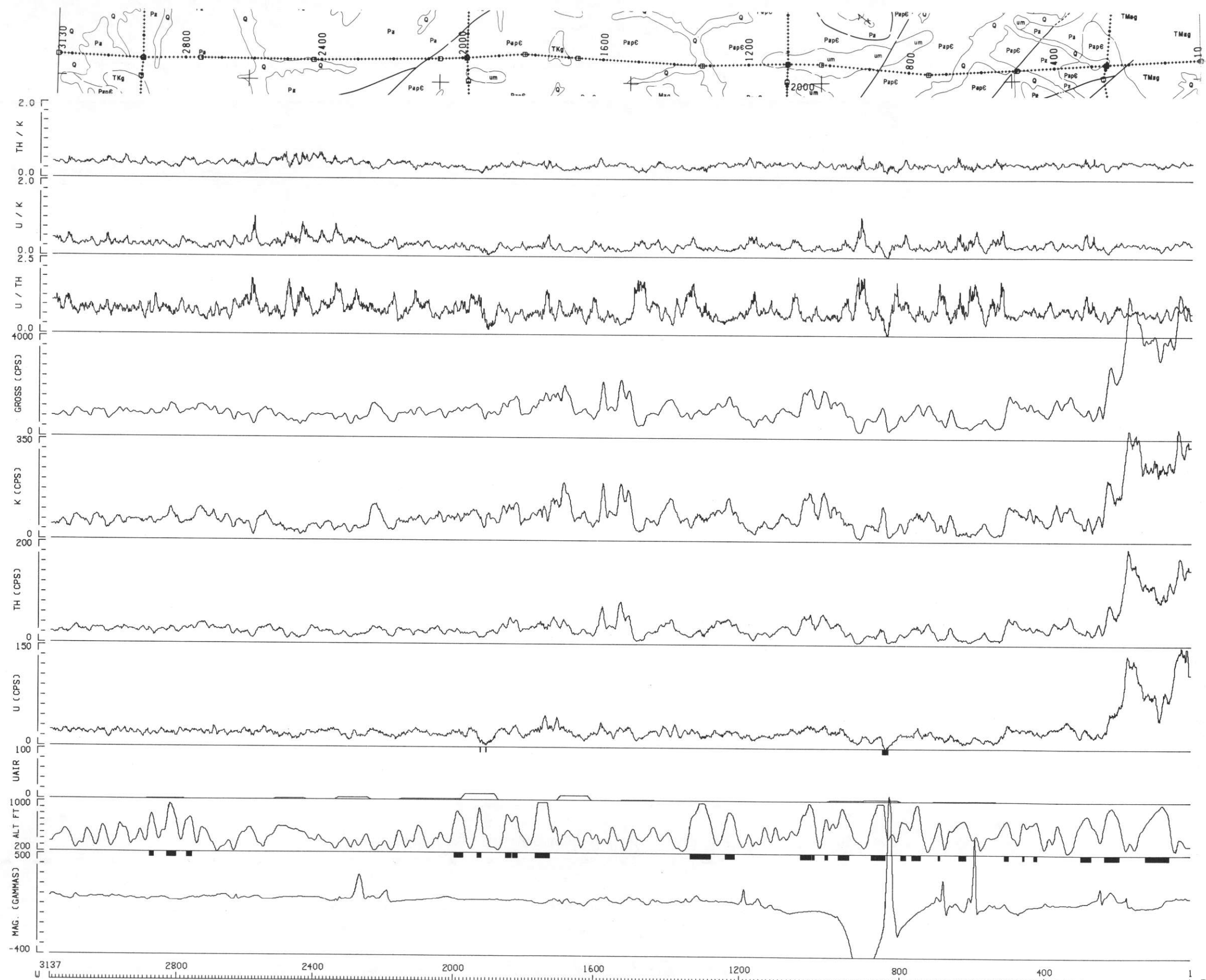
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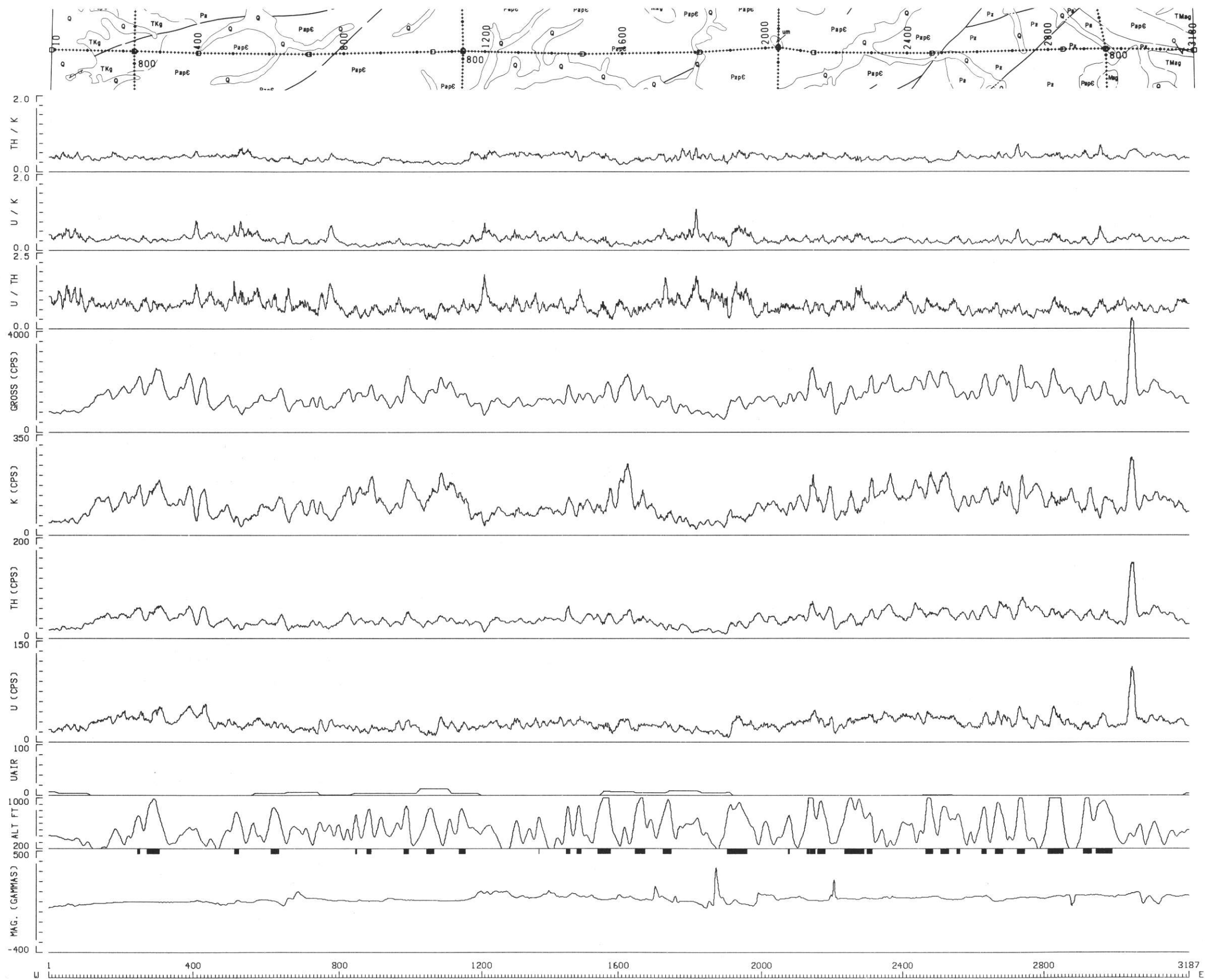
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 FL-012 BIG DELTA



ALASKA 1977 US DEPT. OF ENERGY TEXAS INSTRU.
 FL-013 BIG DELTA

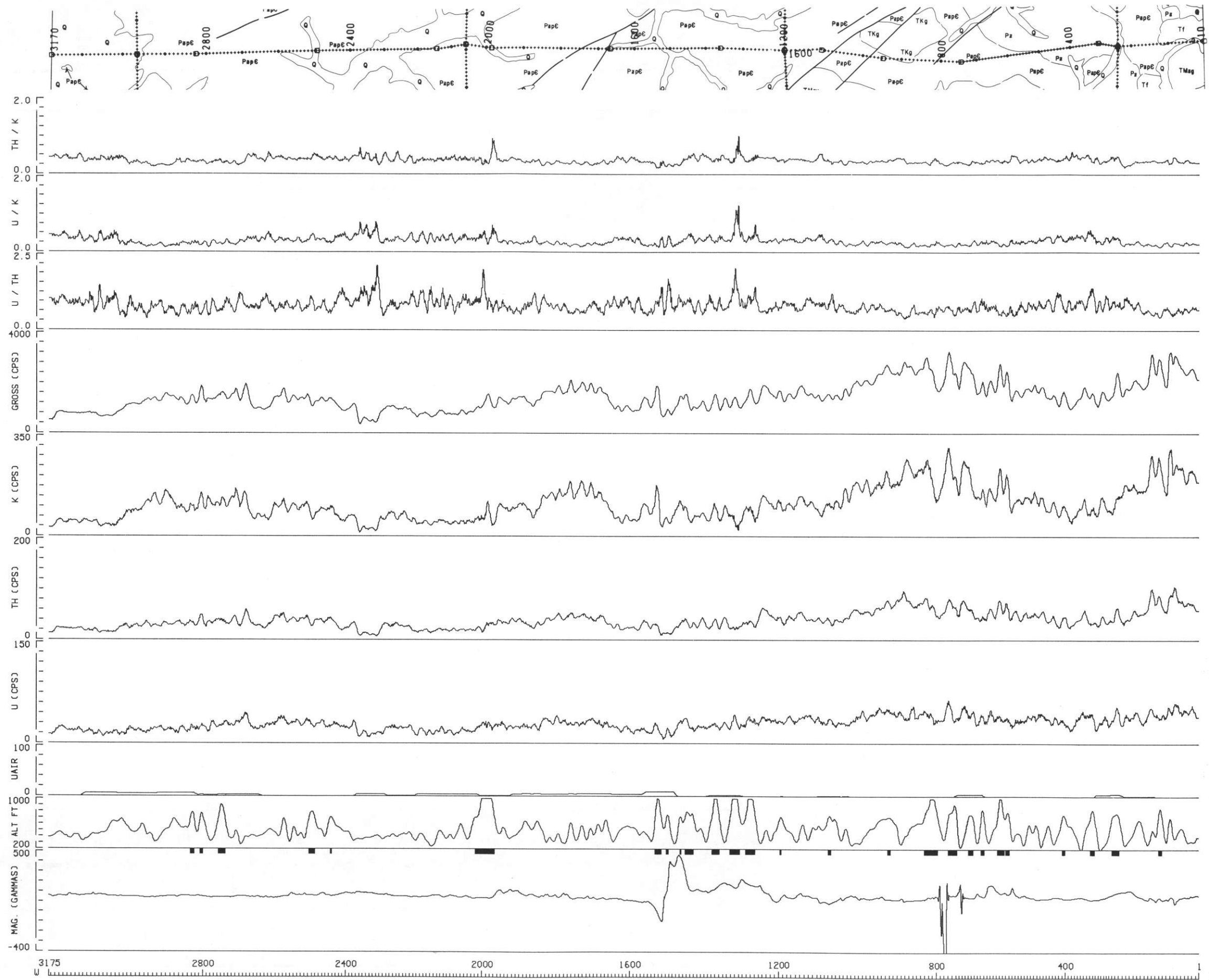


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 FL-014 BIG DELTA

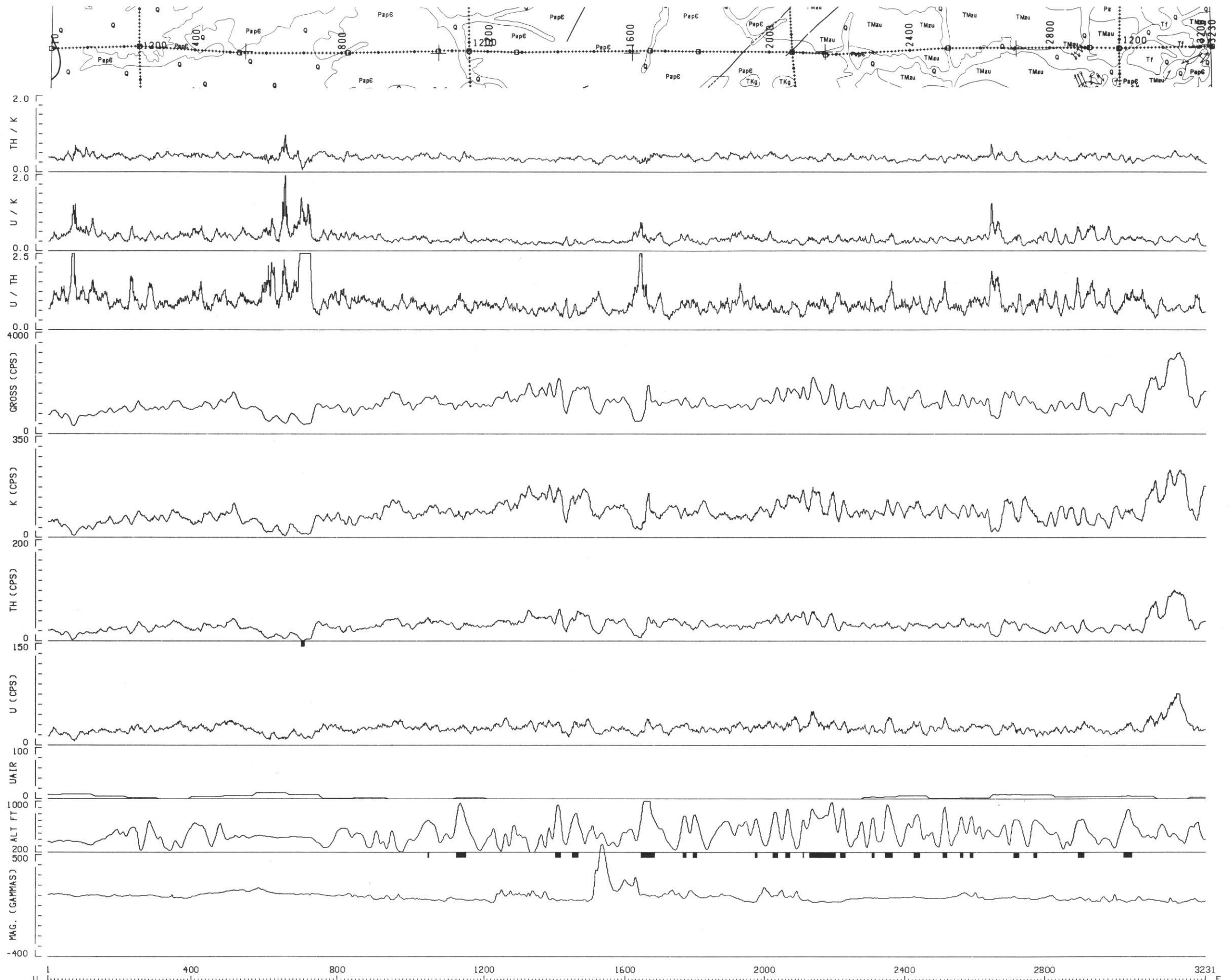


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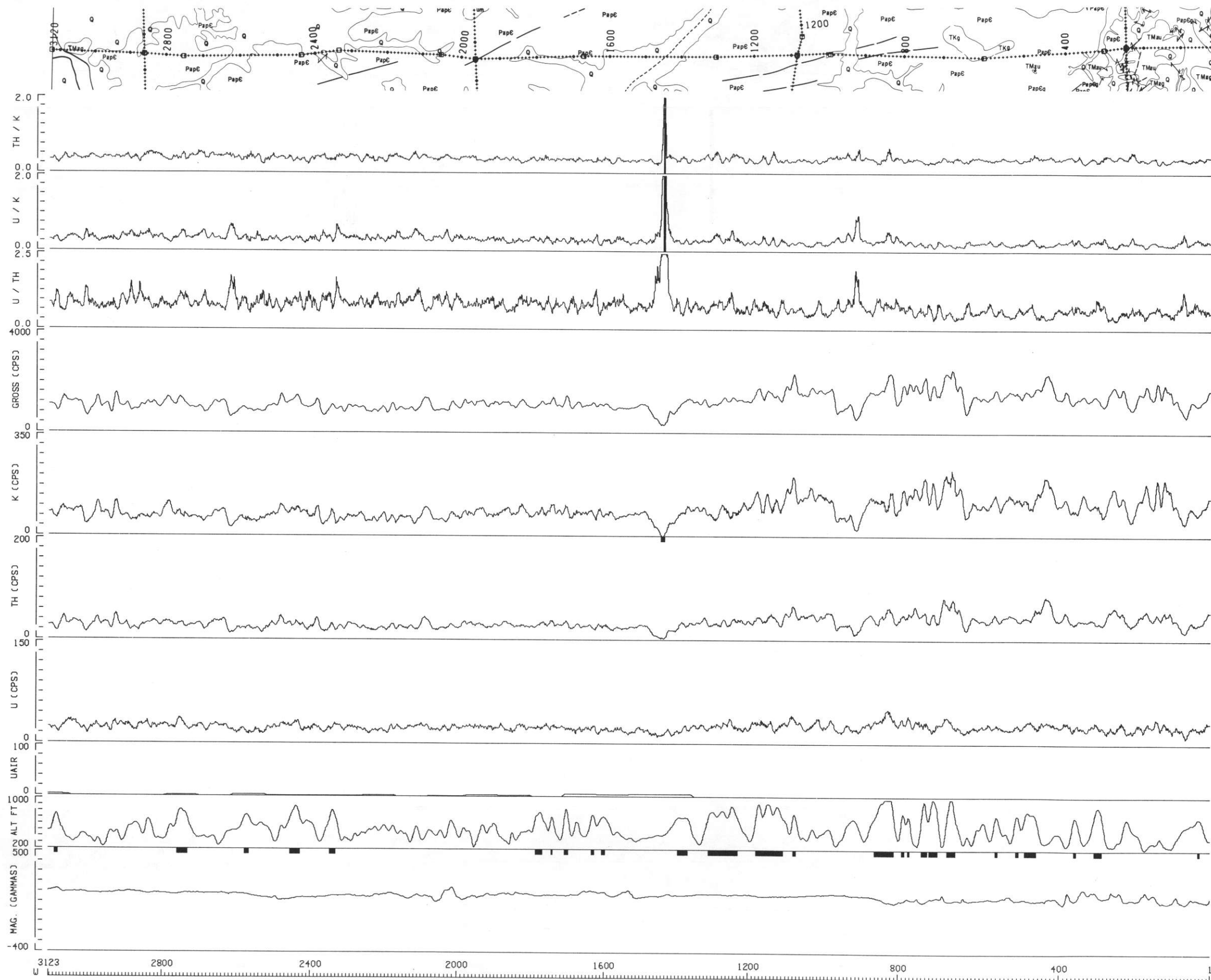
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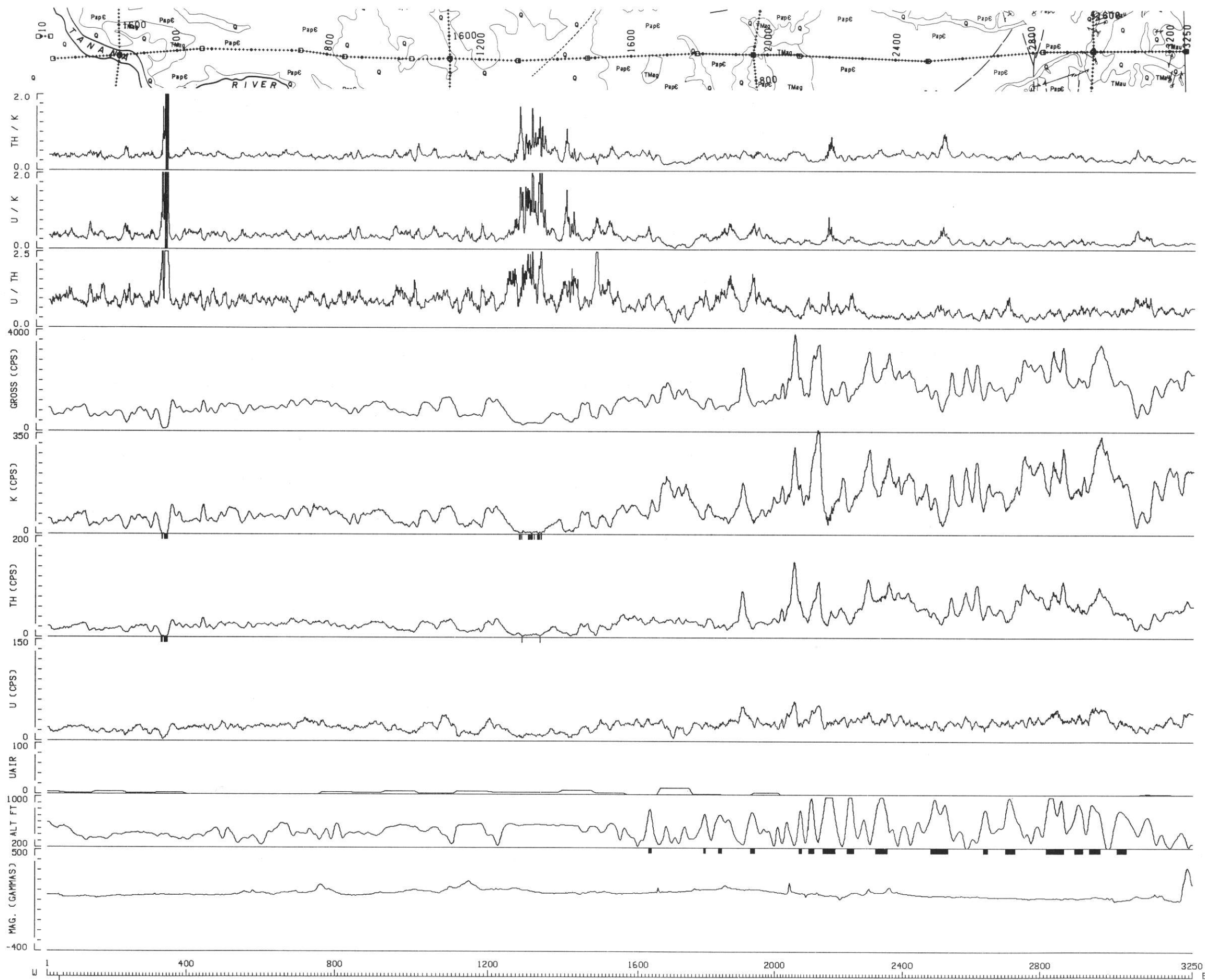
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 FL-016 BIG DELTA



5 MILES

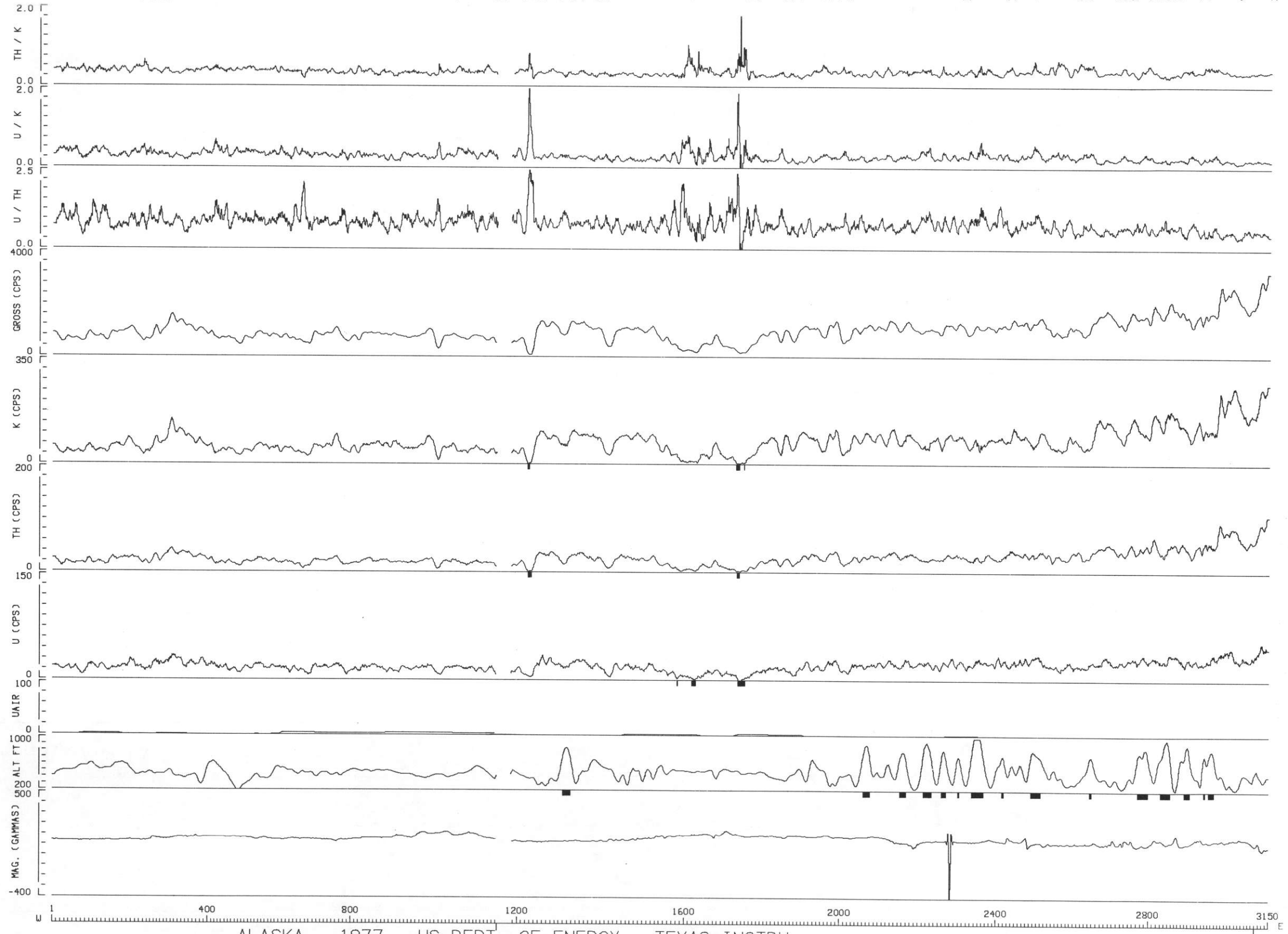
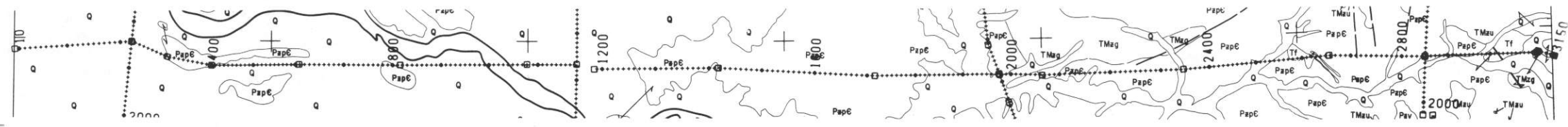


ALASKA 1977 US DEPT. OF ENERGY TEXAS INSTRU.
 FL-018 BIG DELTA



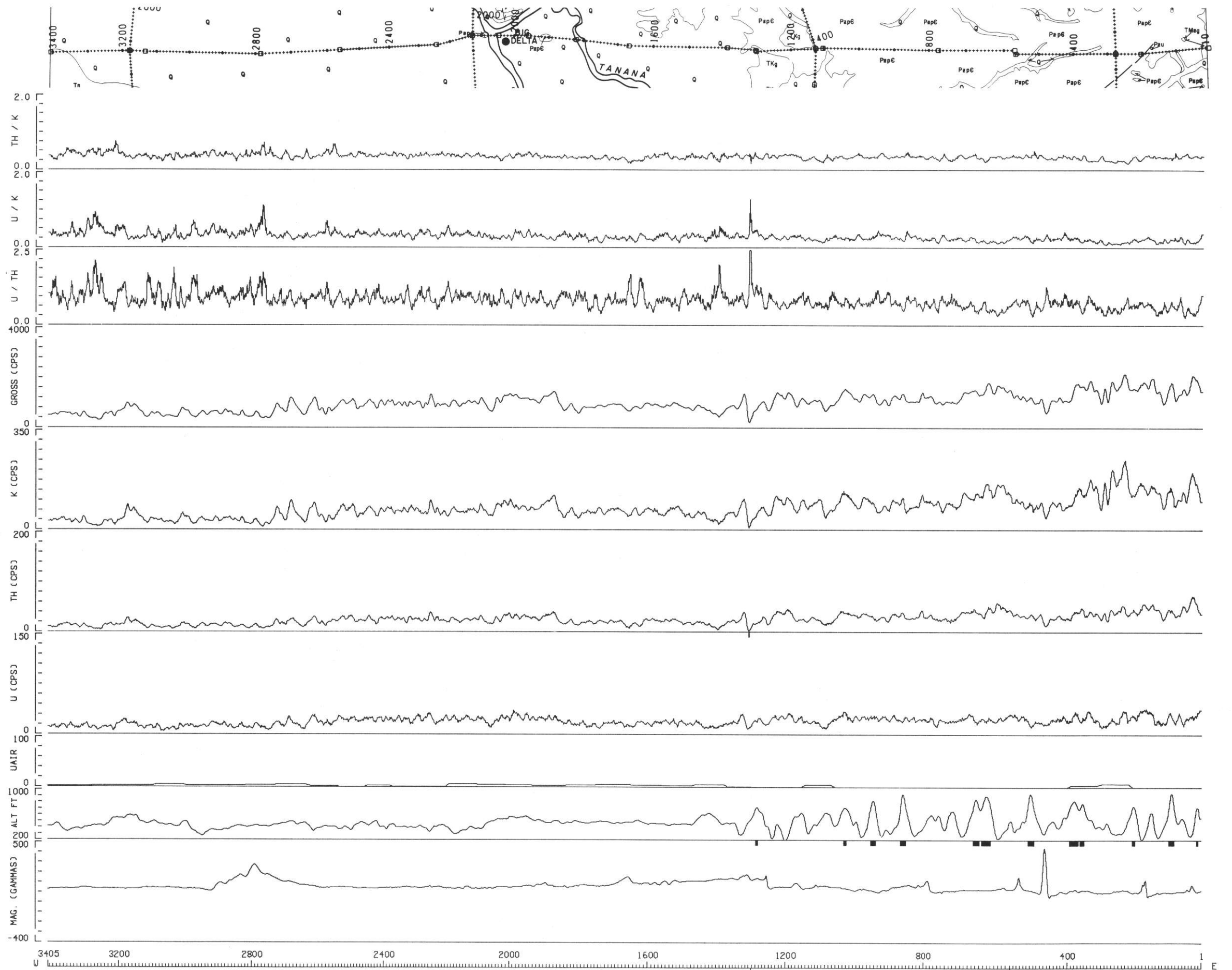
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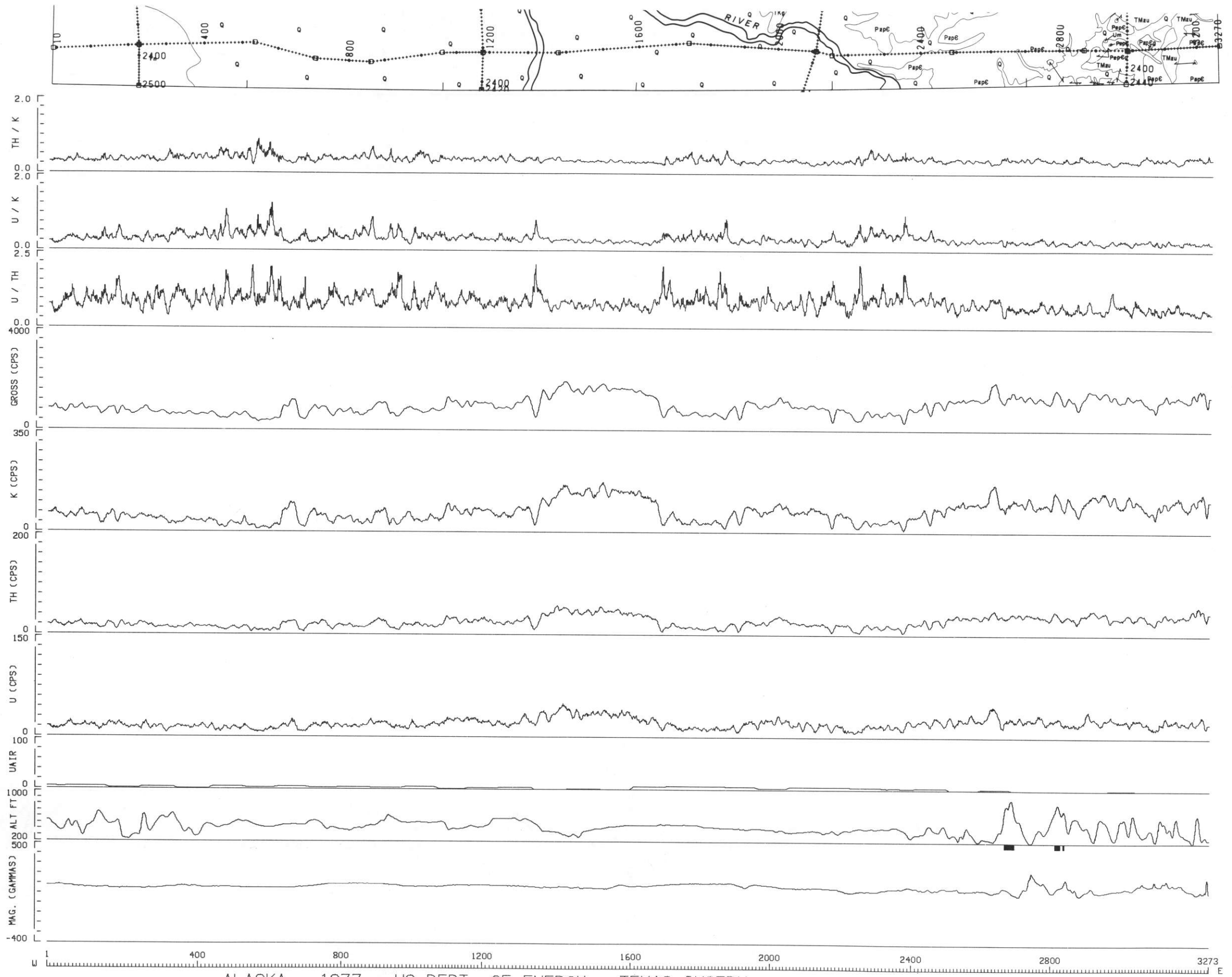


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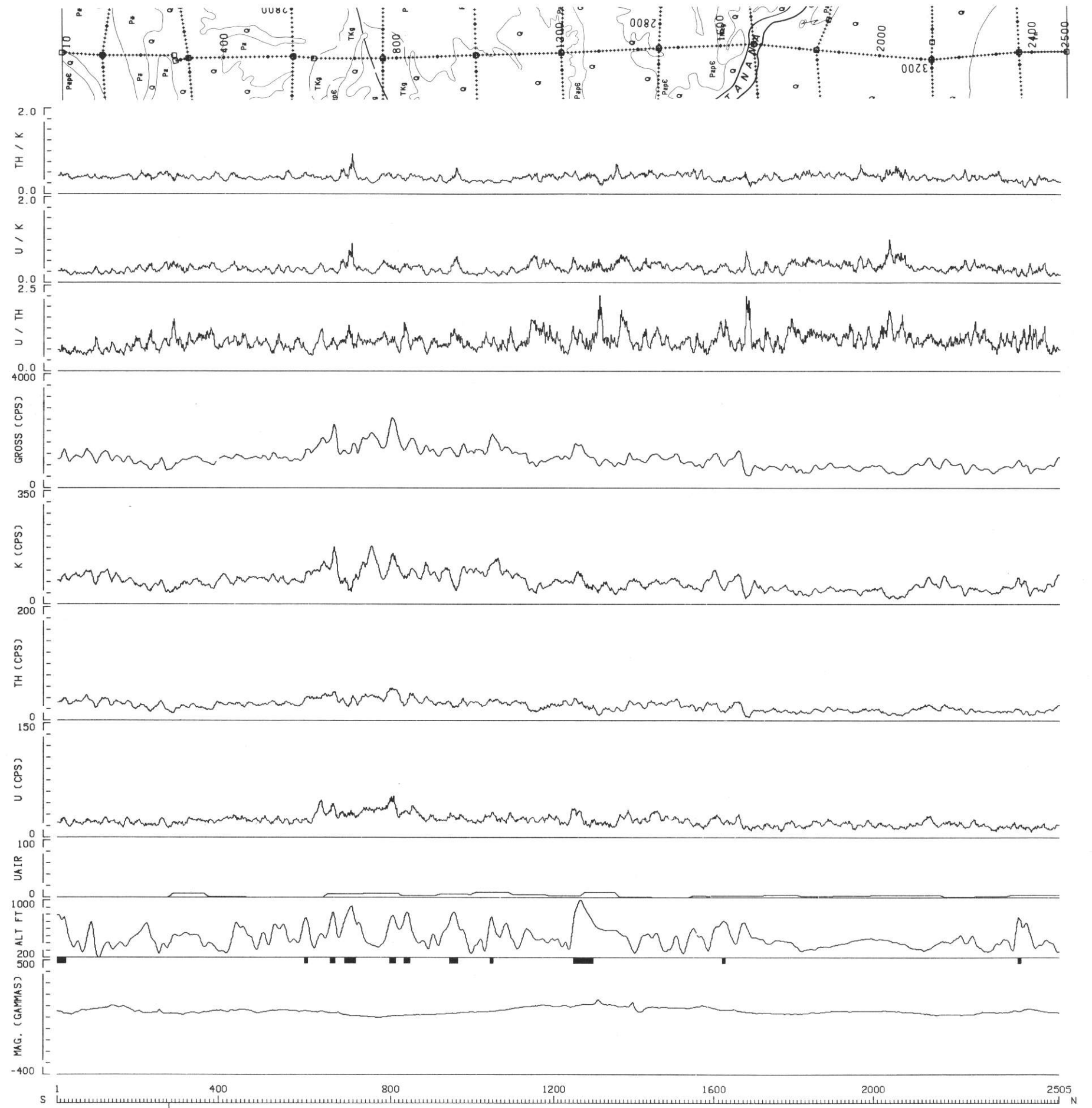


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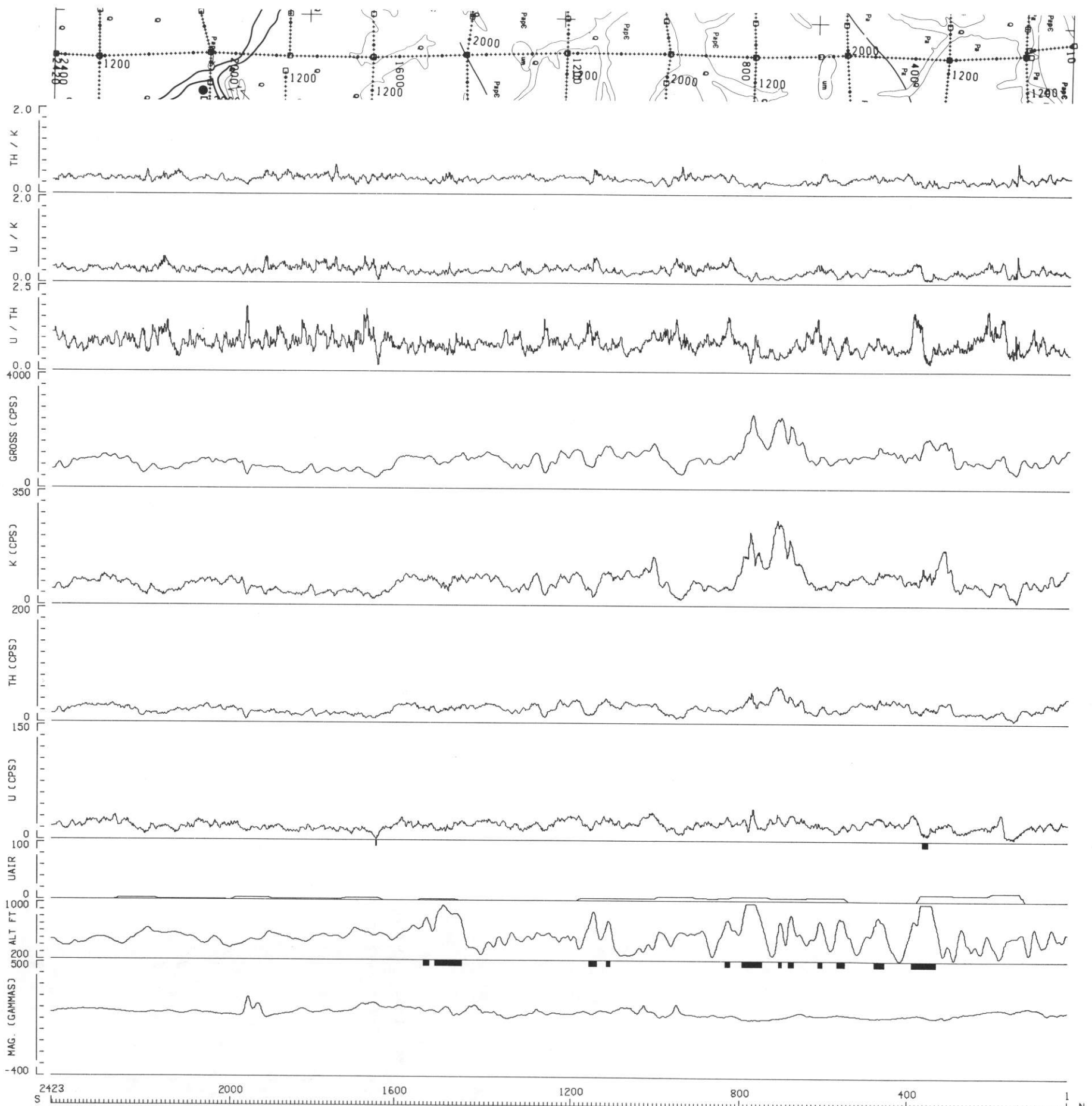


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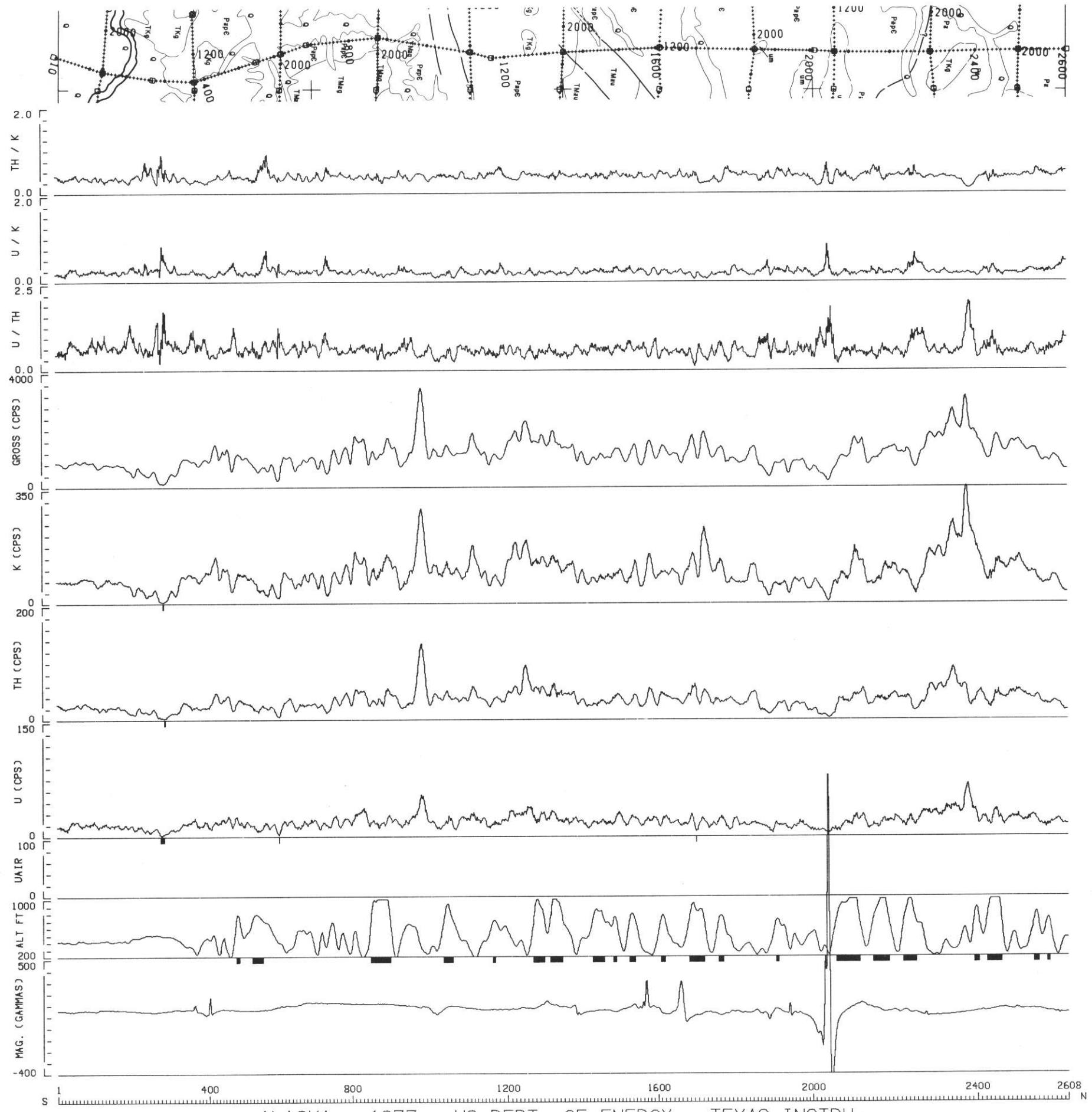
5 MILE(S)



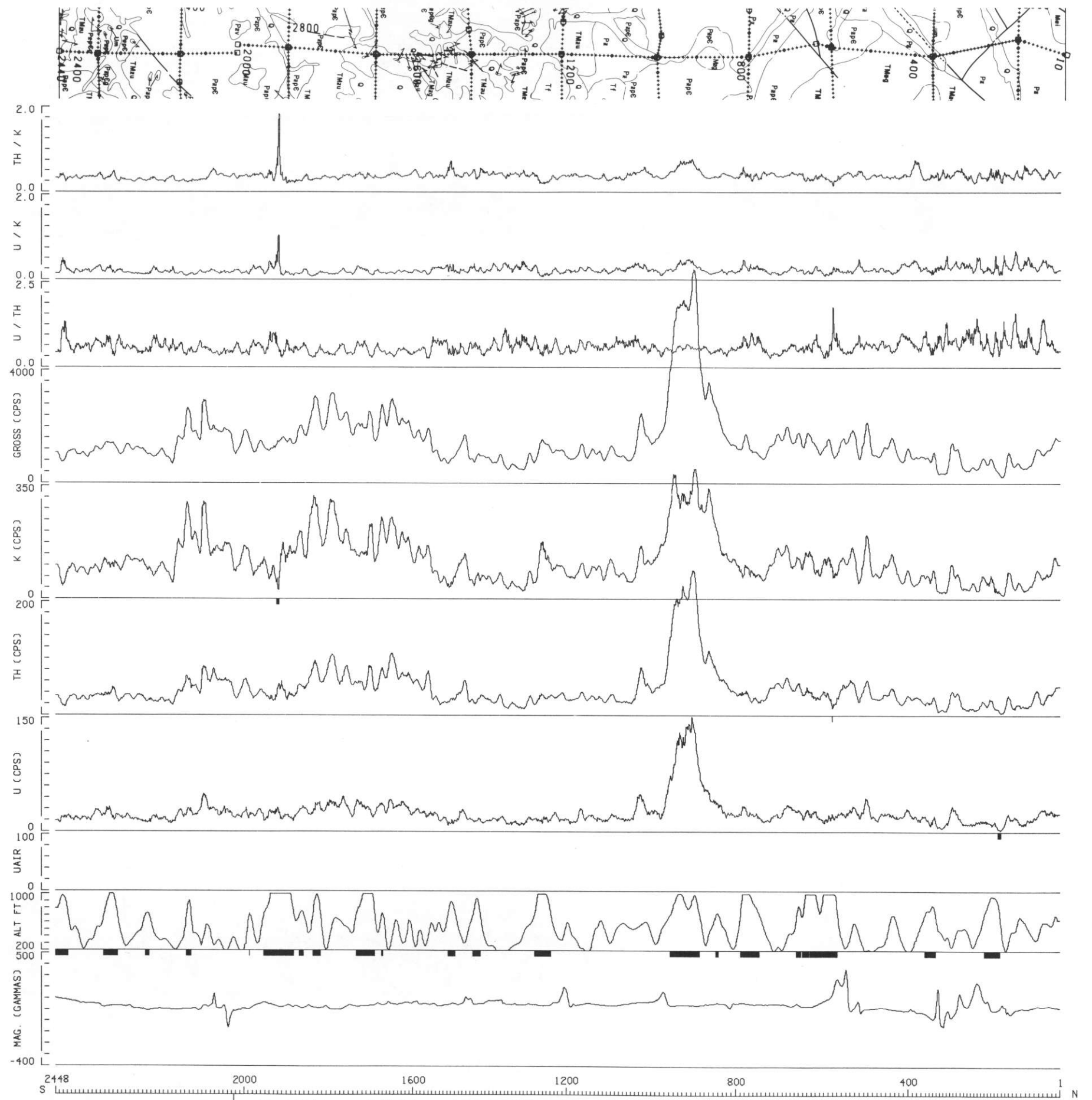
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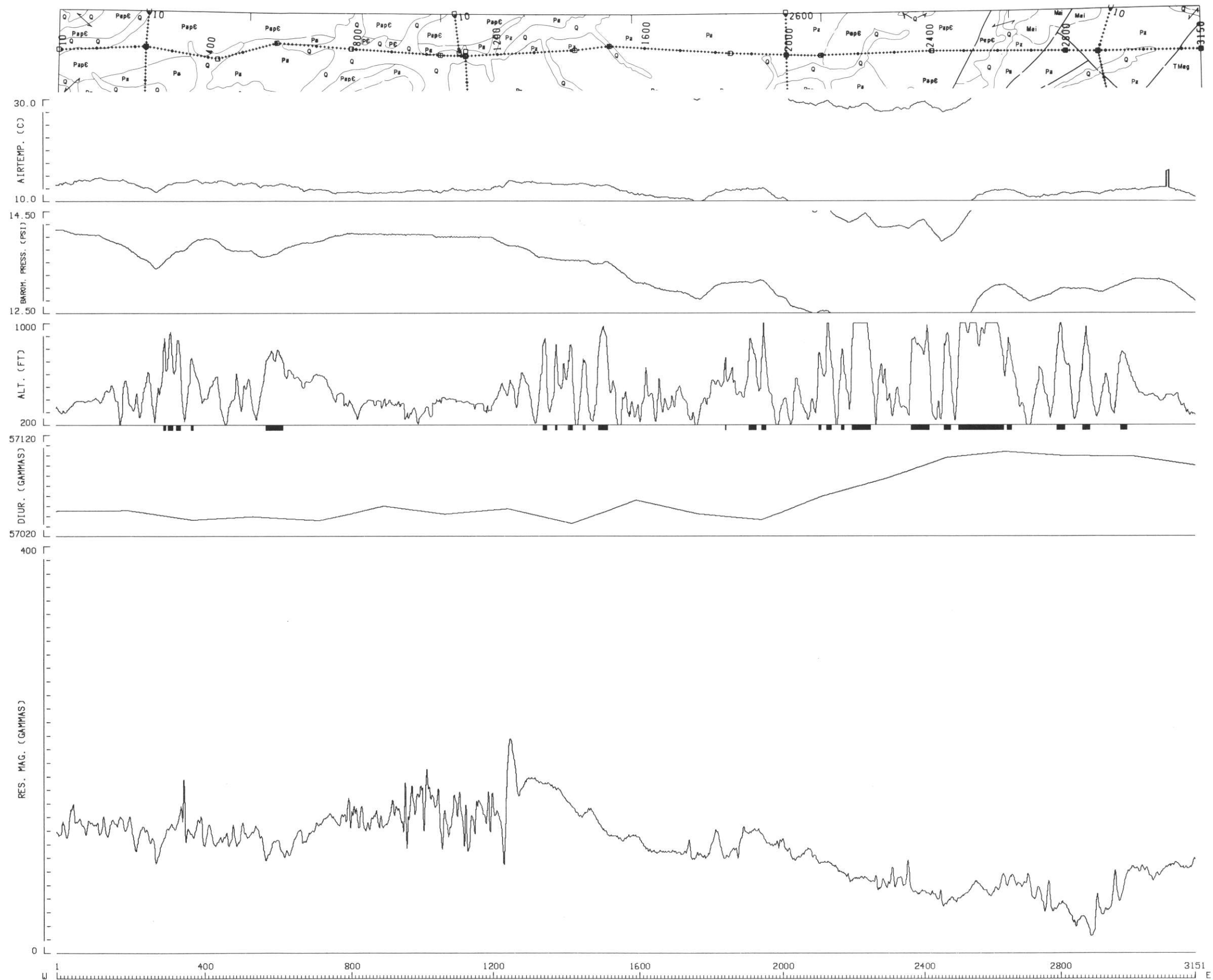
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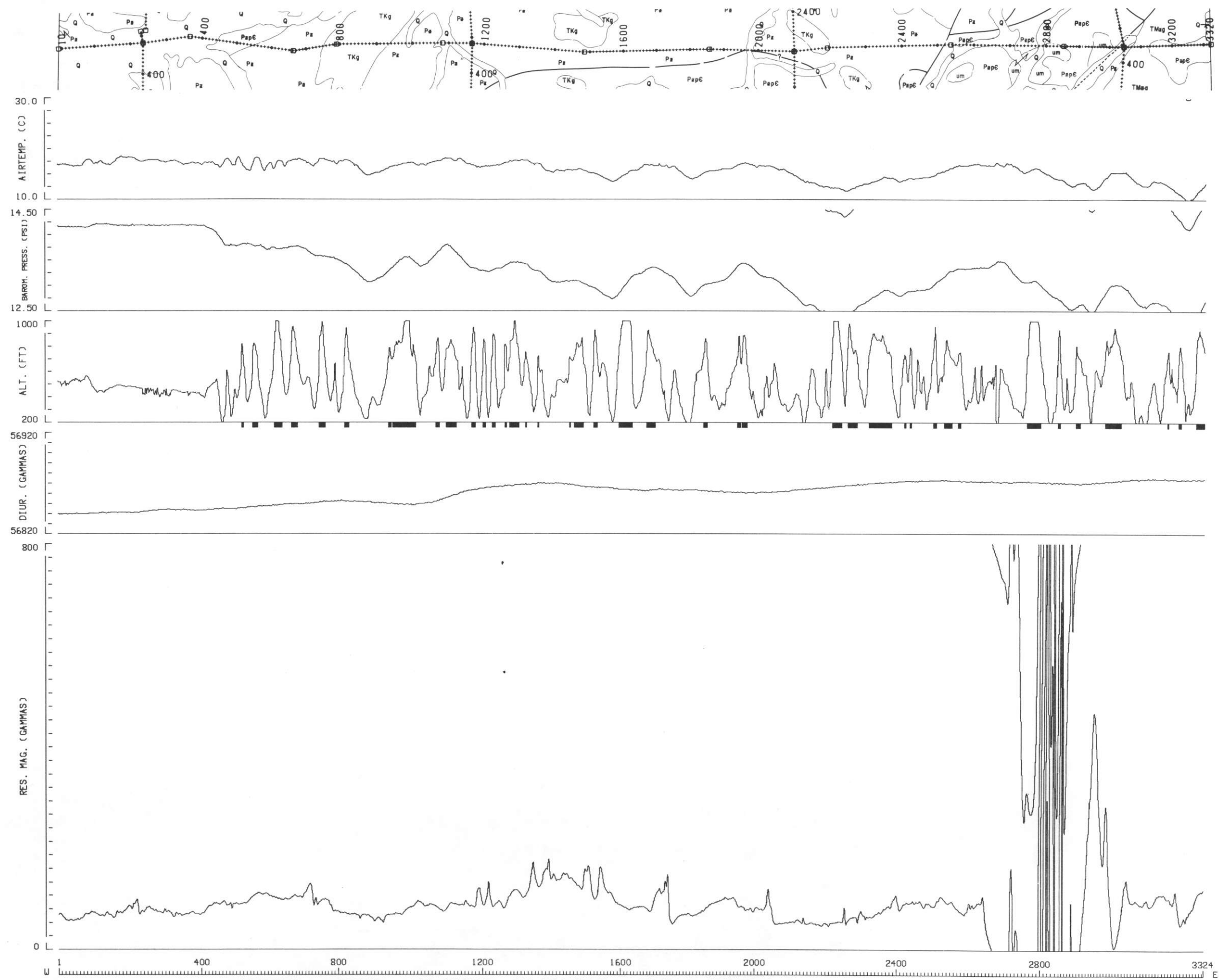


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 FL-128 BIG DELTA



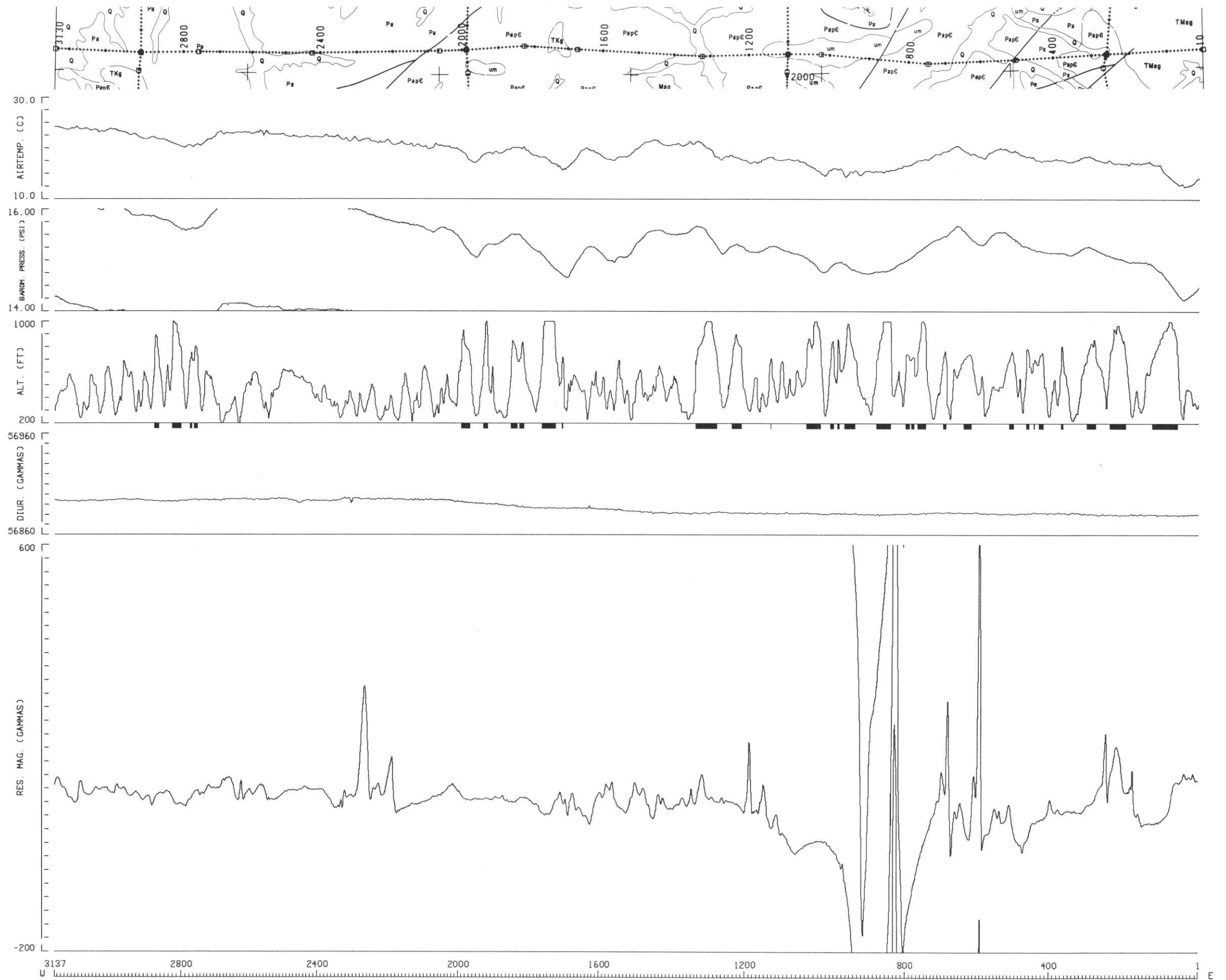
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 FL-129 BIG DELTA



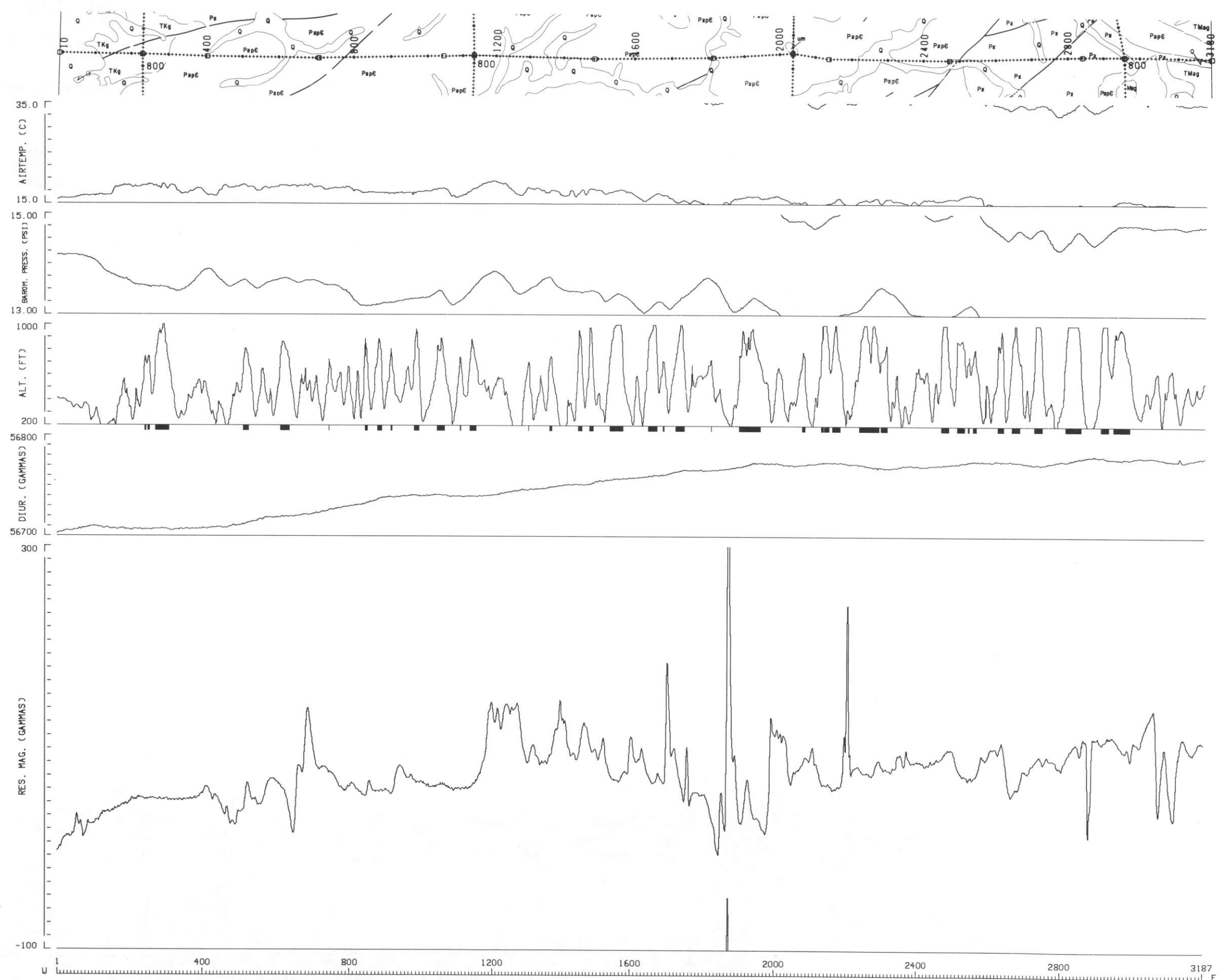


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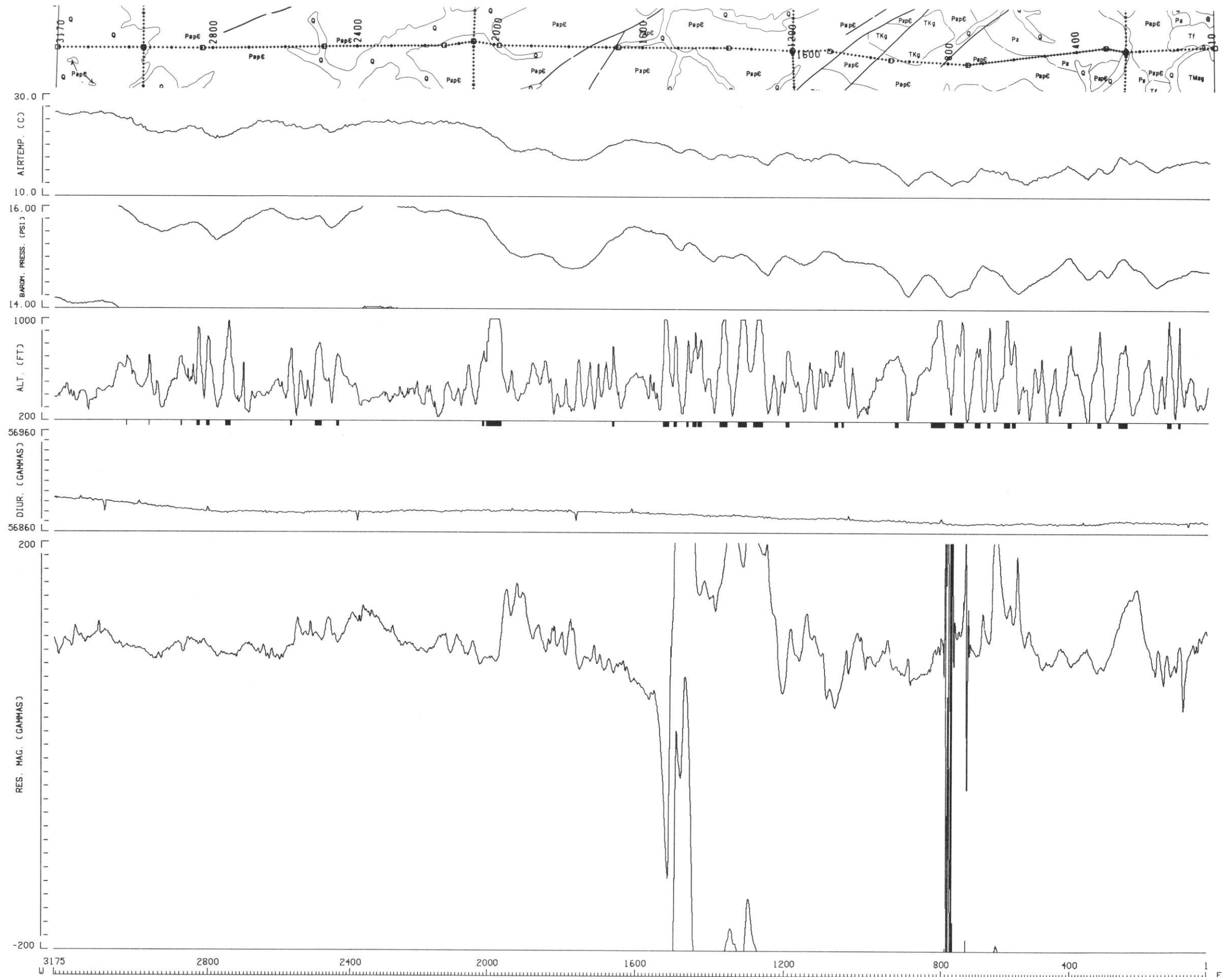
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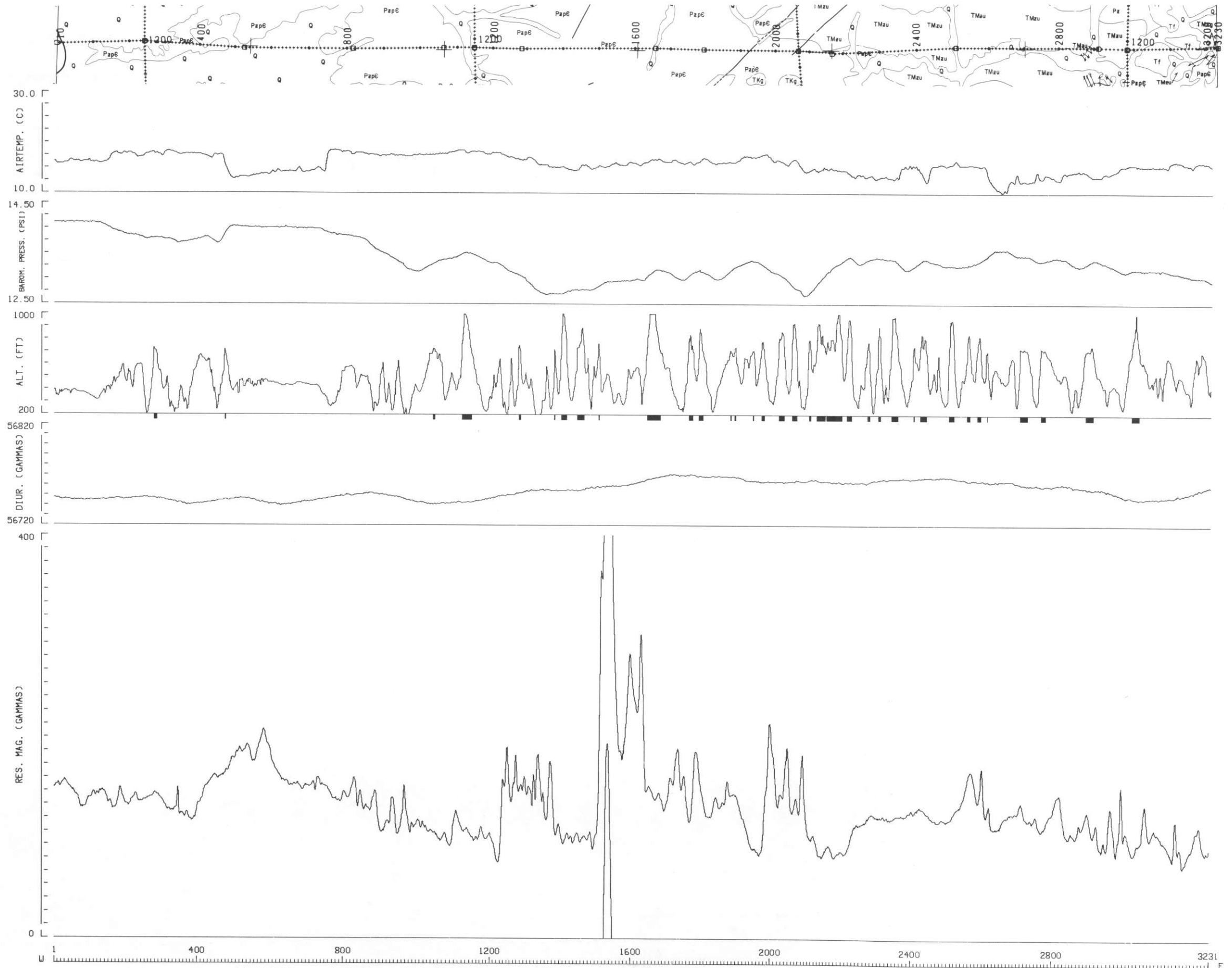
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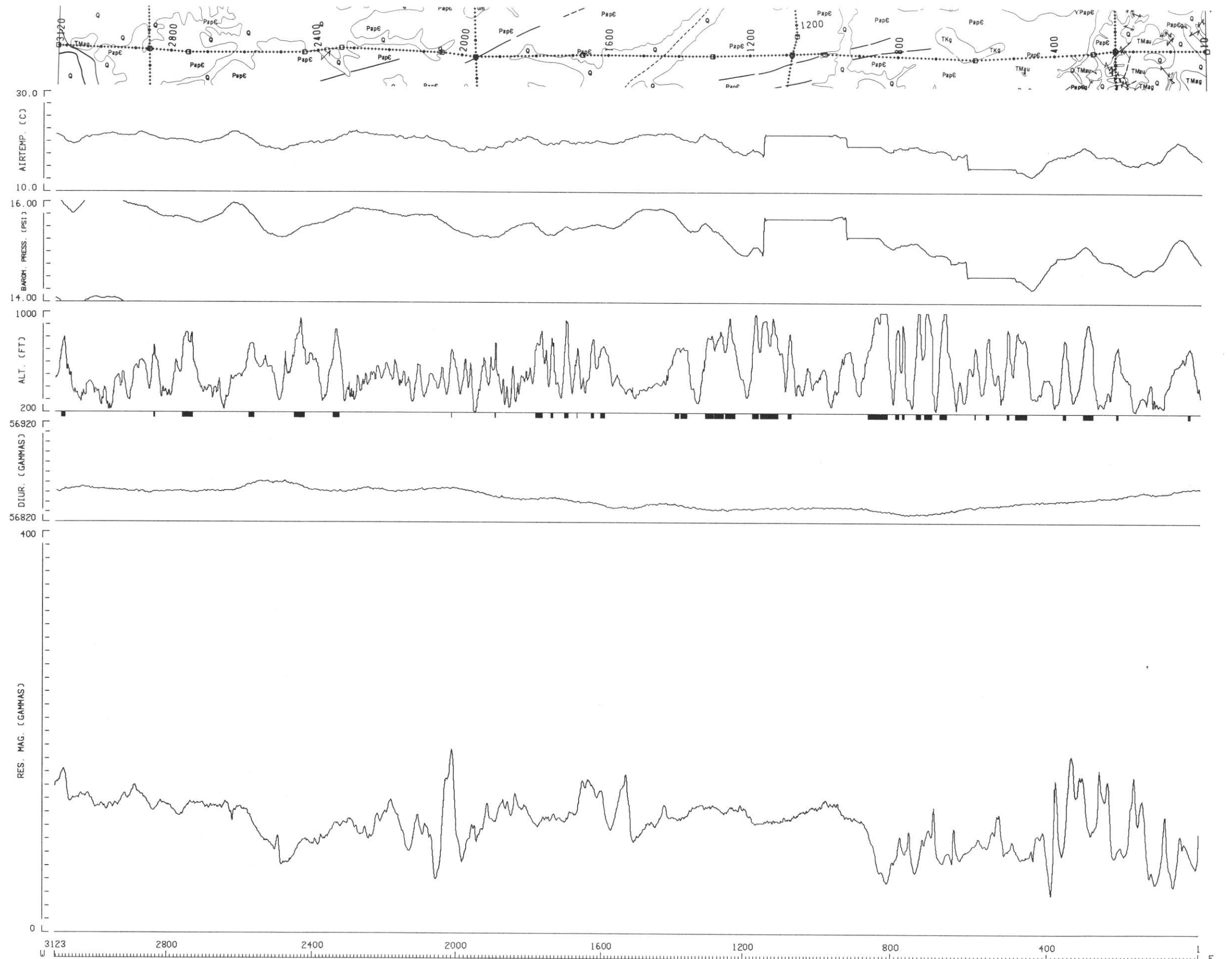
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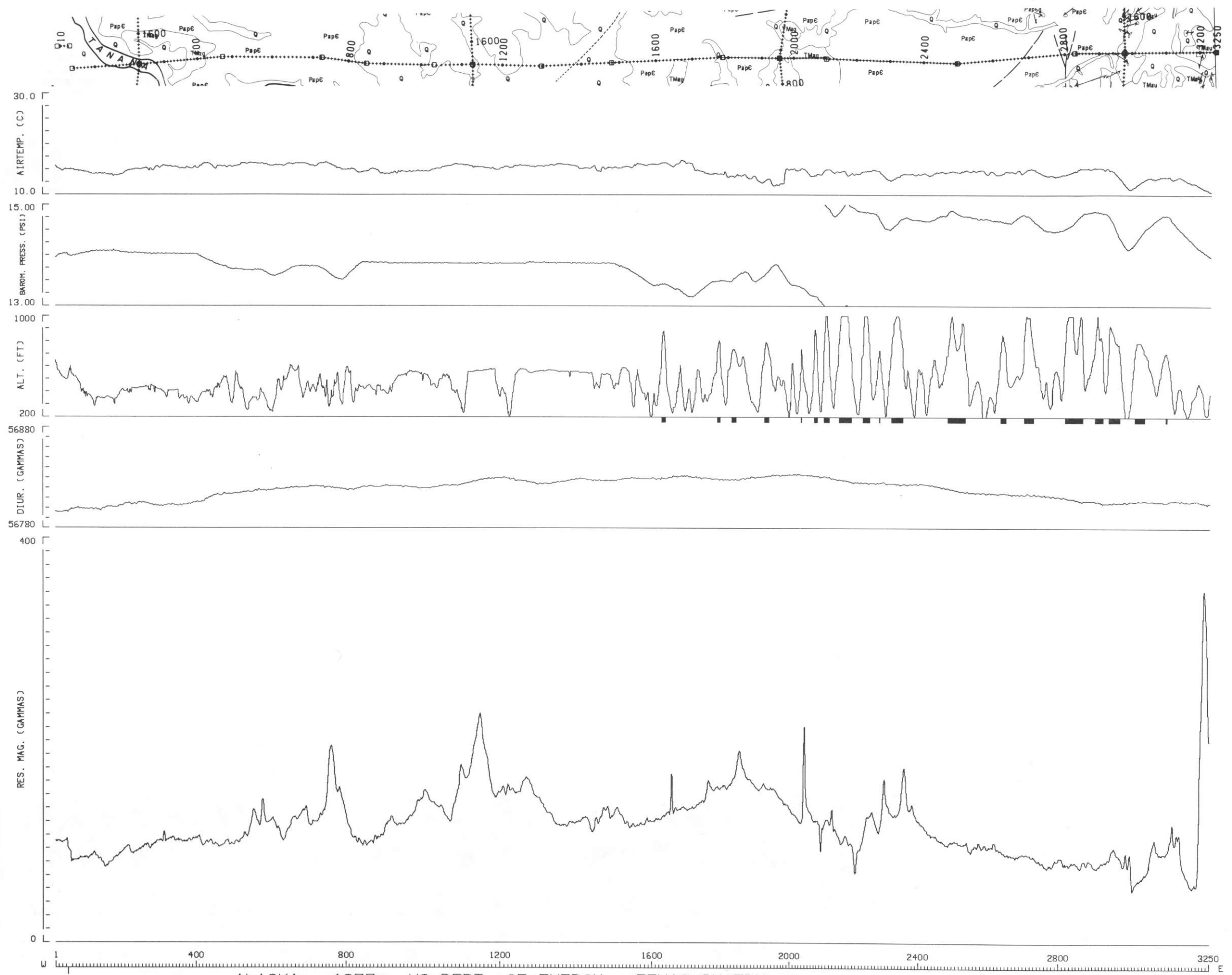
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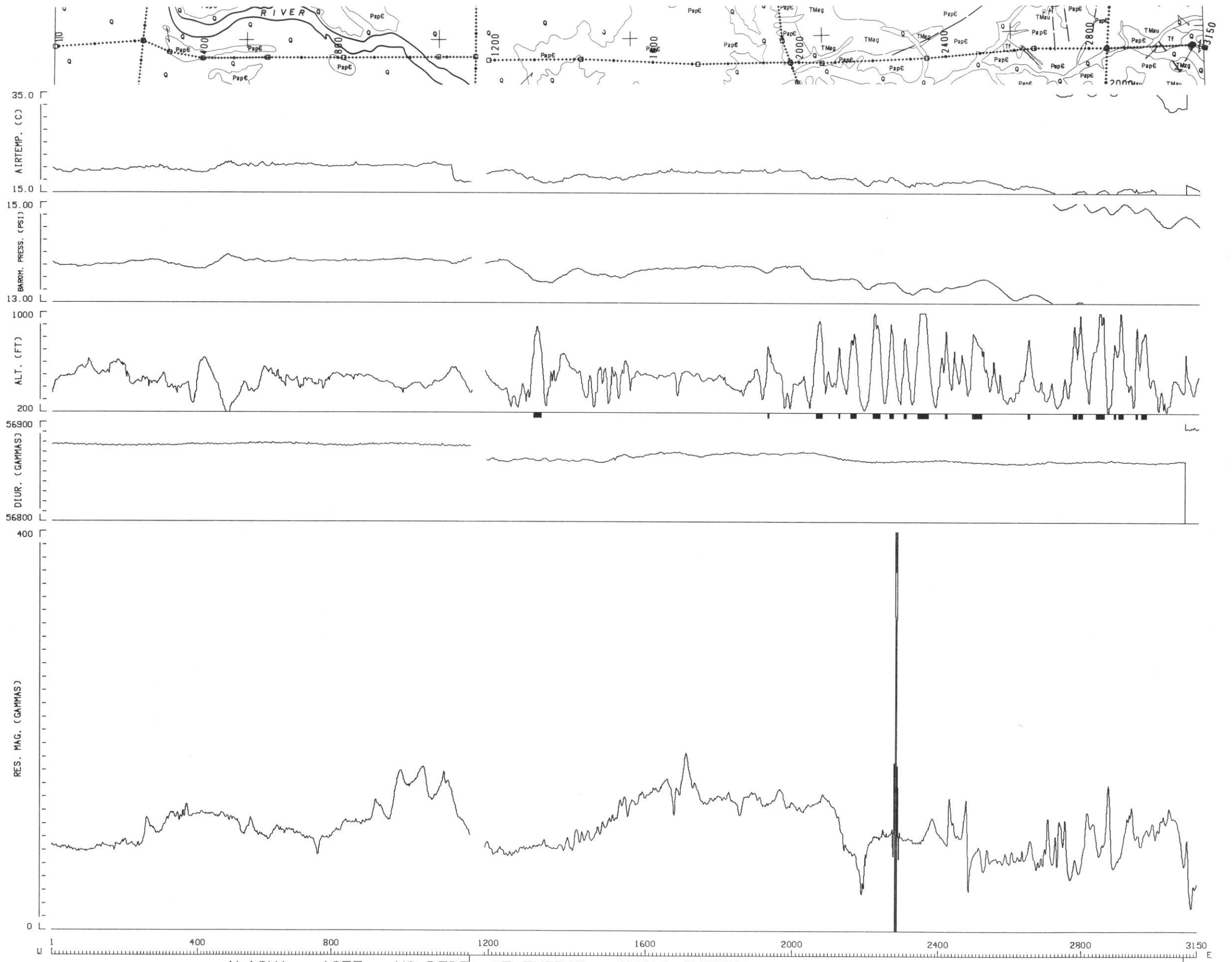
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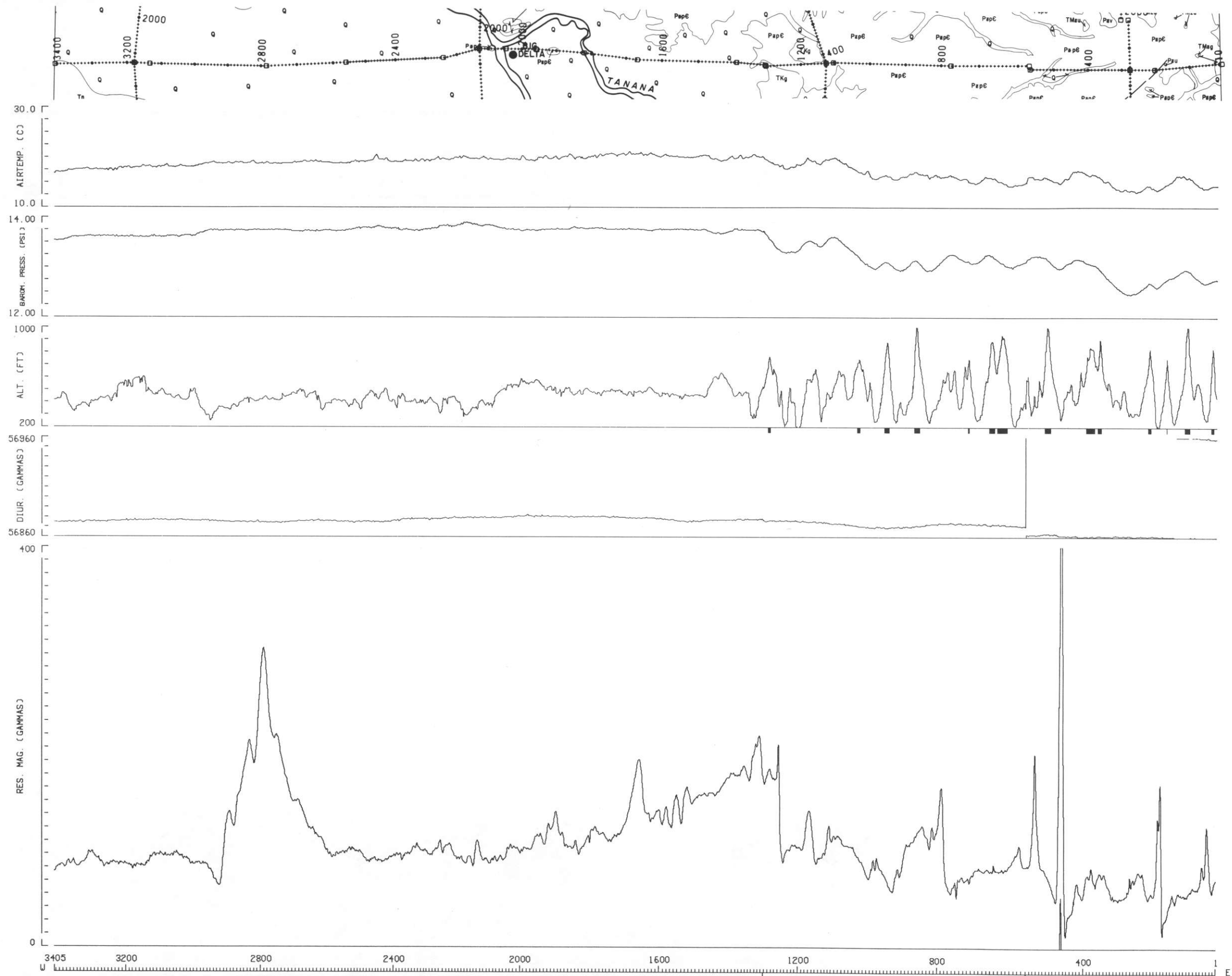


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 FL-018 BIG DELTA

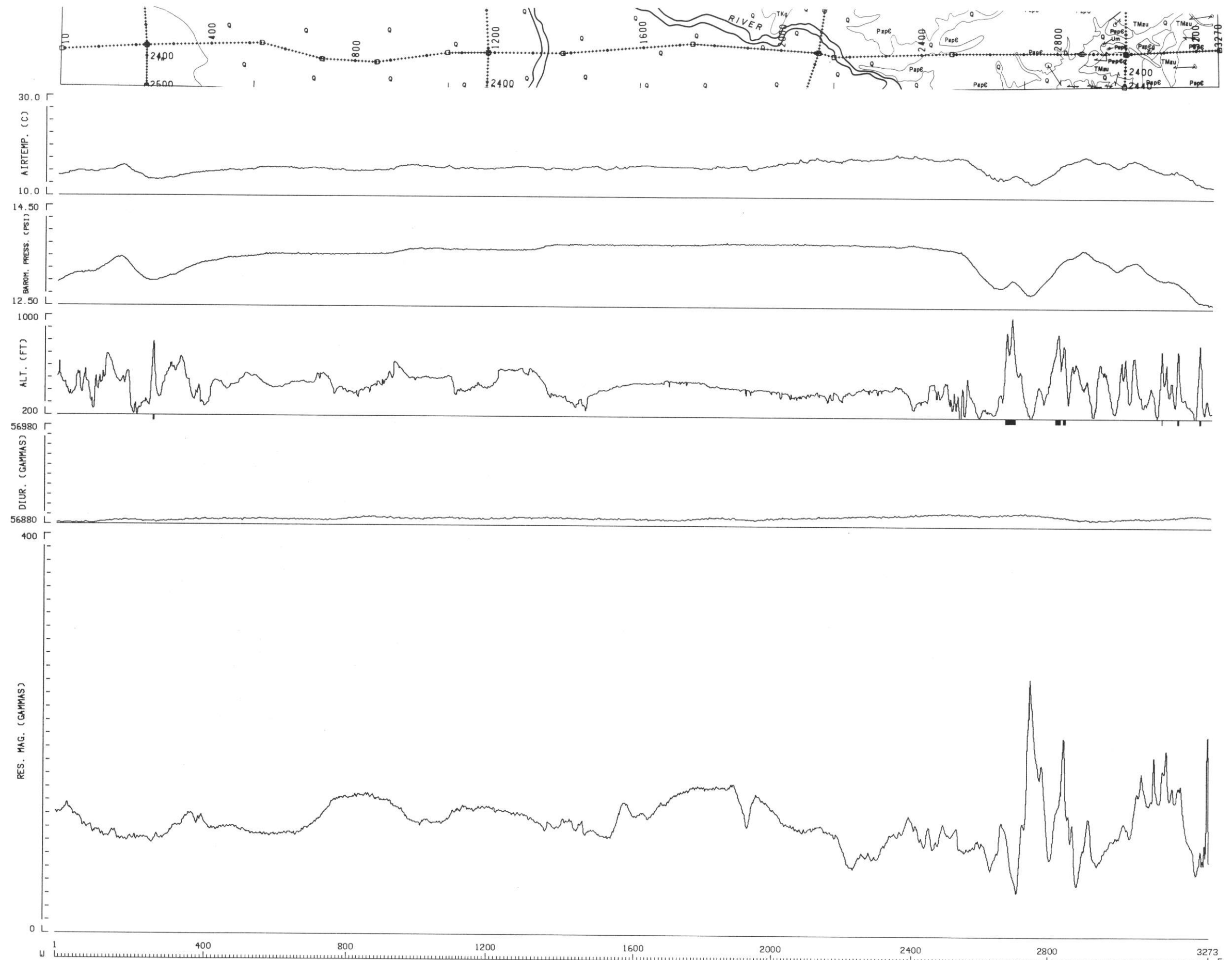


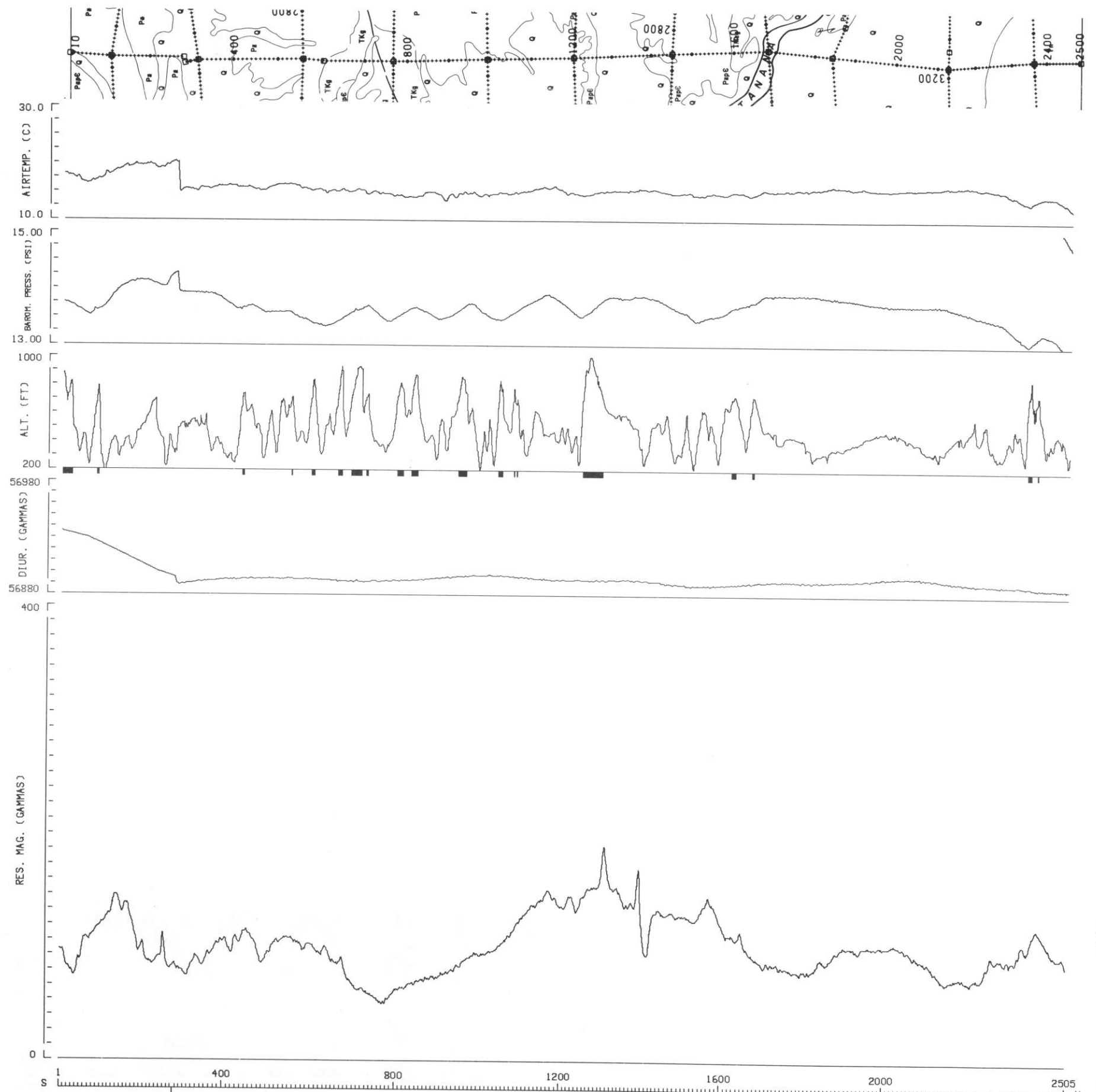
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 FL-019 BIG DELTA



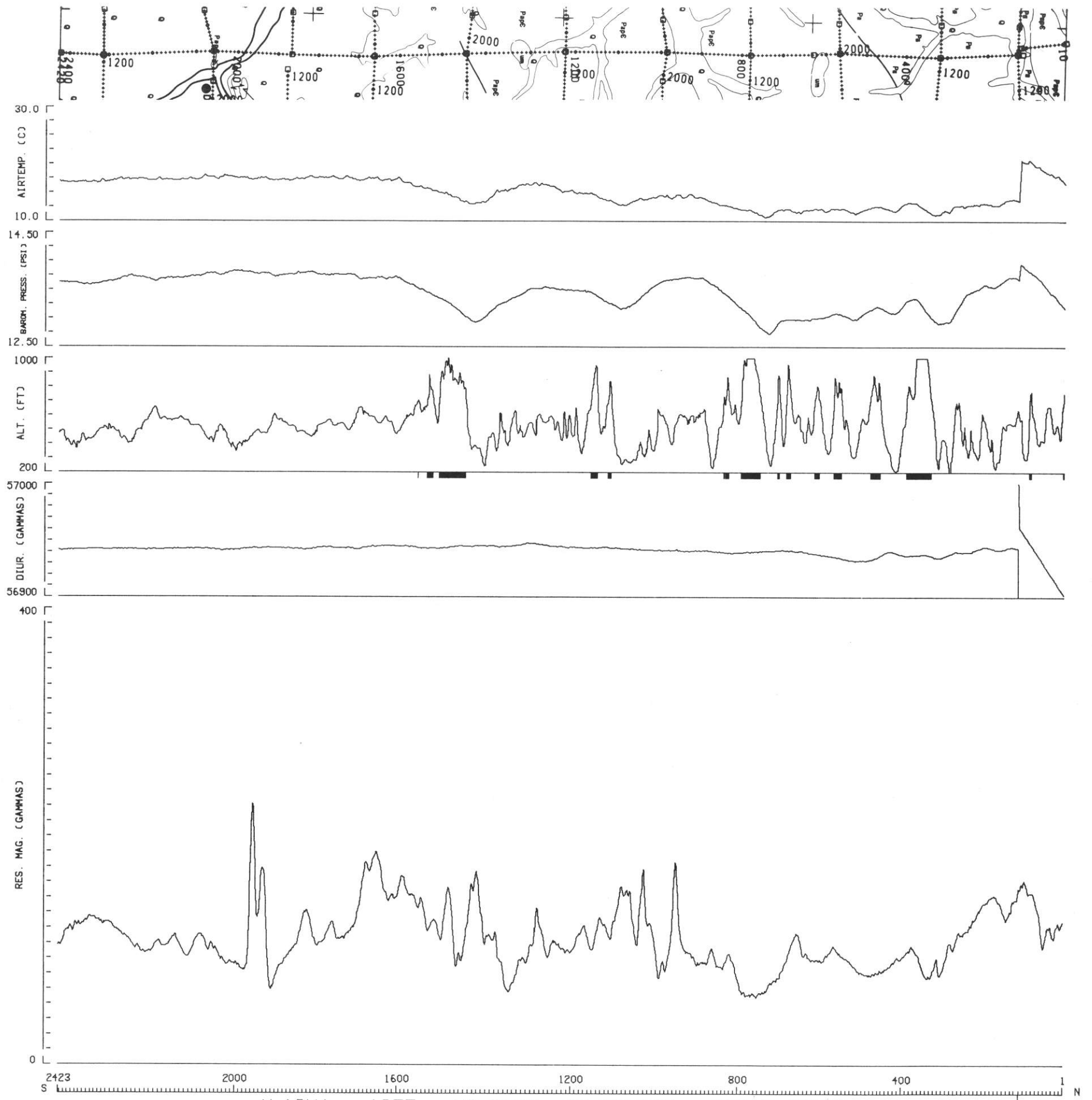


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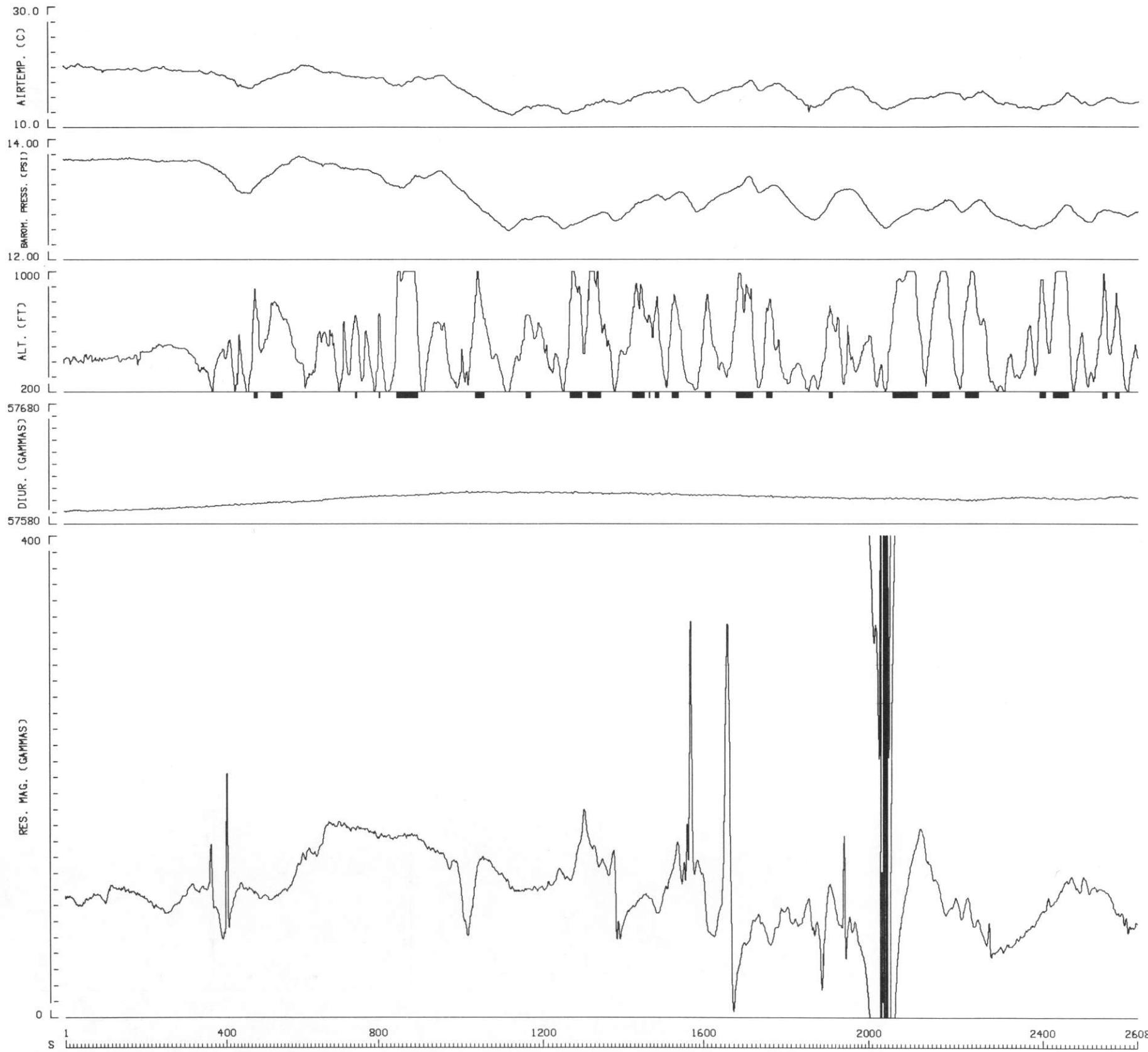
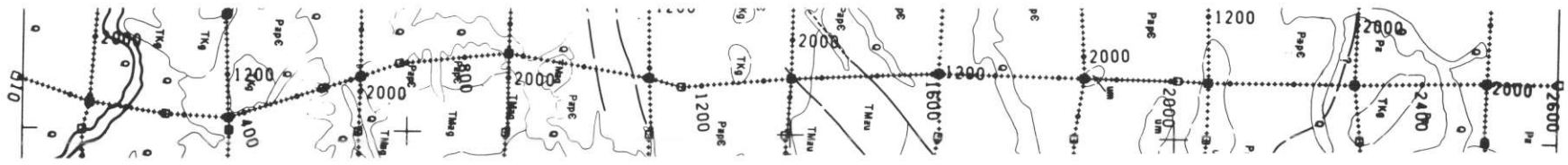


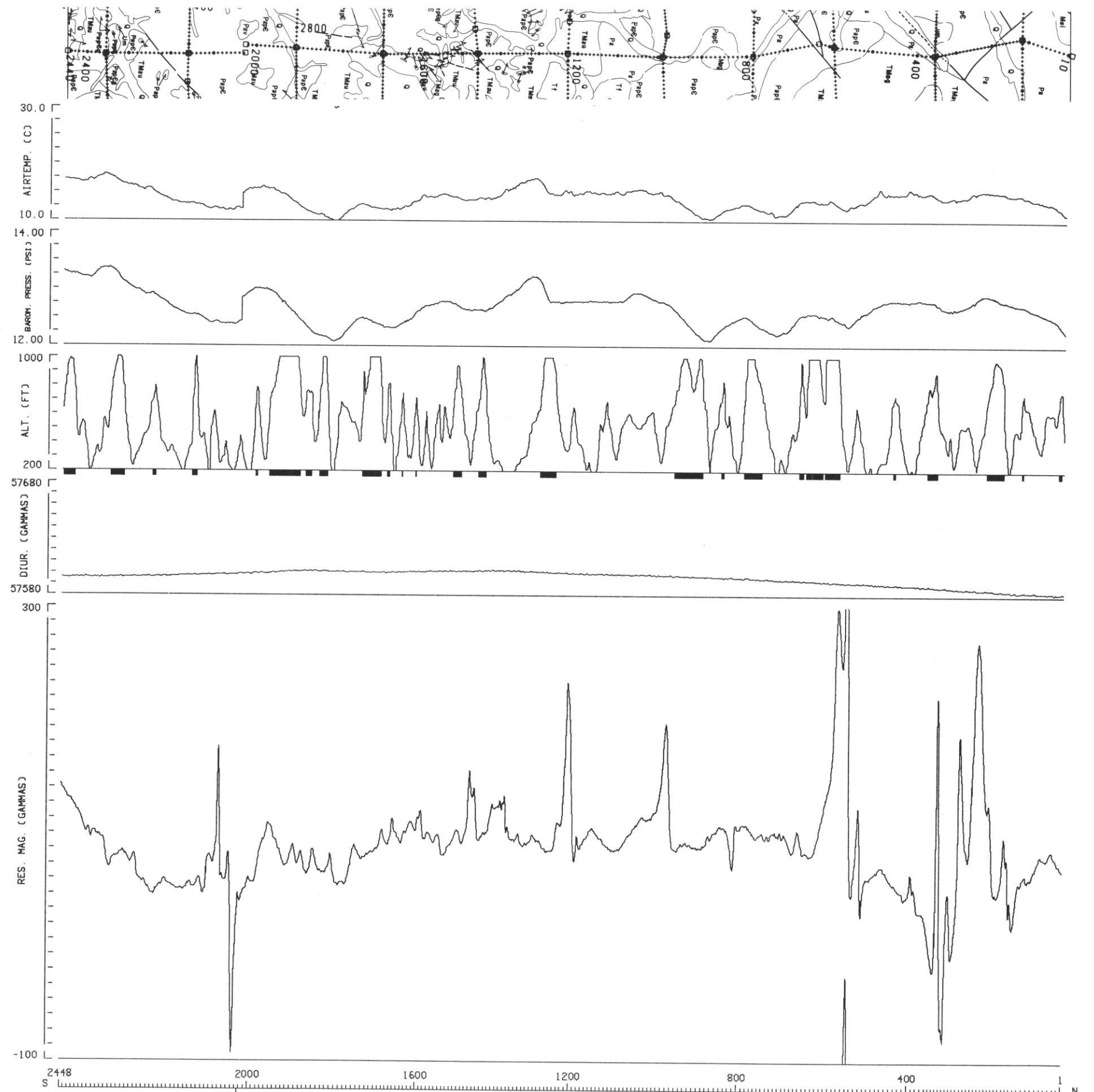


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 FL-126 BIG DELTA



ALASKA 1977 US DEPT. OF ENERGY TEXAS INSTRU.
 FL-127 BIG DELTA





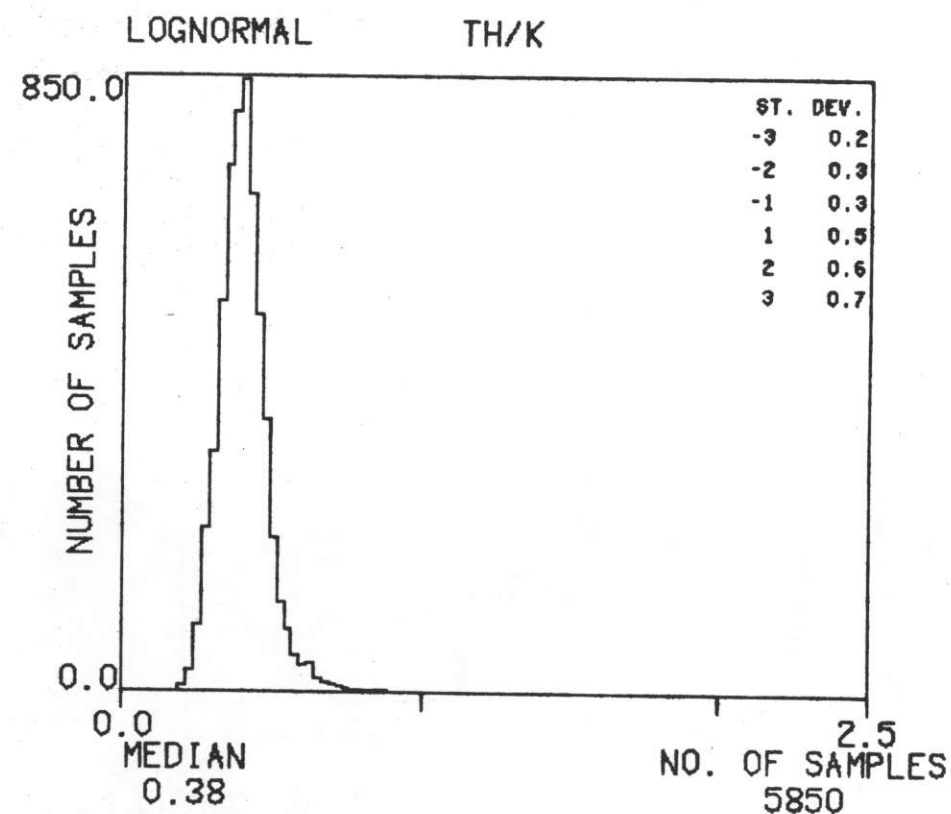
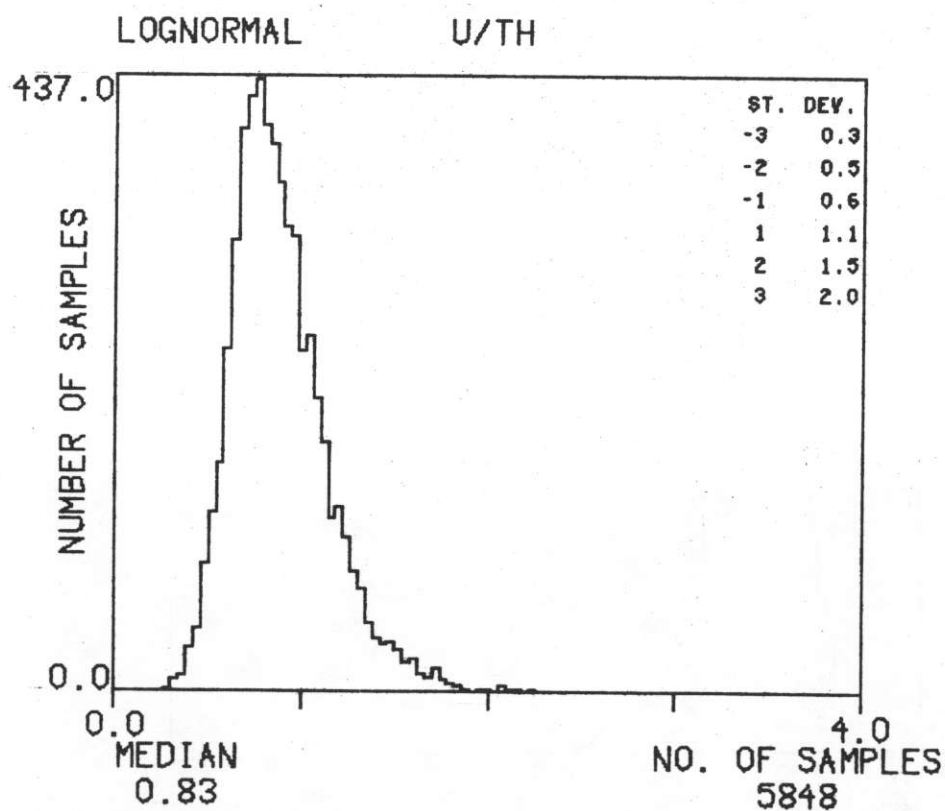
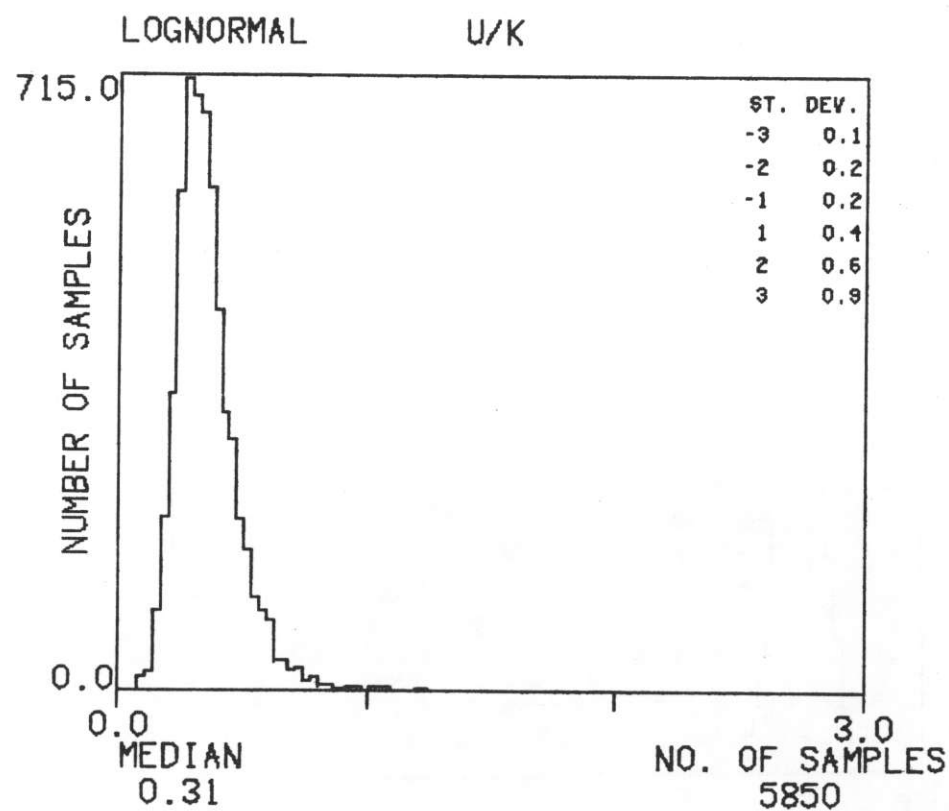
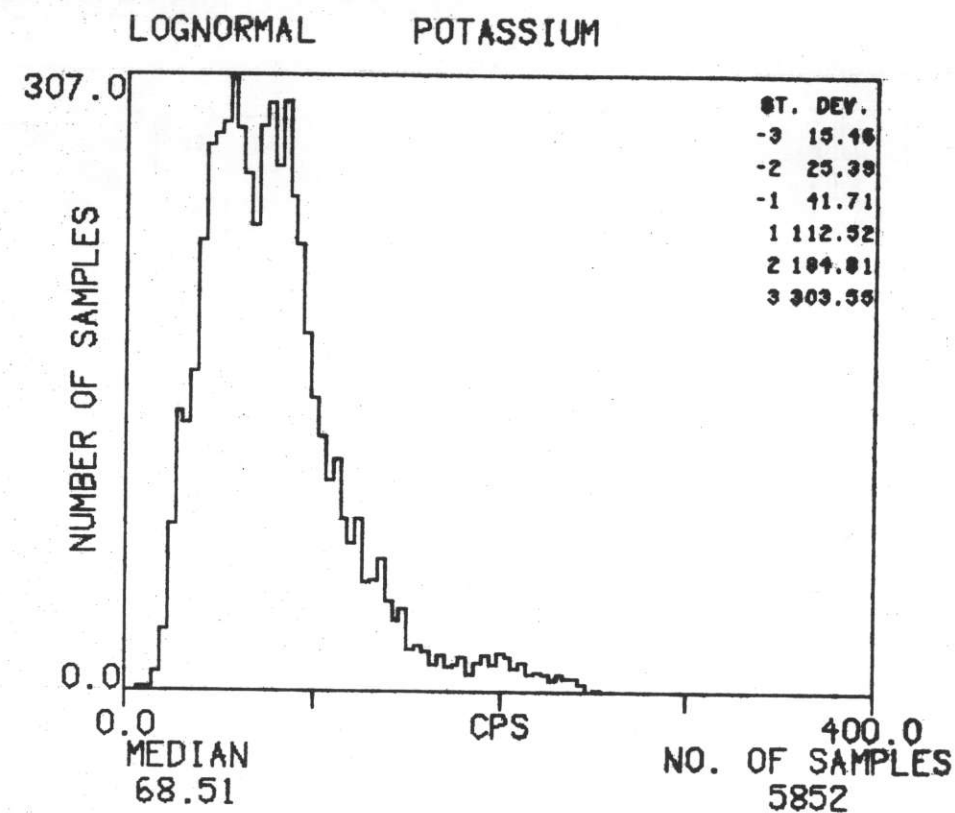
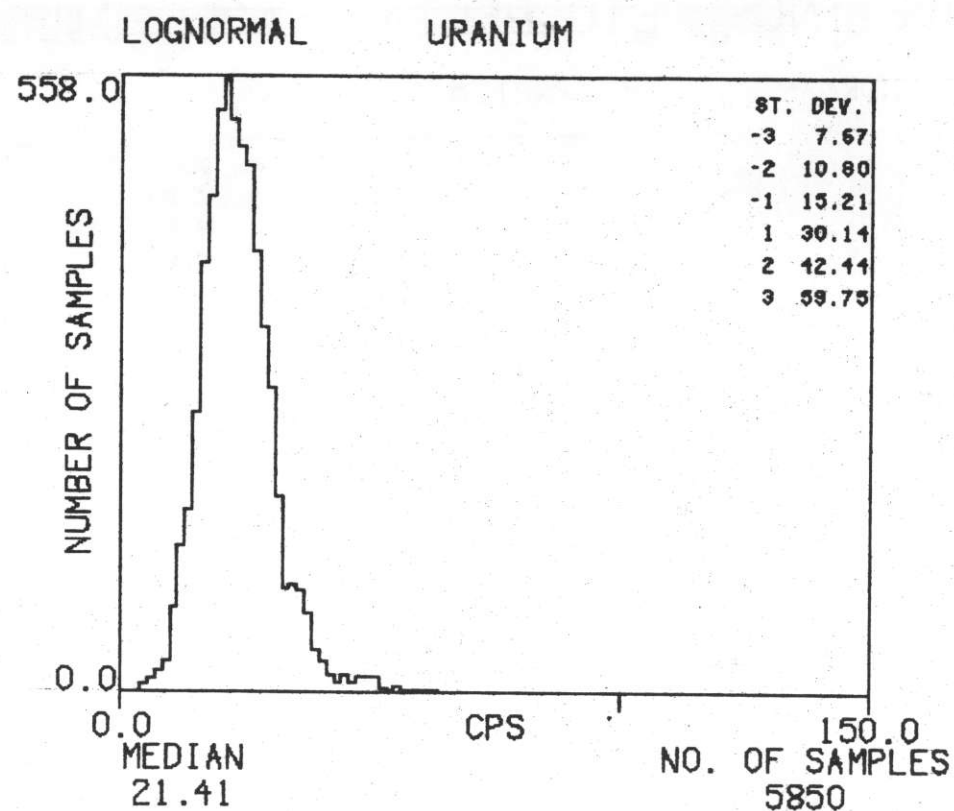
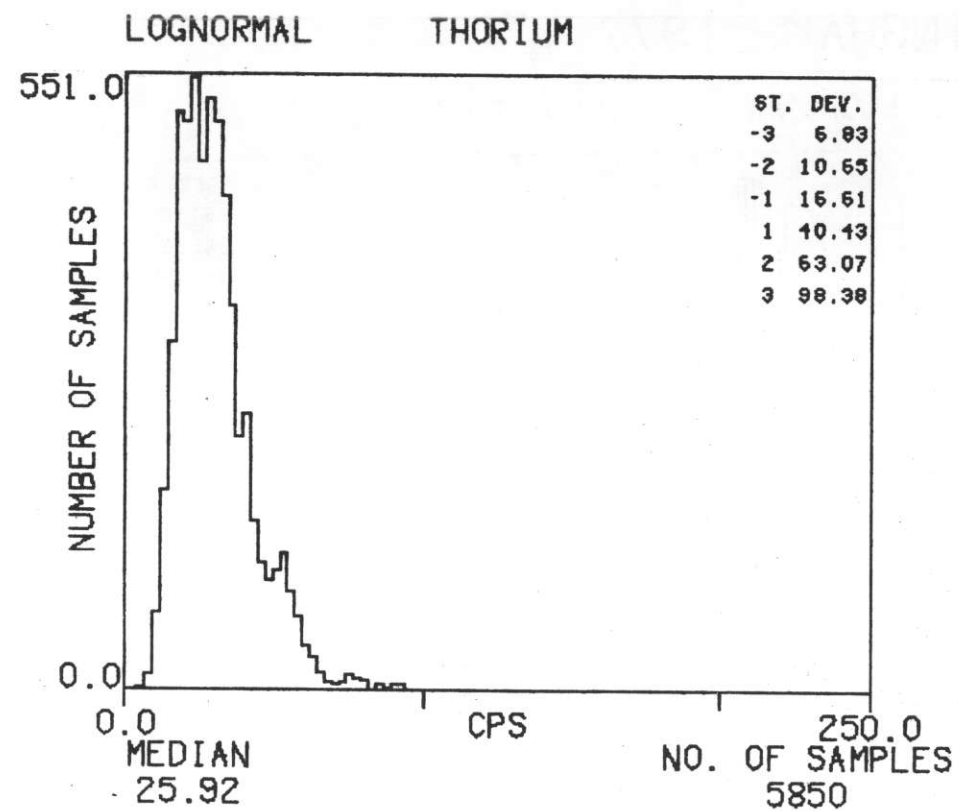
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HISTOGRAMS

HISTOGRAMS

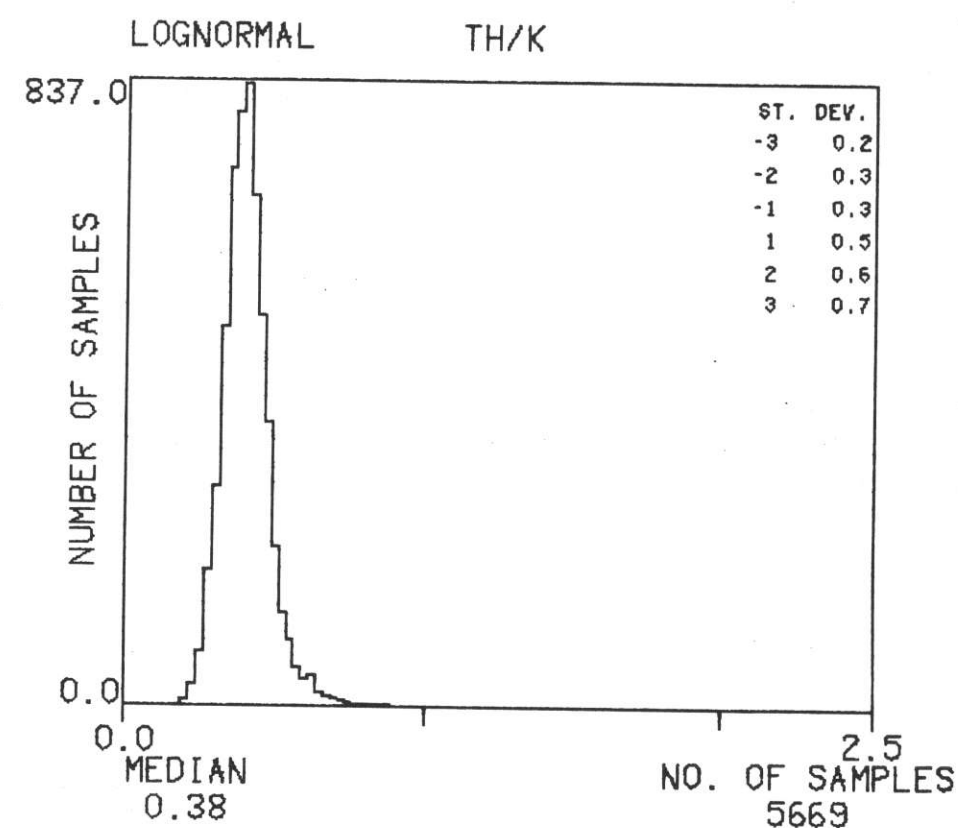
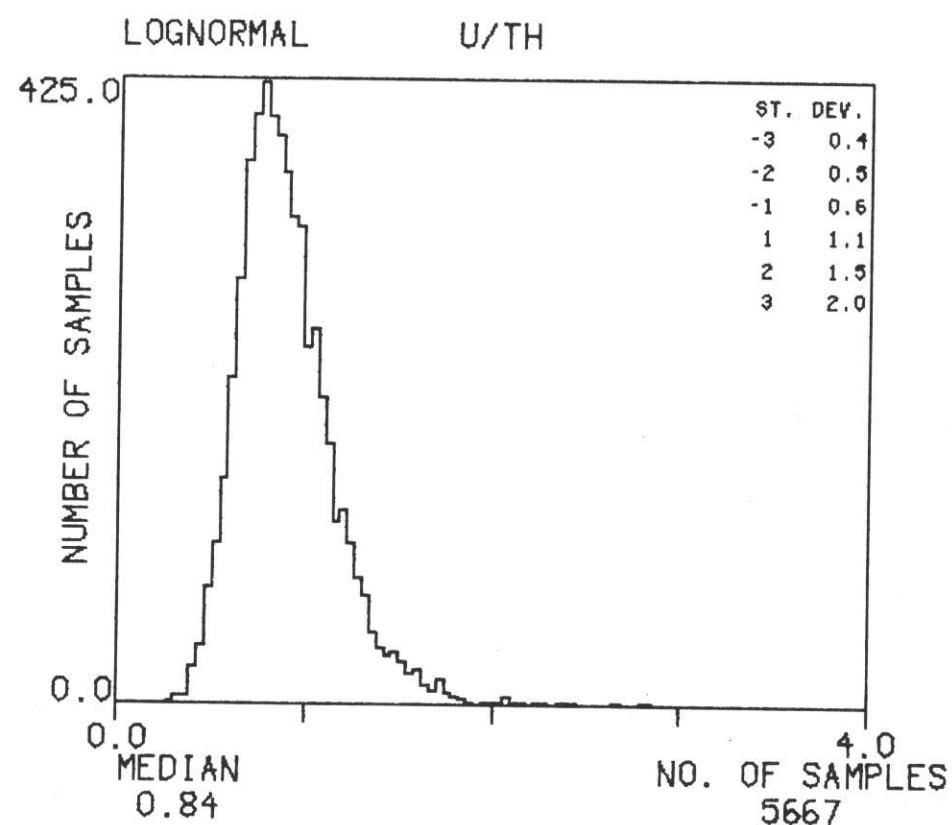
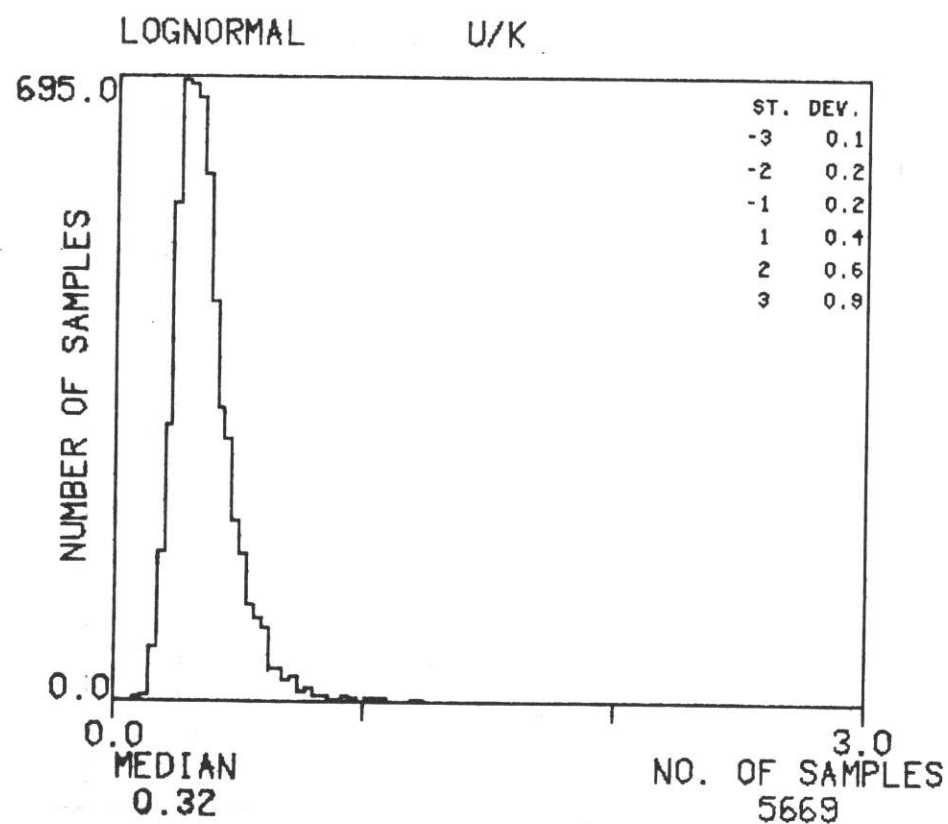
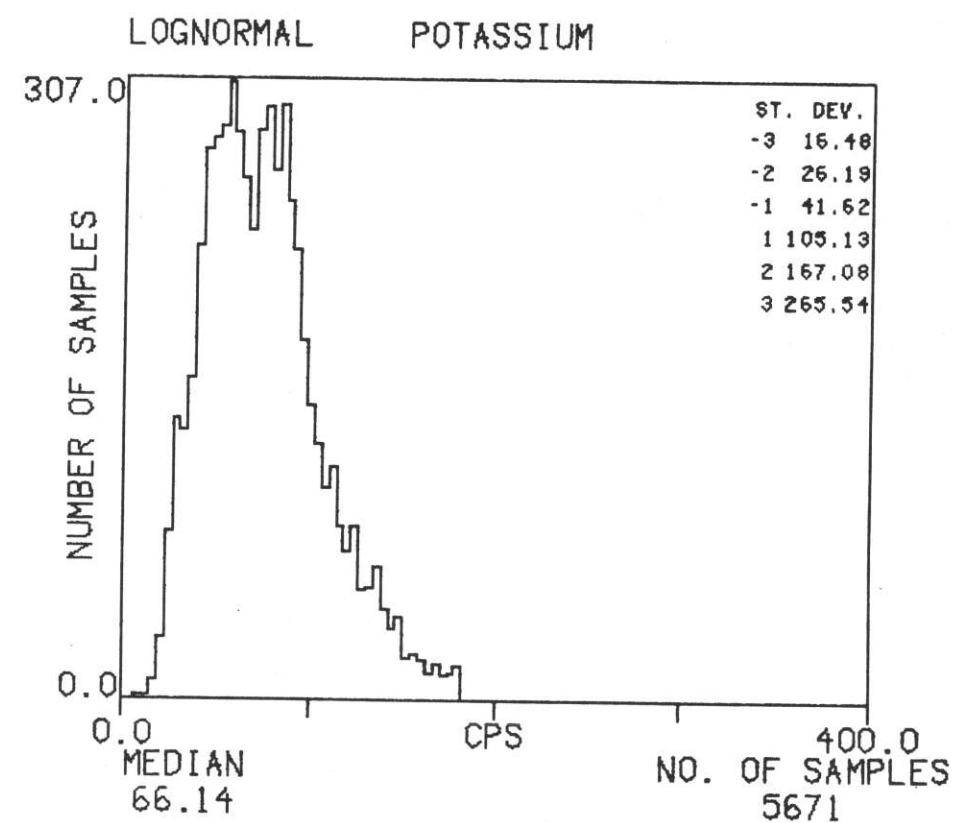
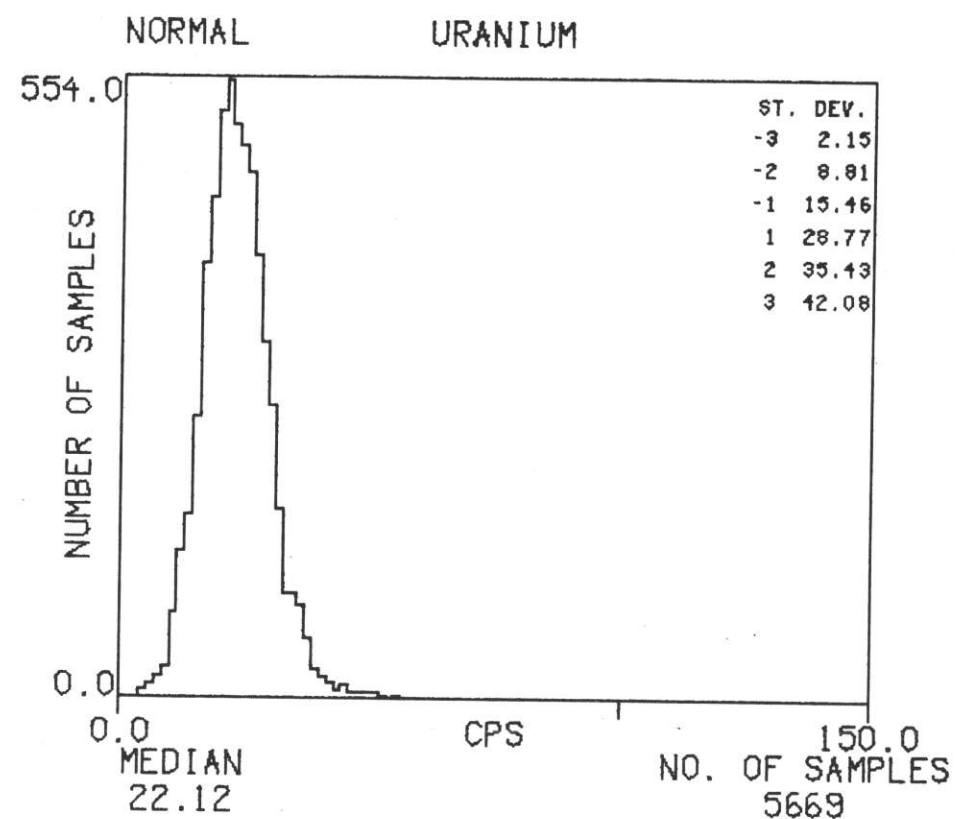
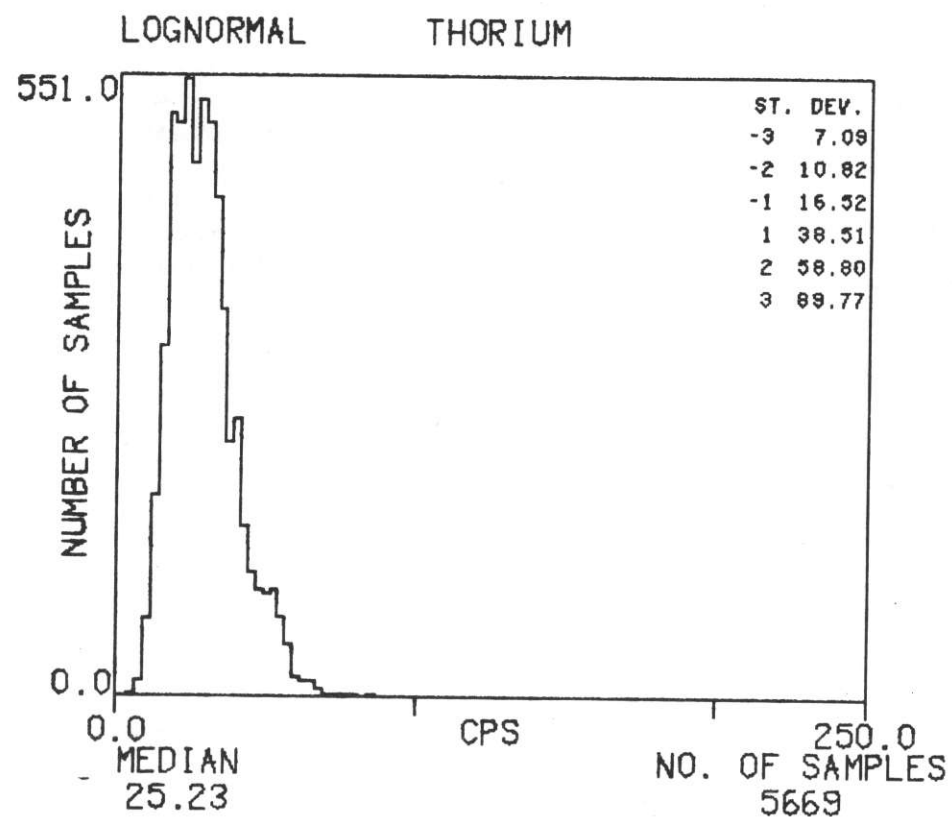
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TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



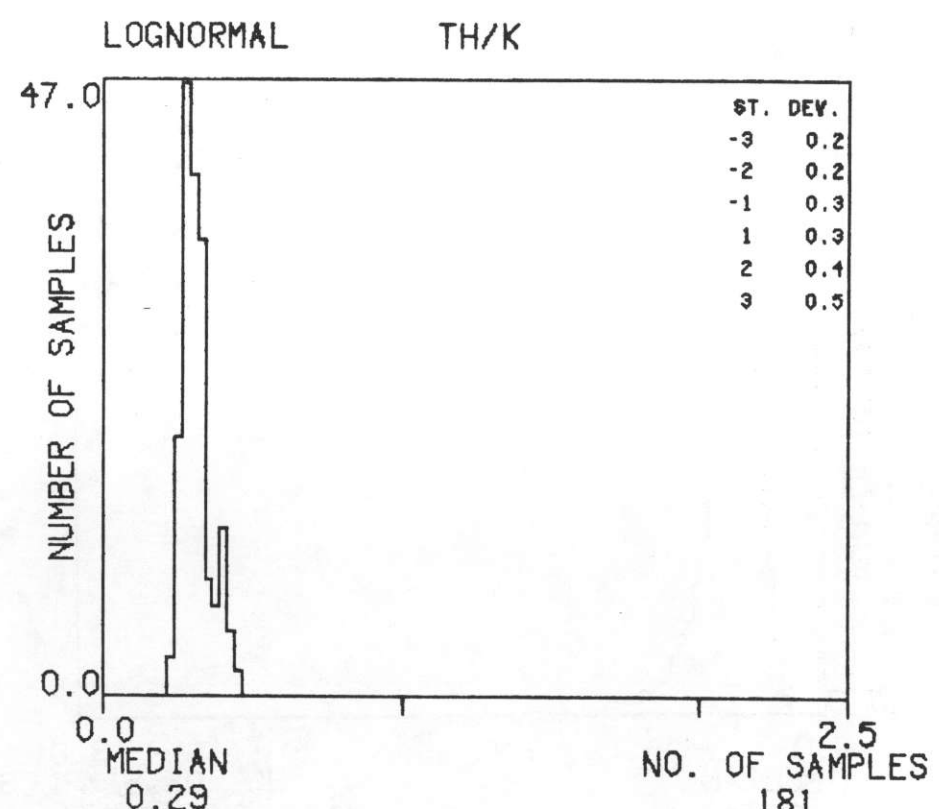
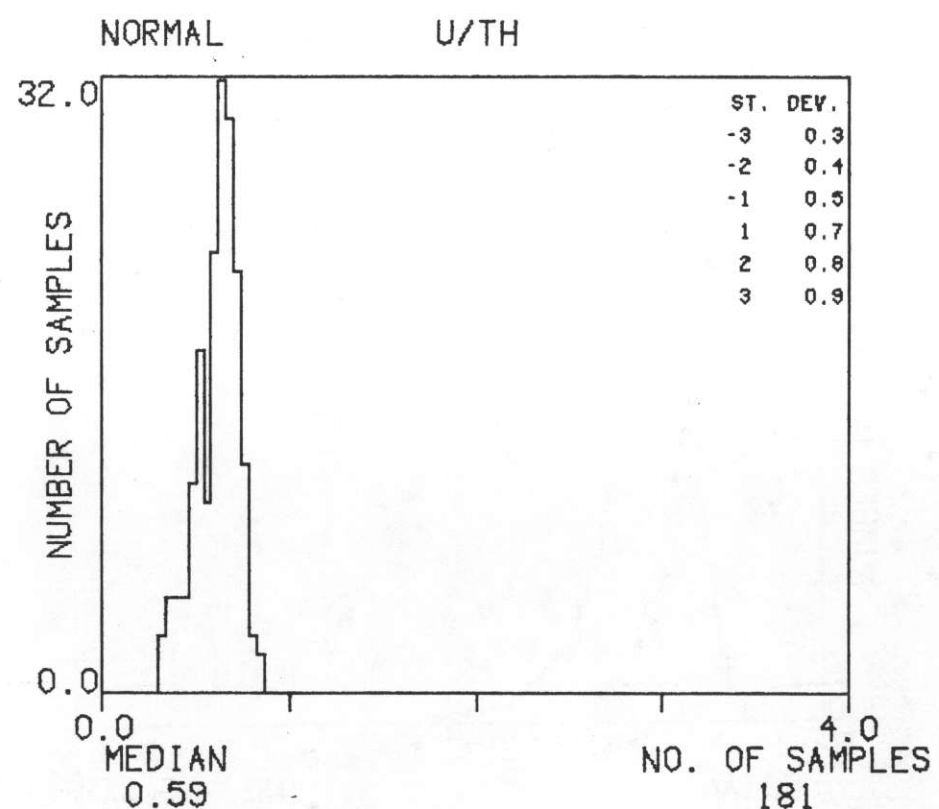
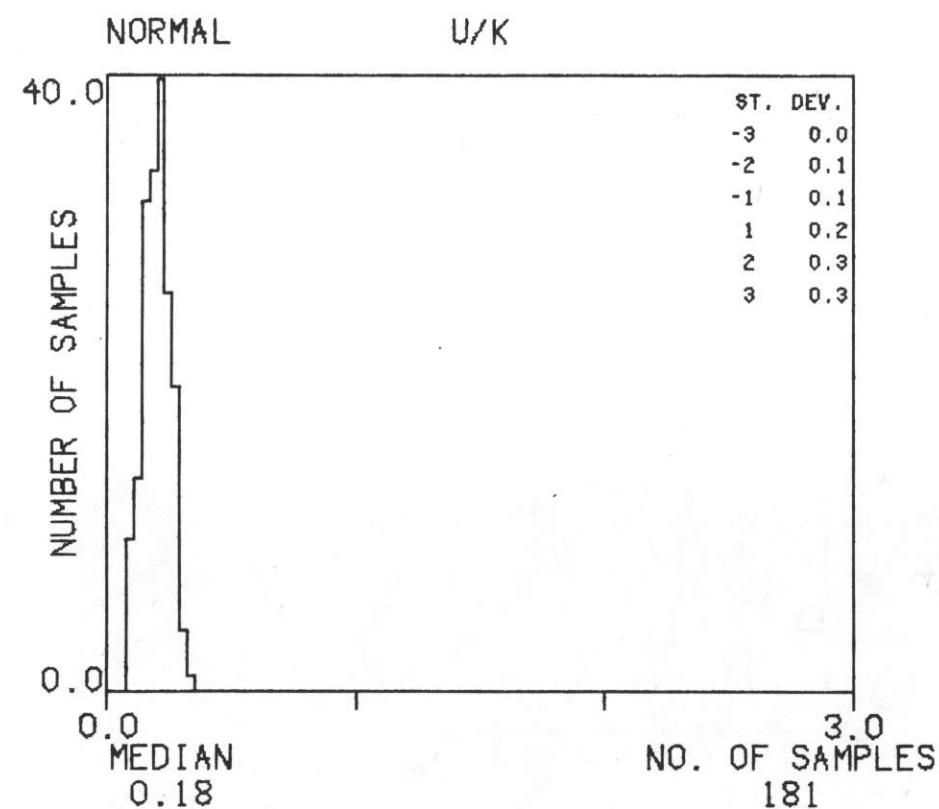
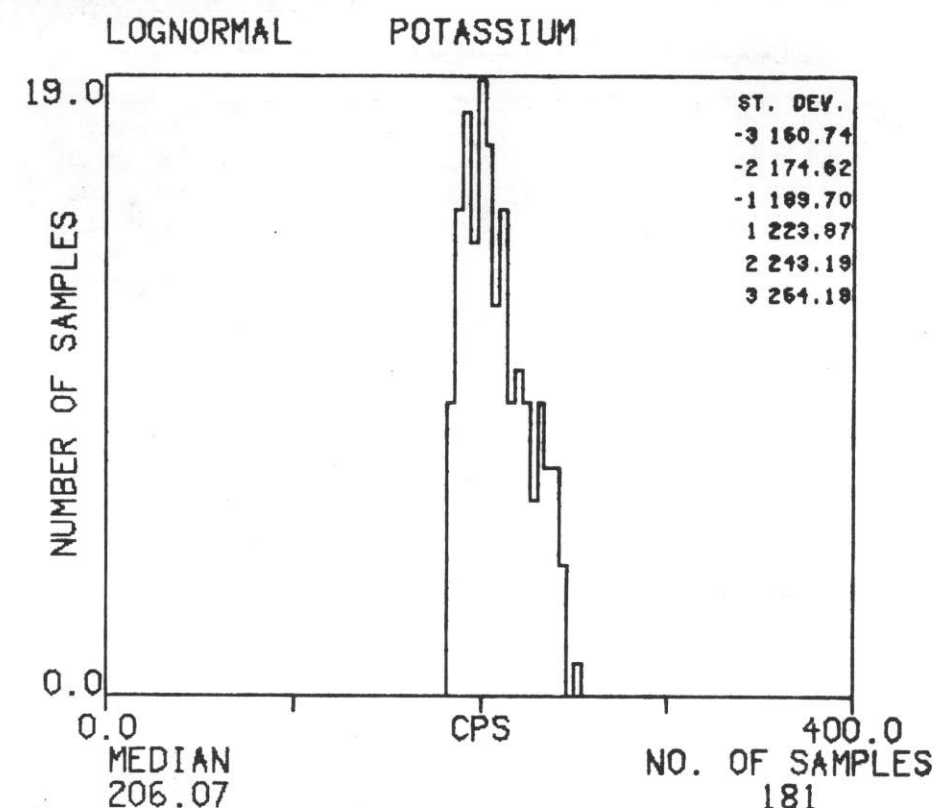
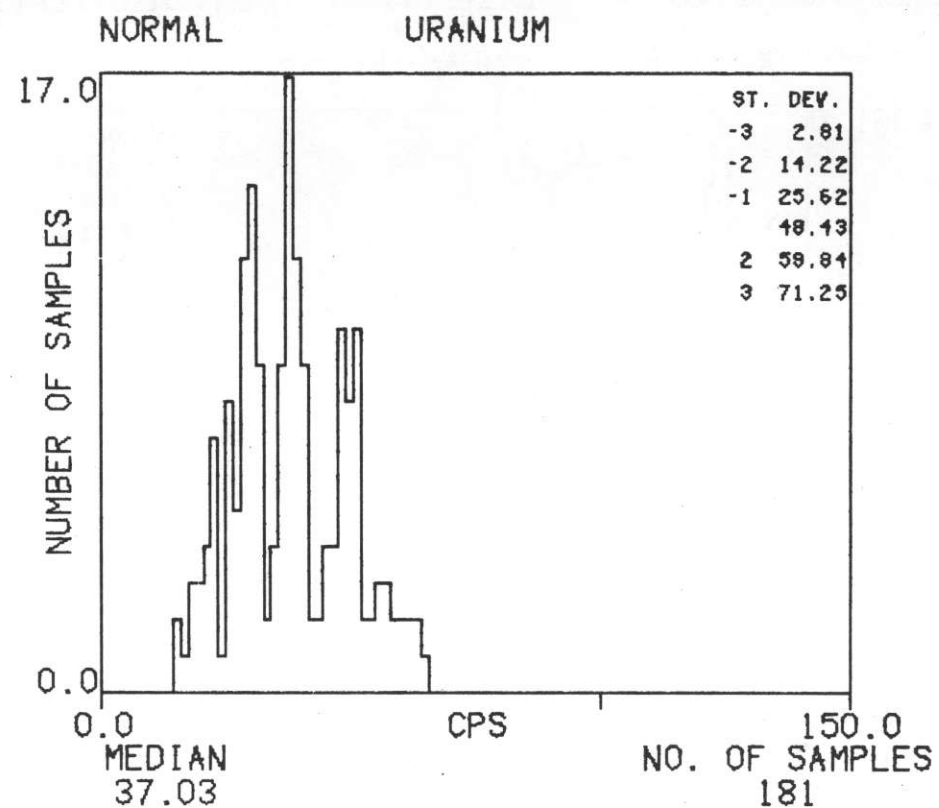
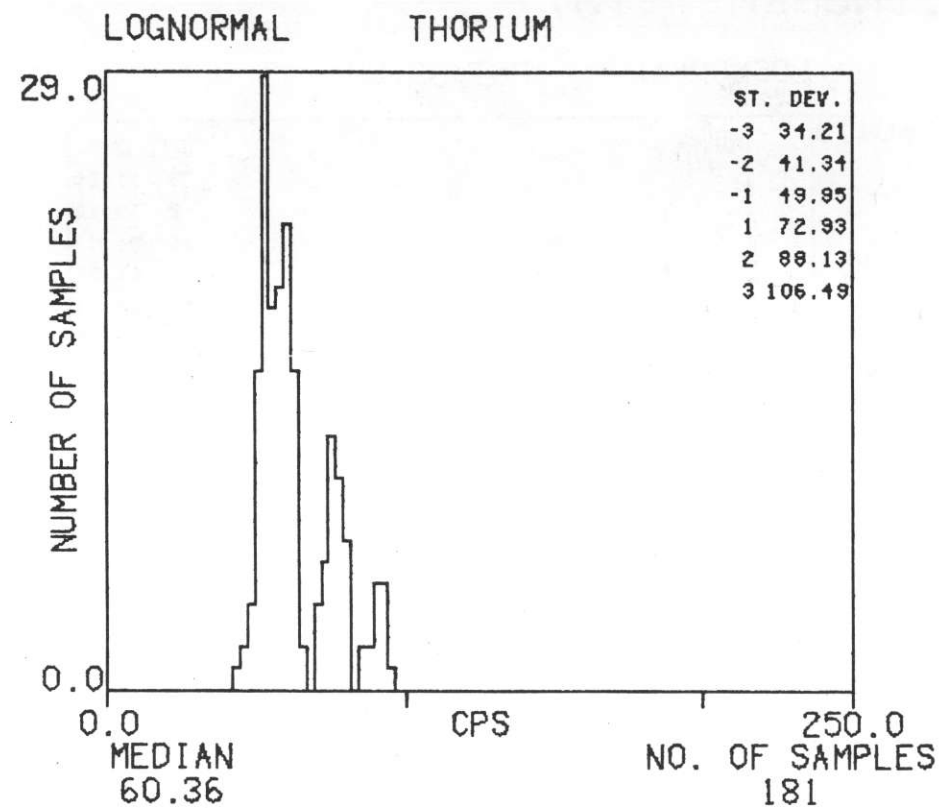
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TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



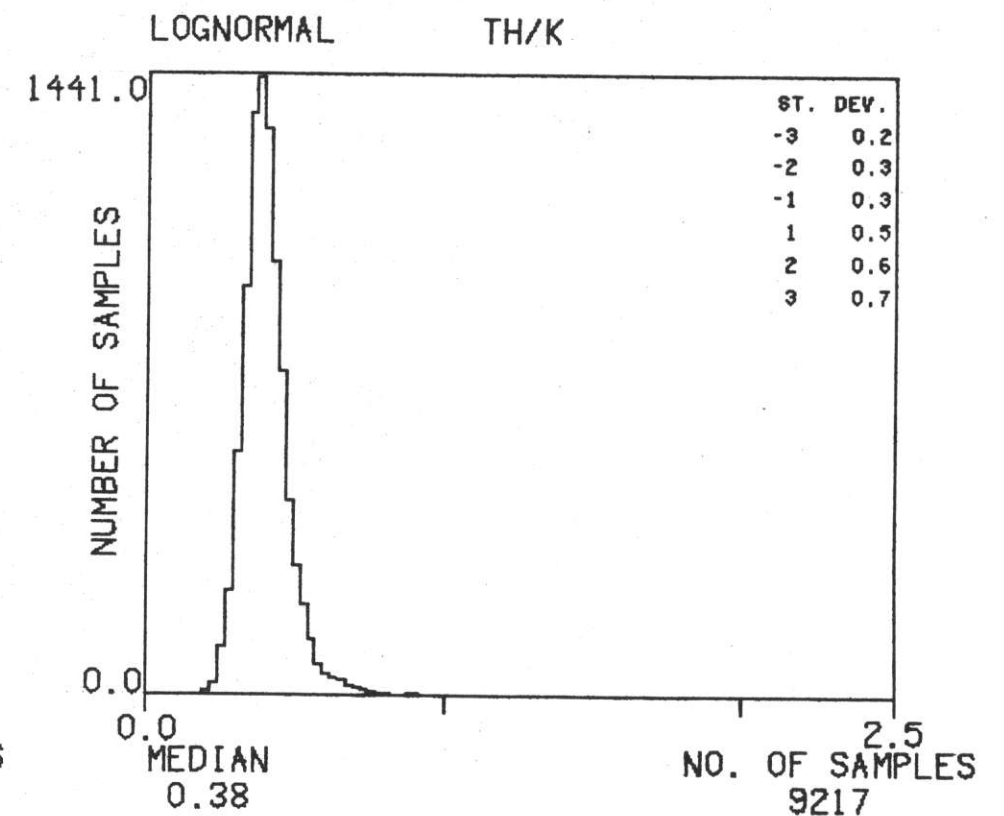
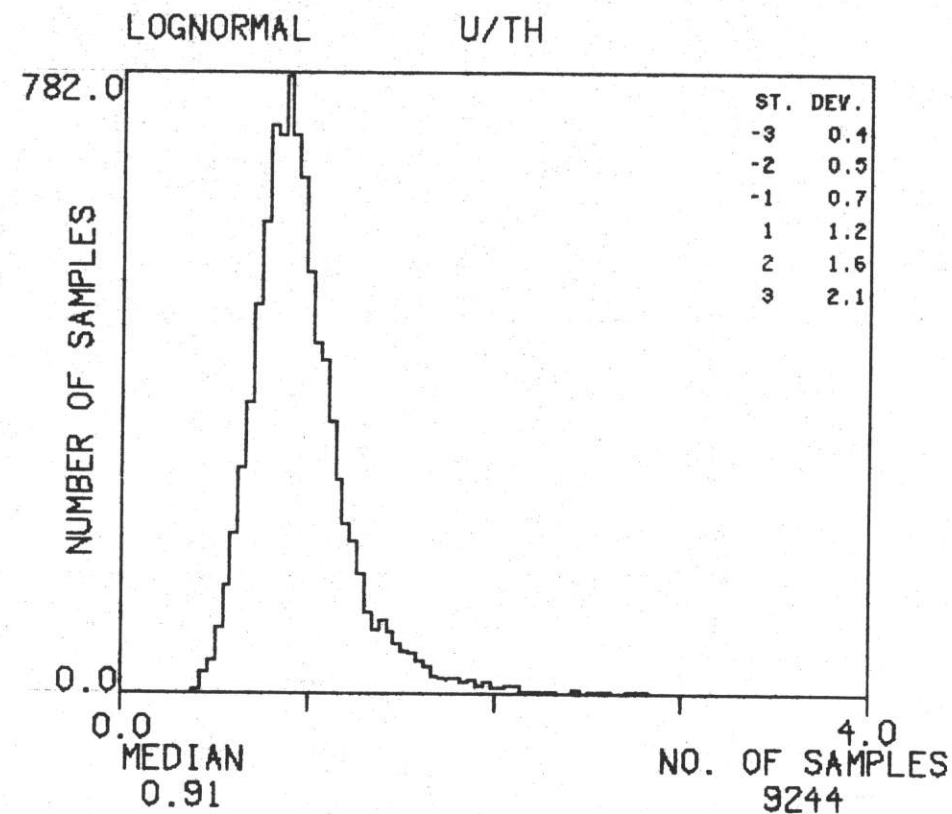
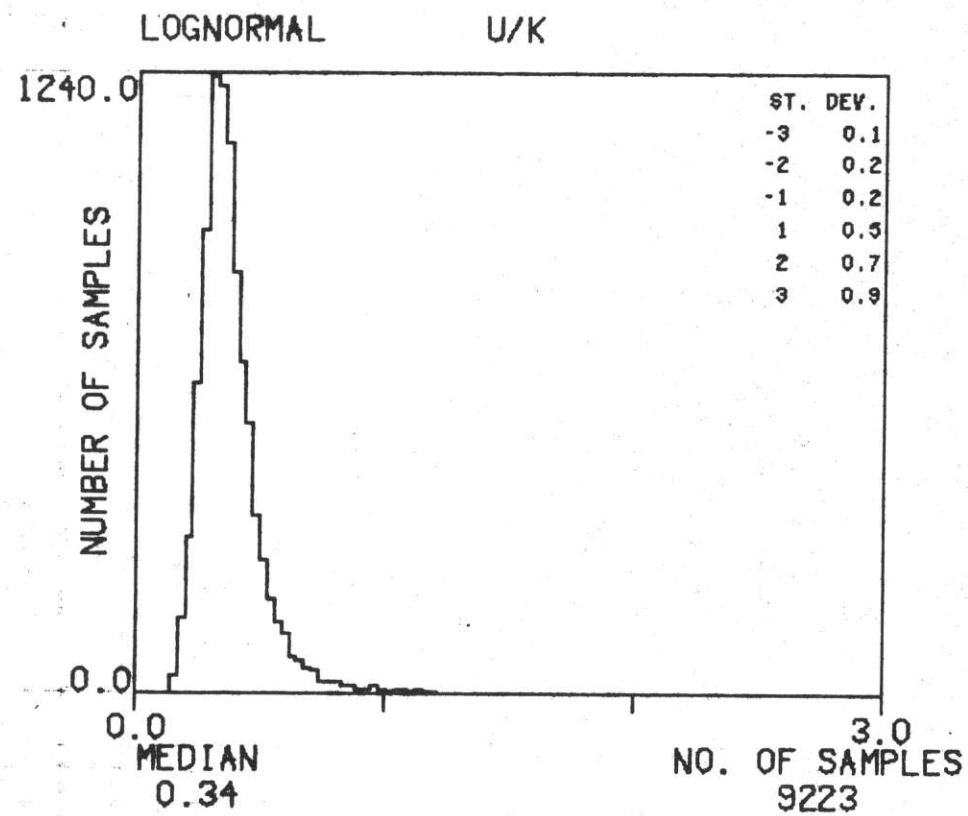
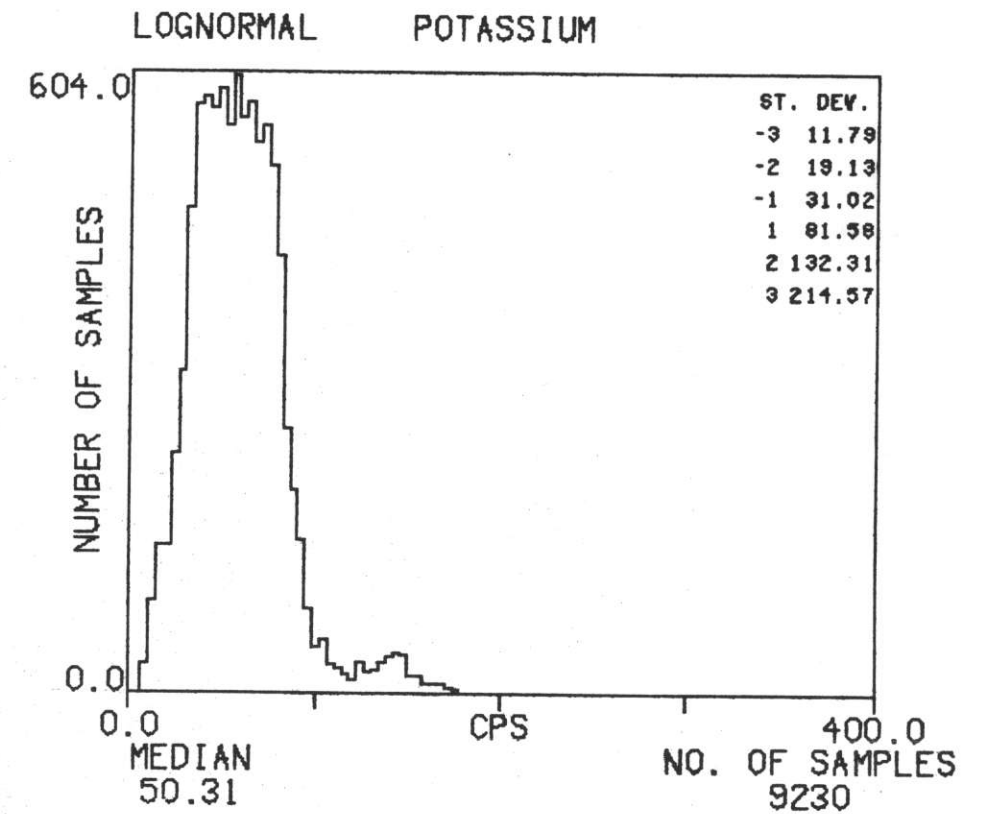
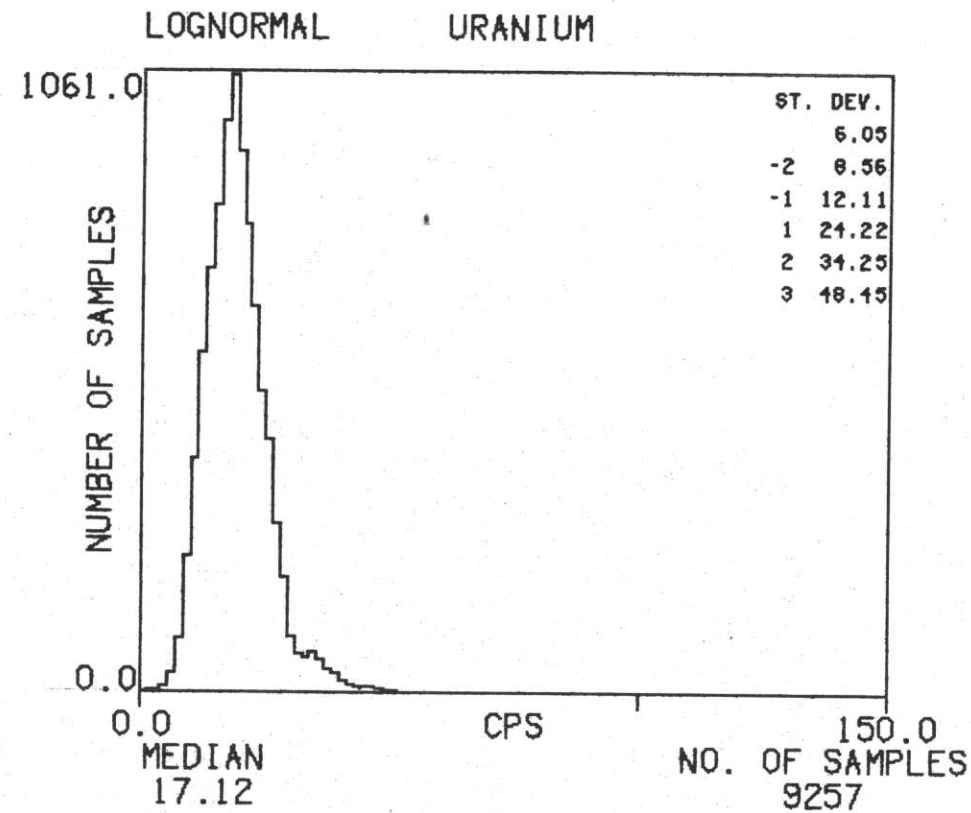
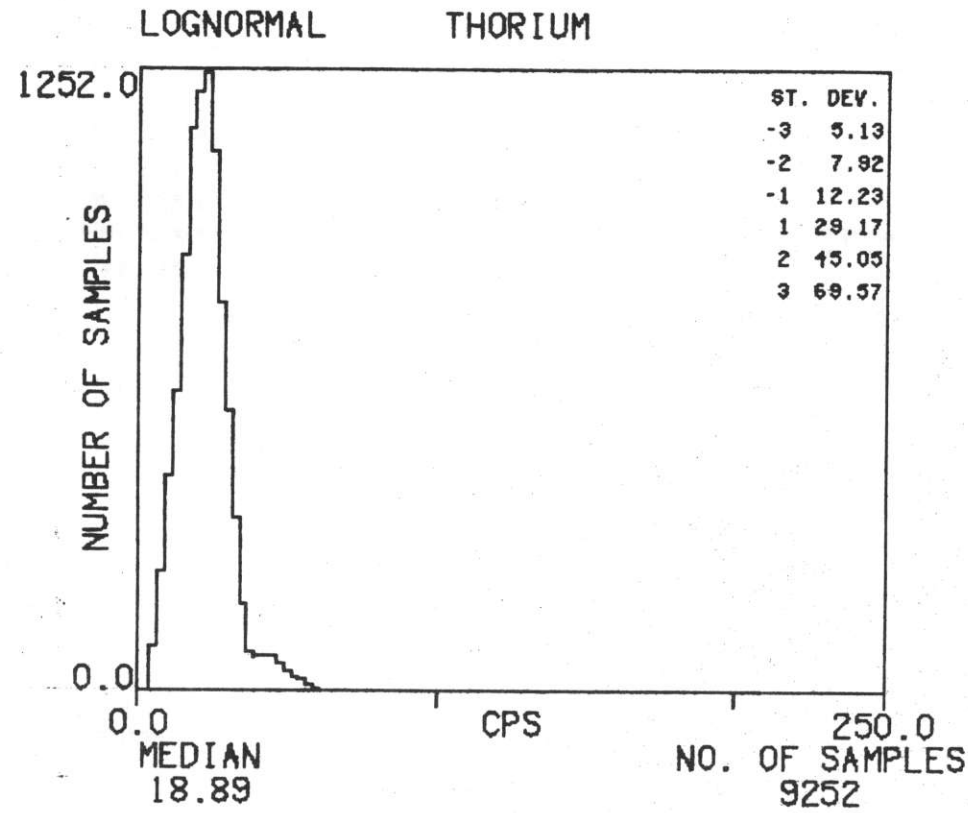
HISTOGRAMS : Q-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



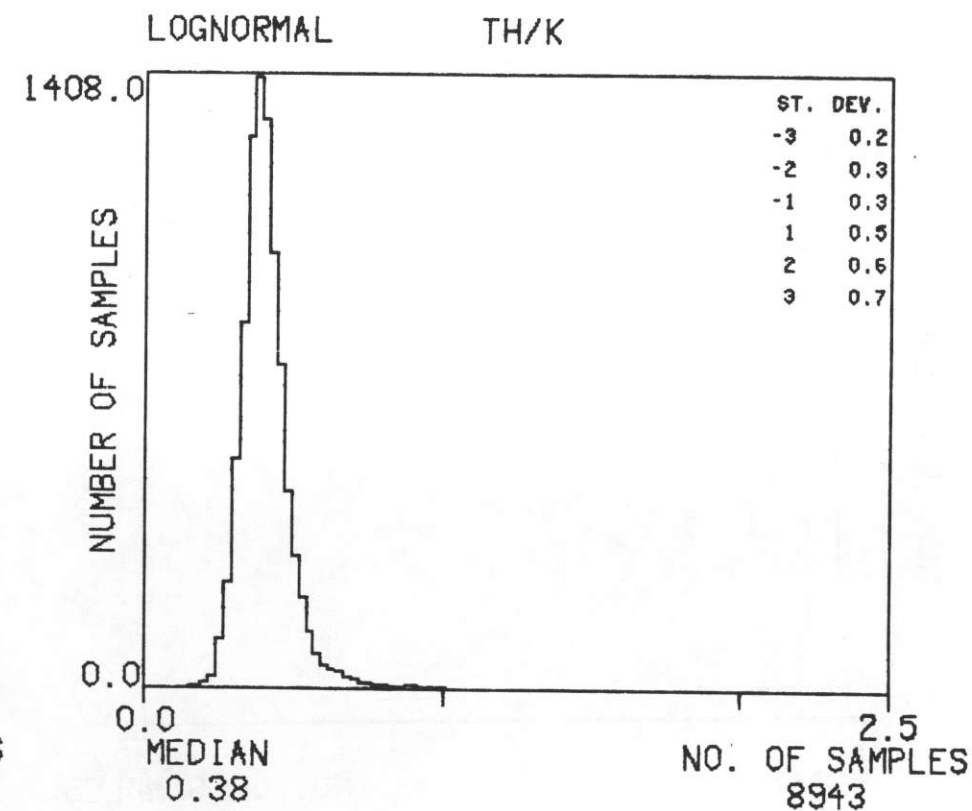
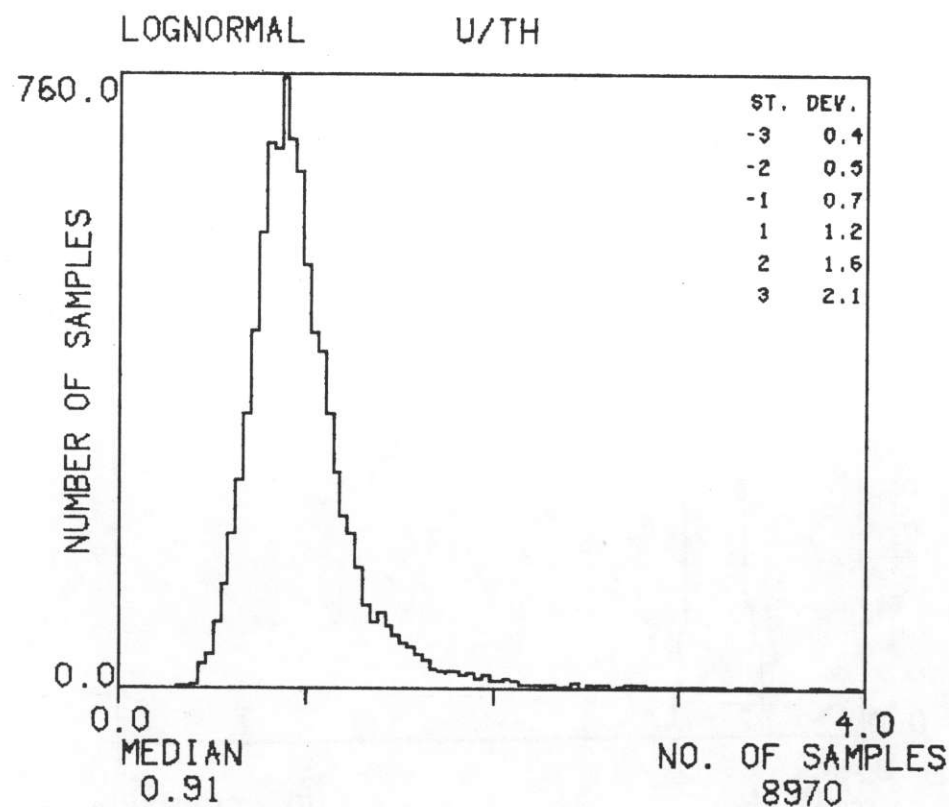
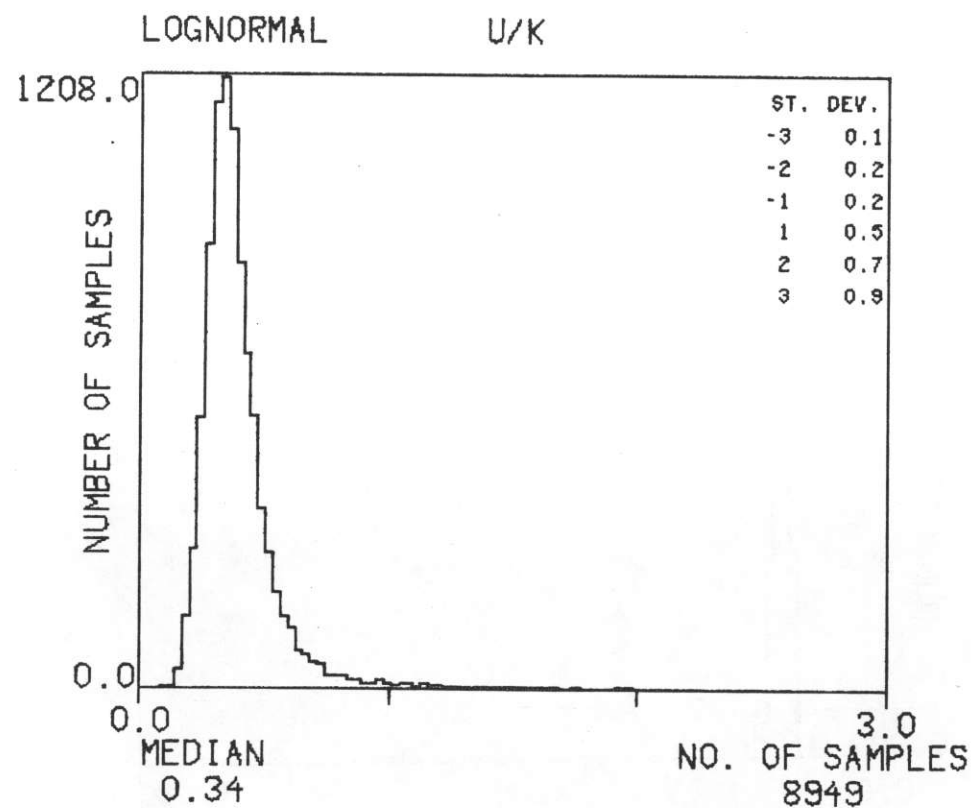
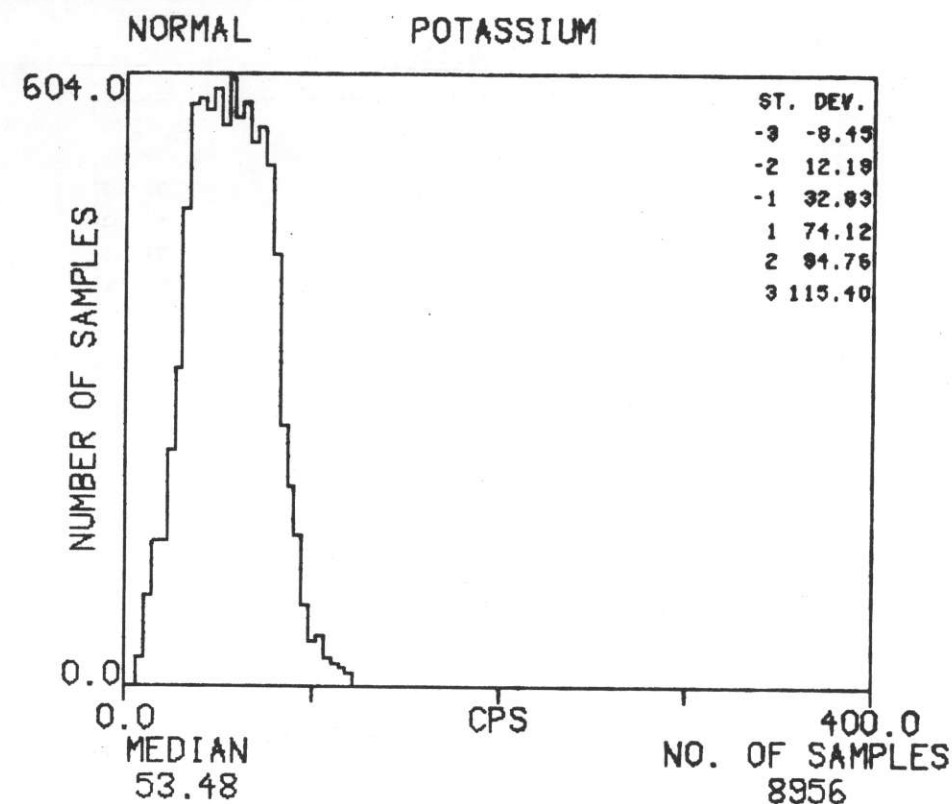
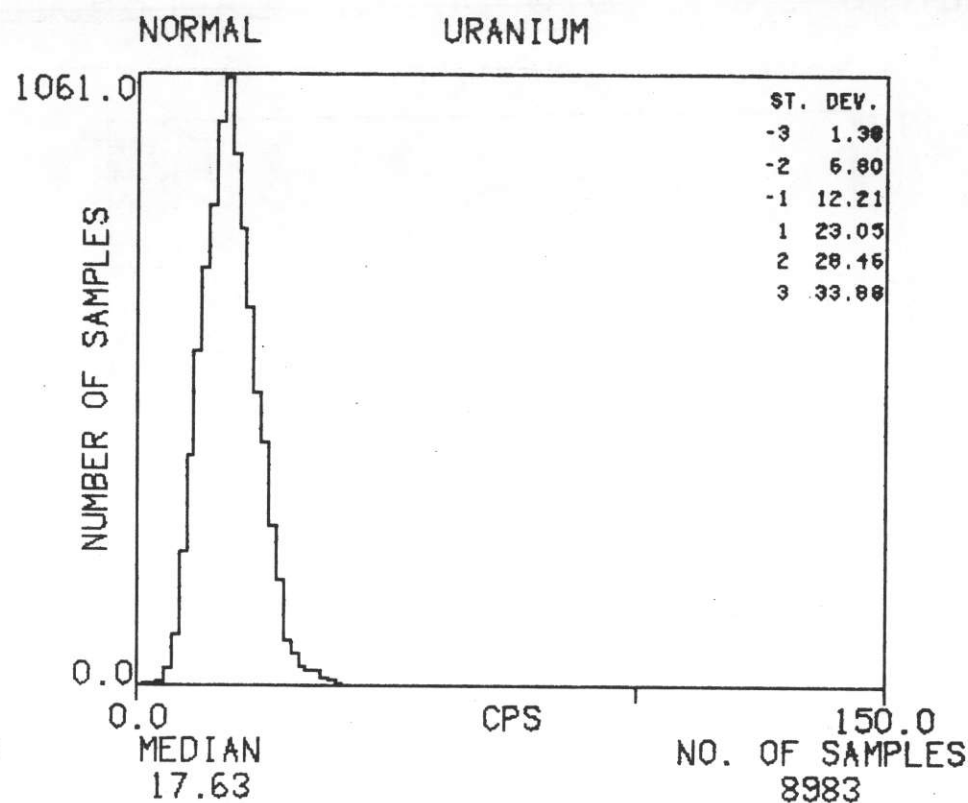
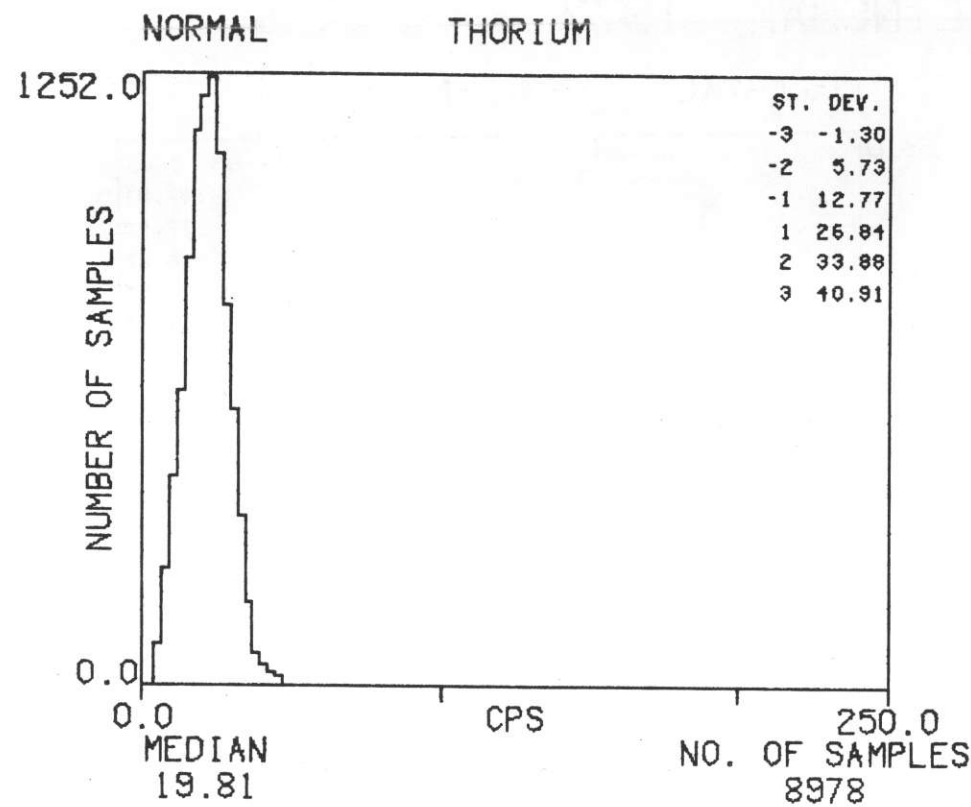
HISTOGRAMS : Q'

TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



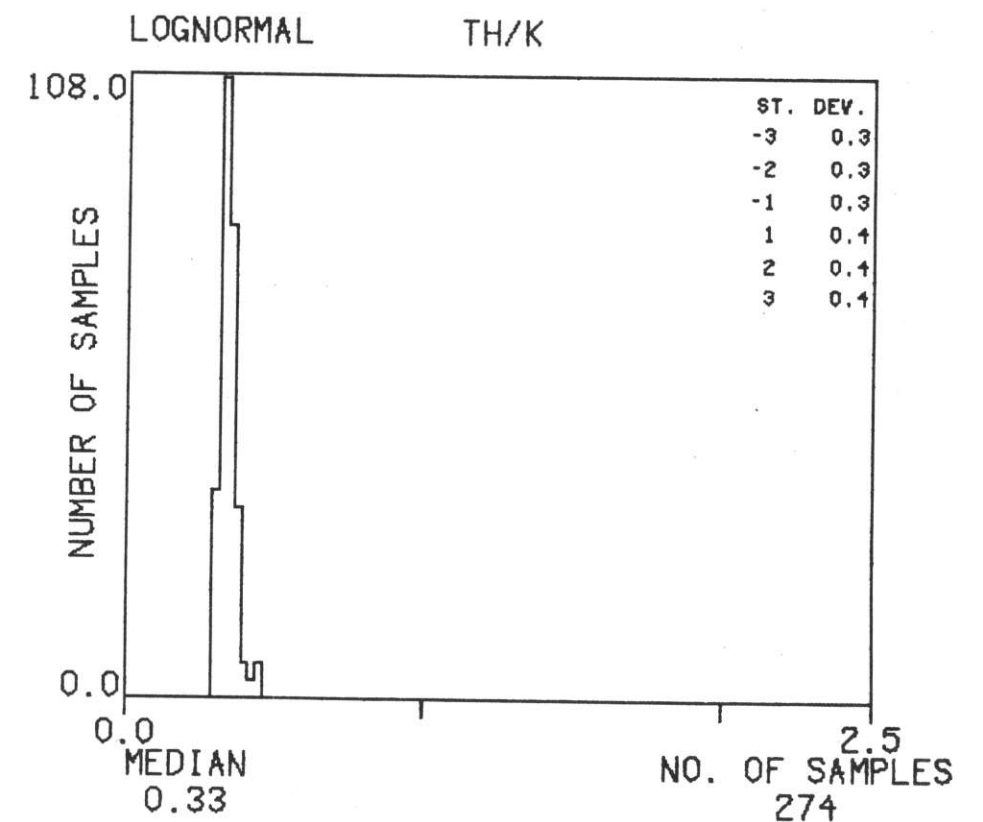
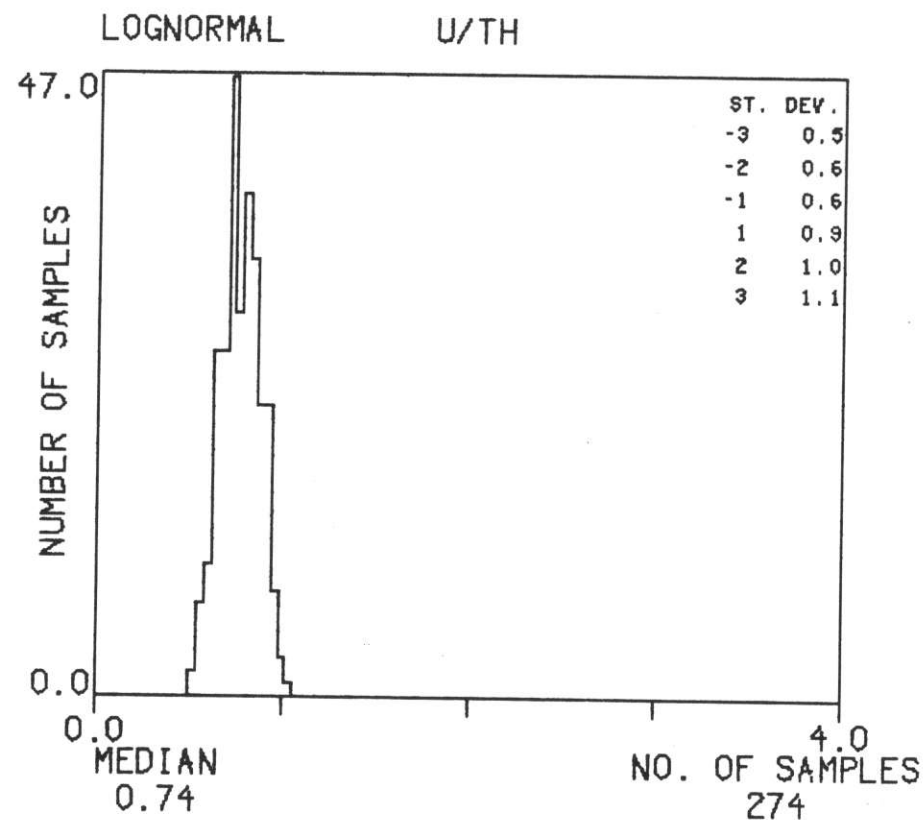
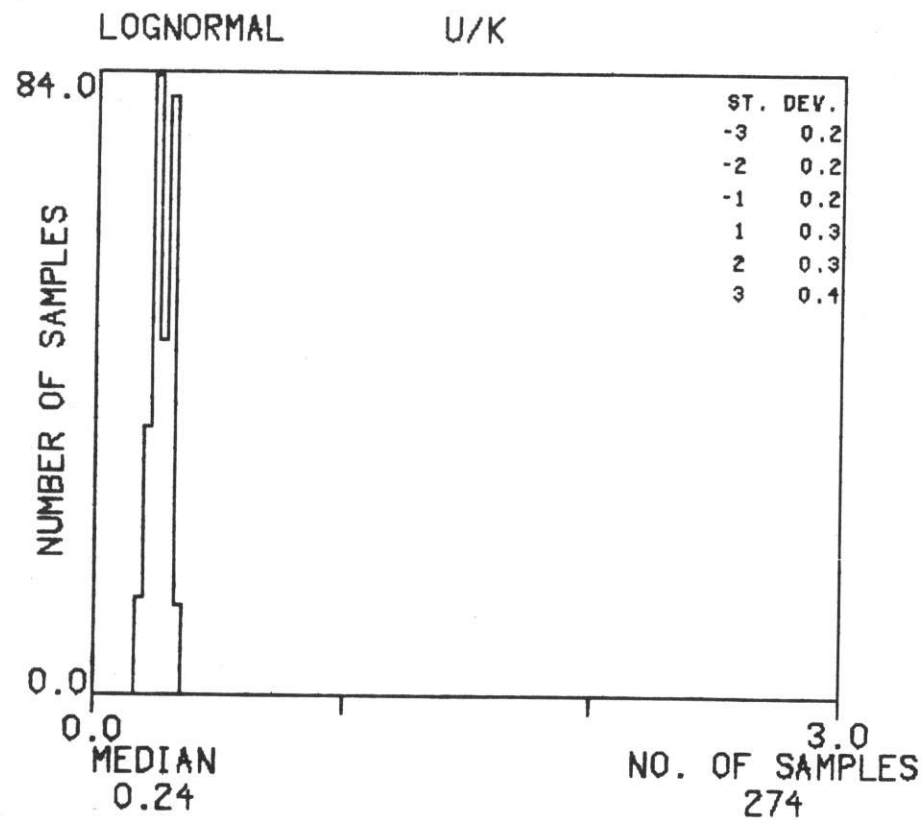
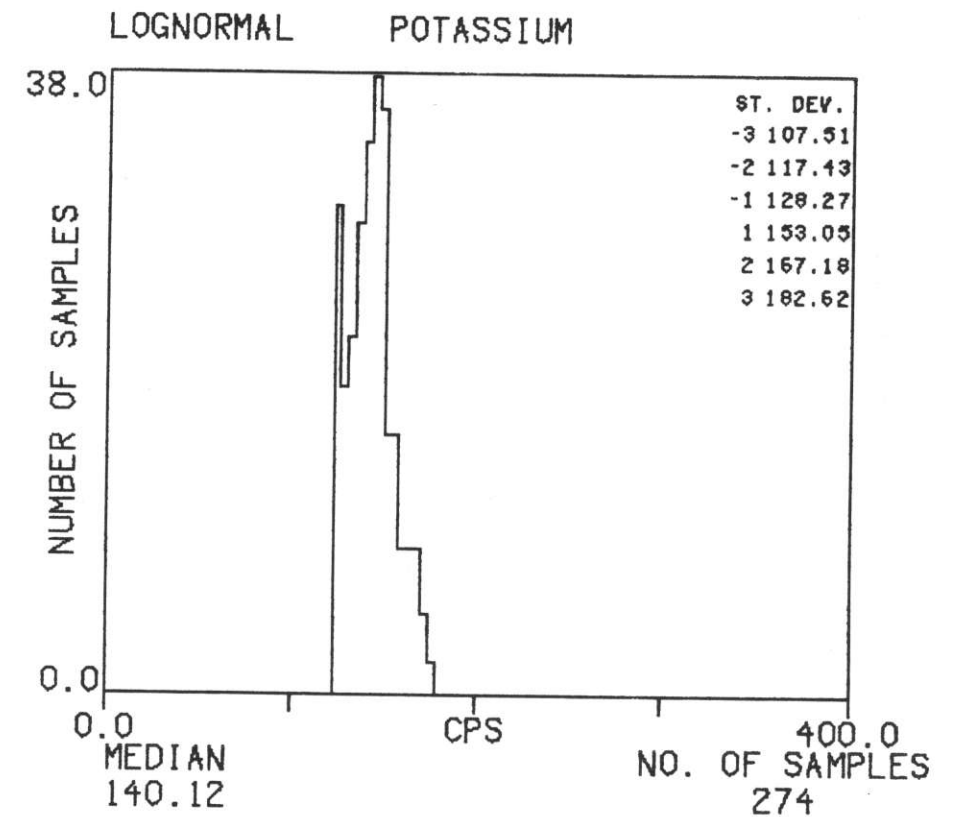
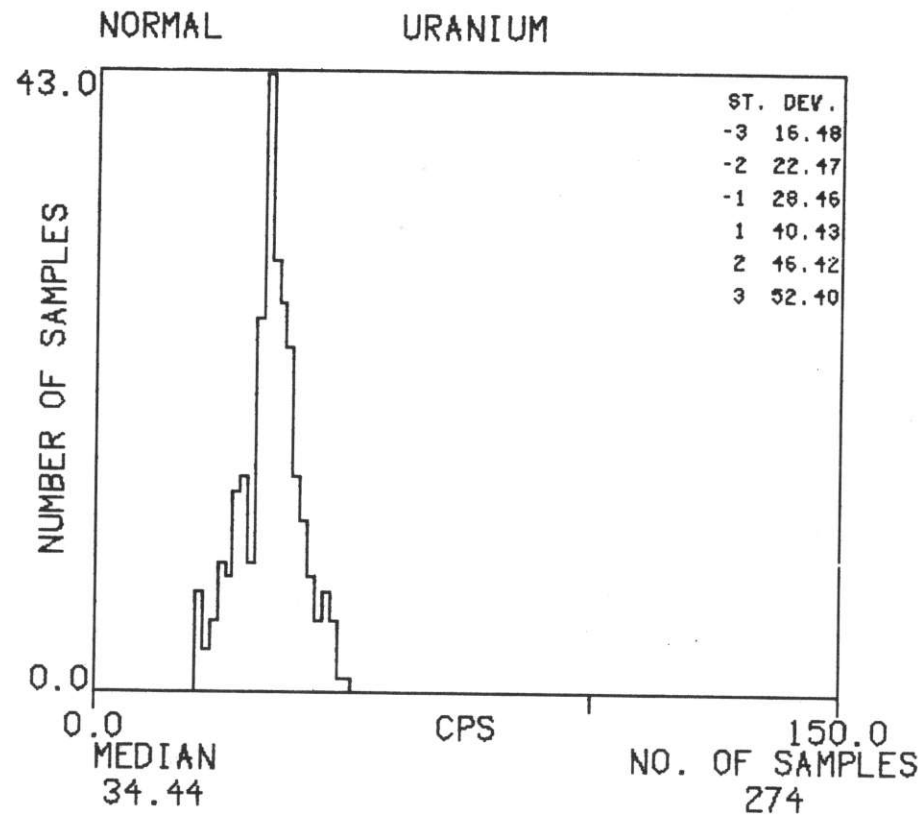
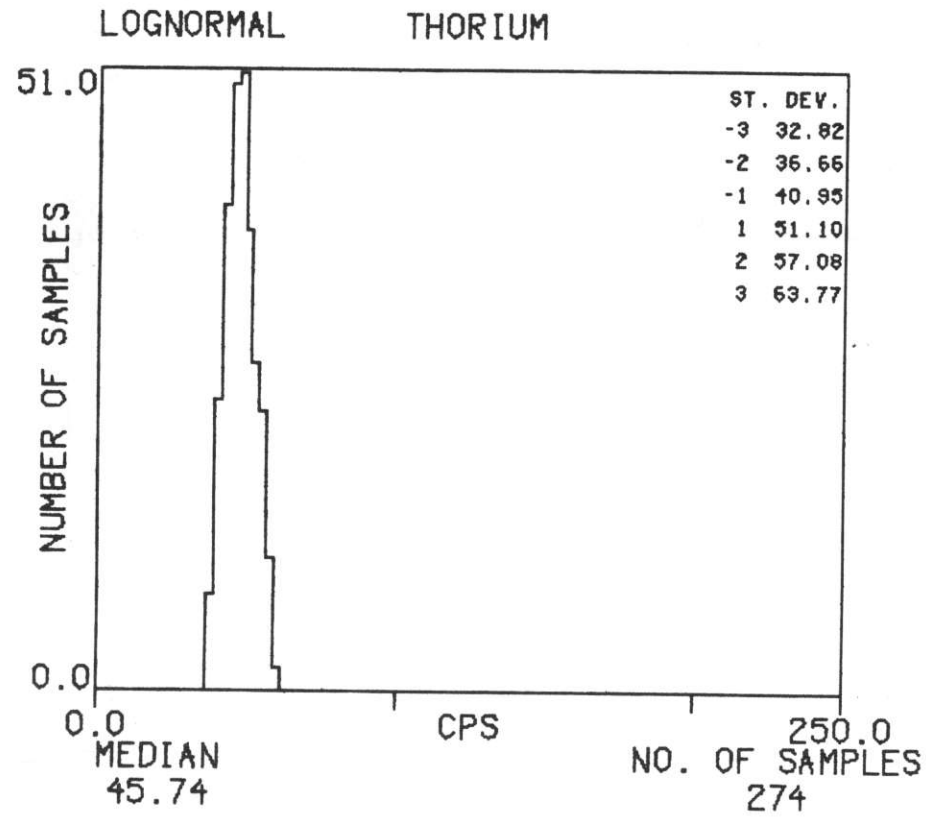
HISTOGRAMS : Q'-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



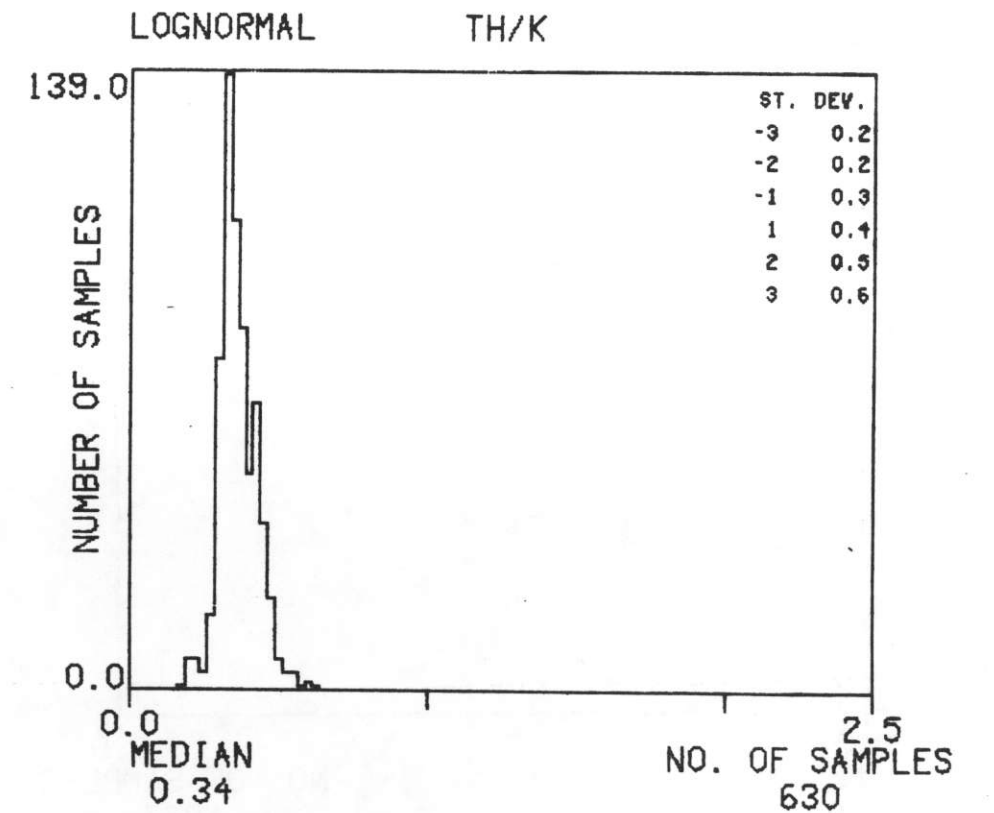
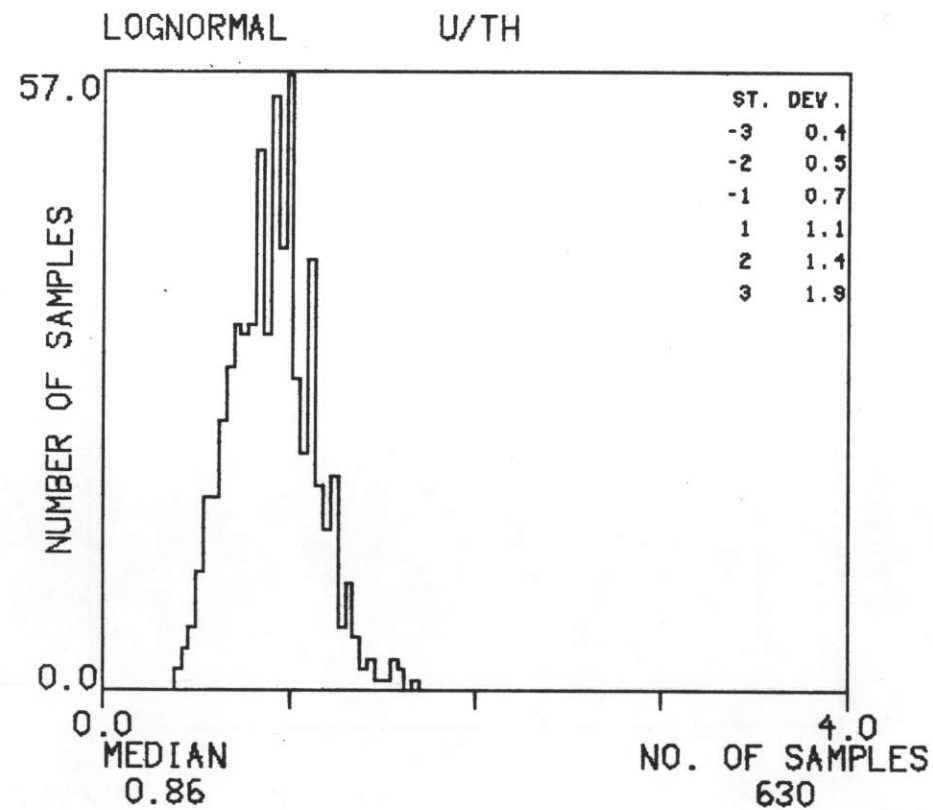
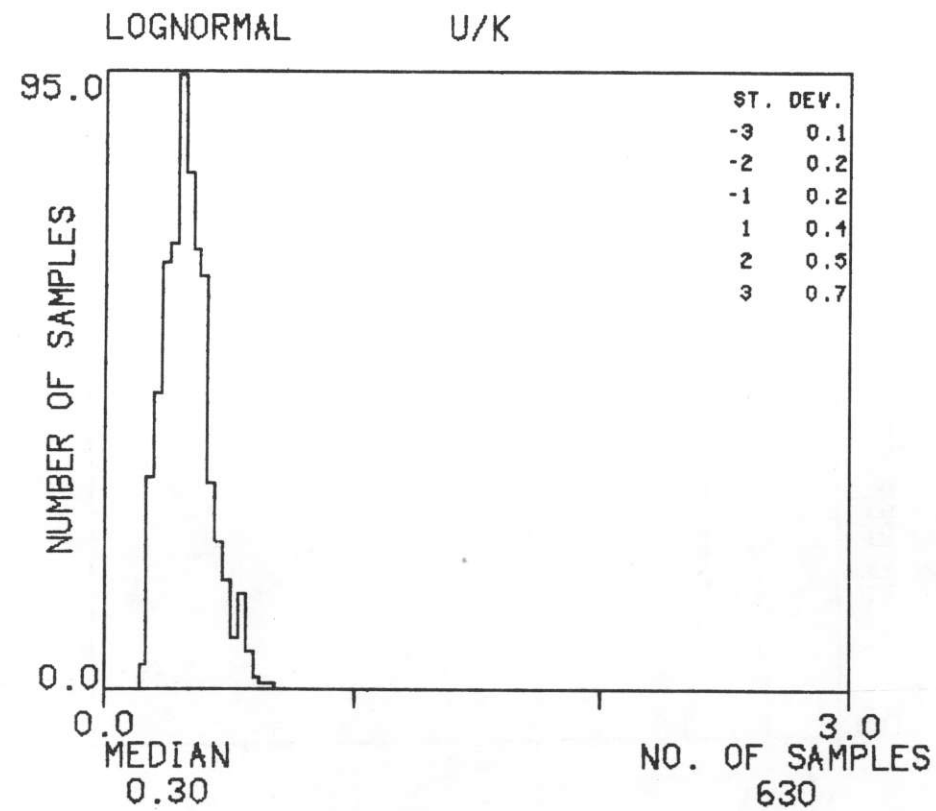
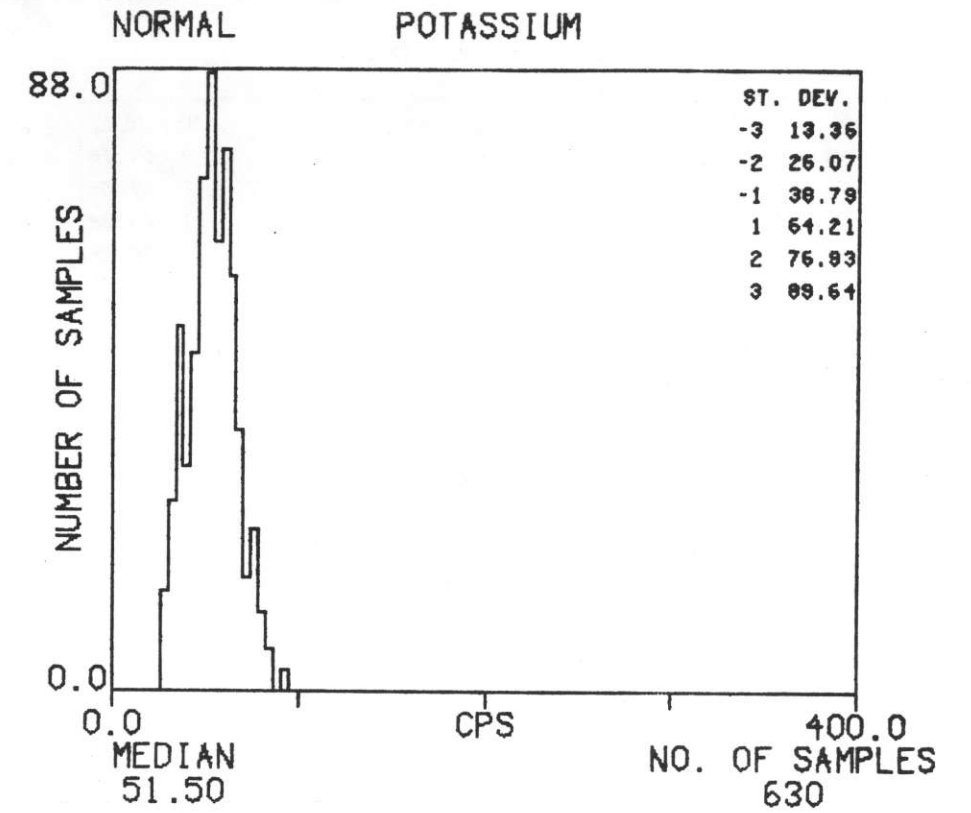
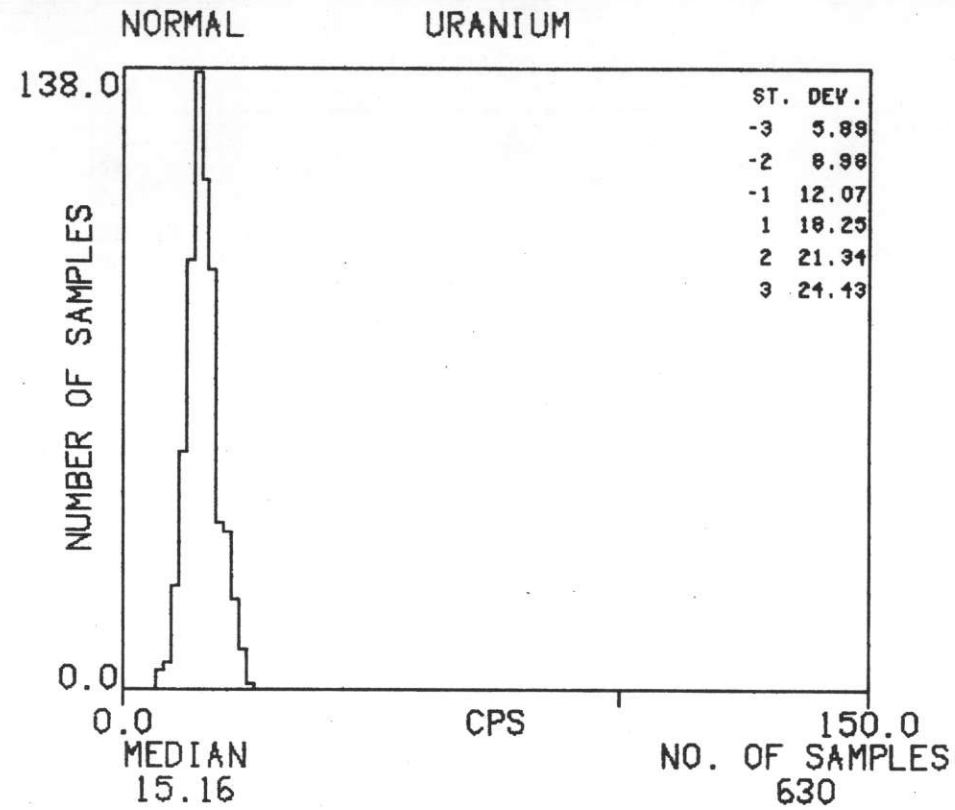
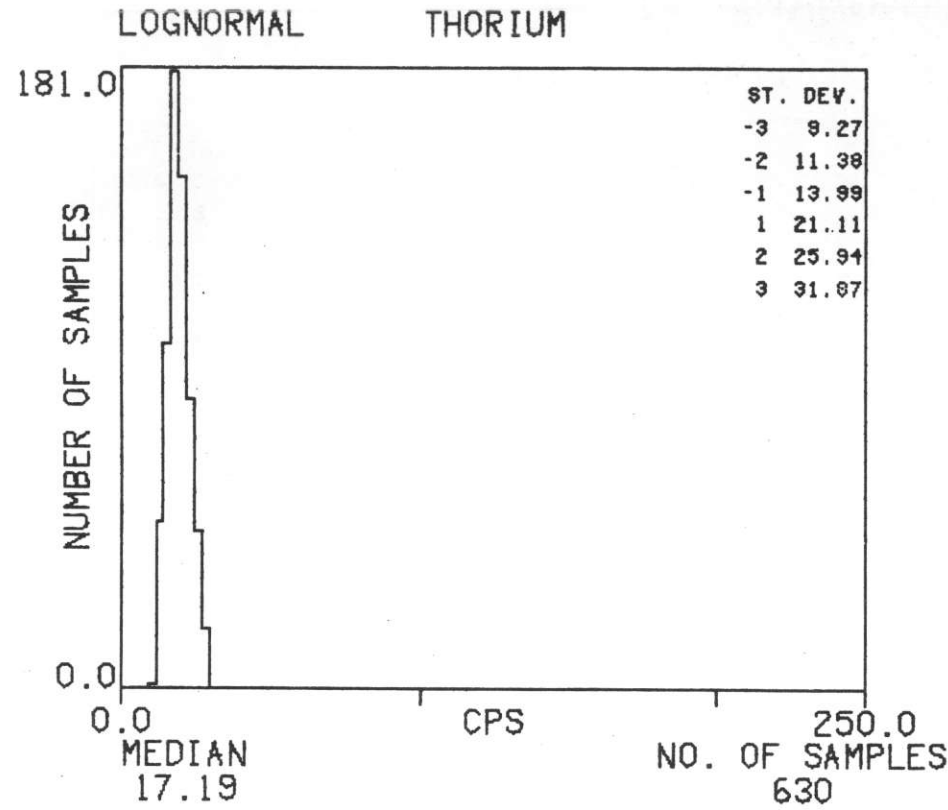
HISTOGRAMS : Q'-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



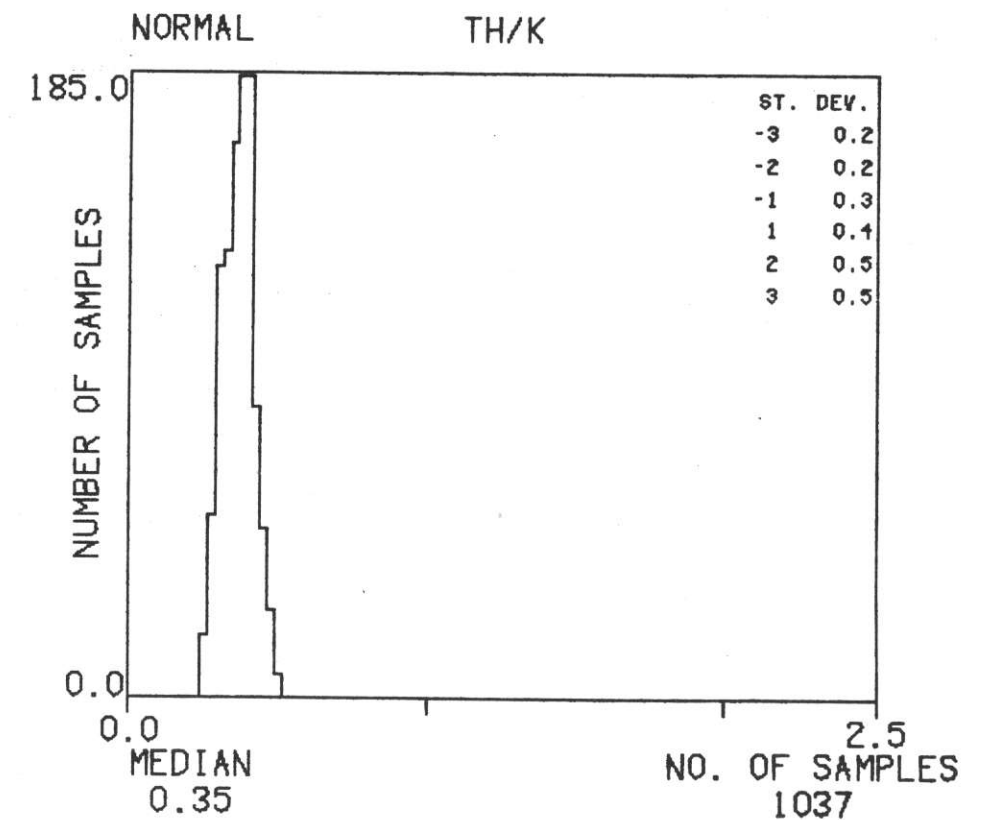
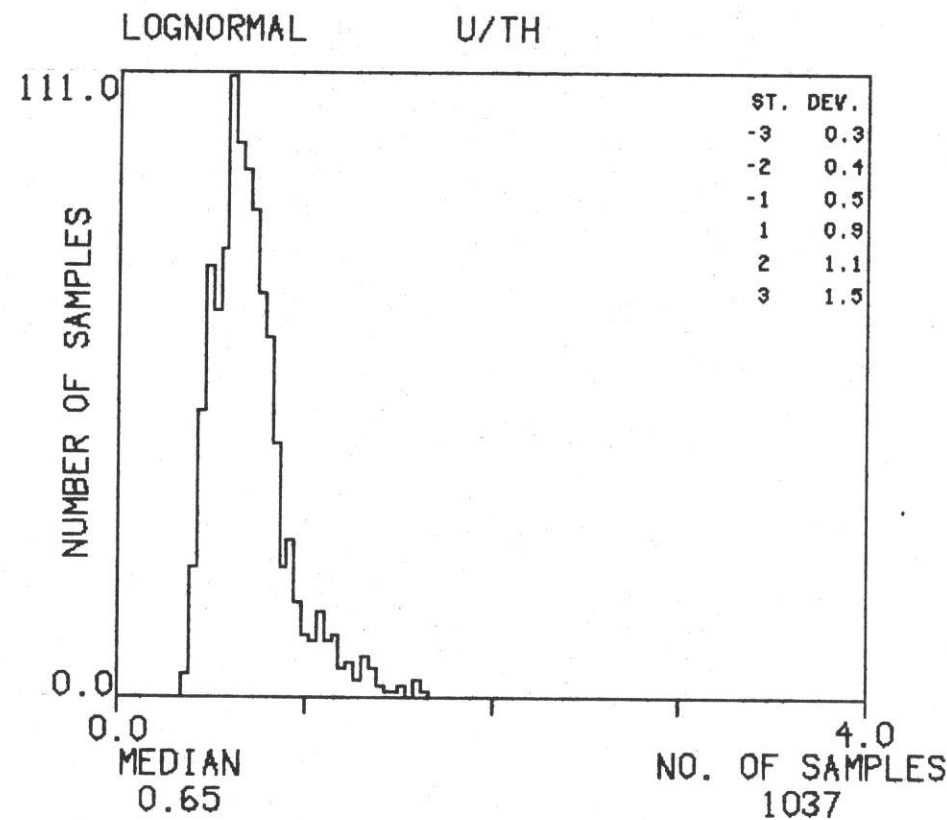
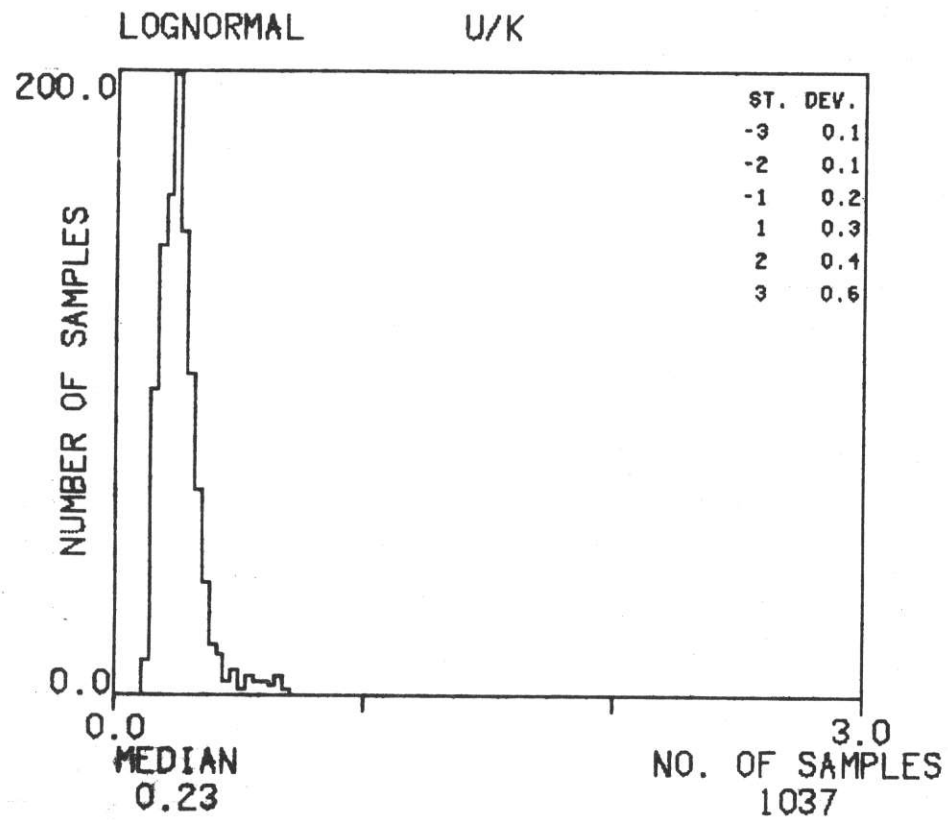
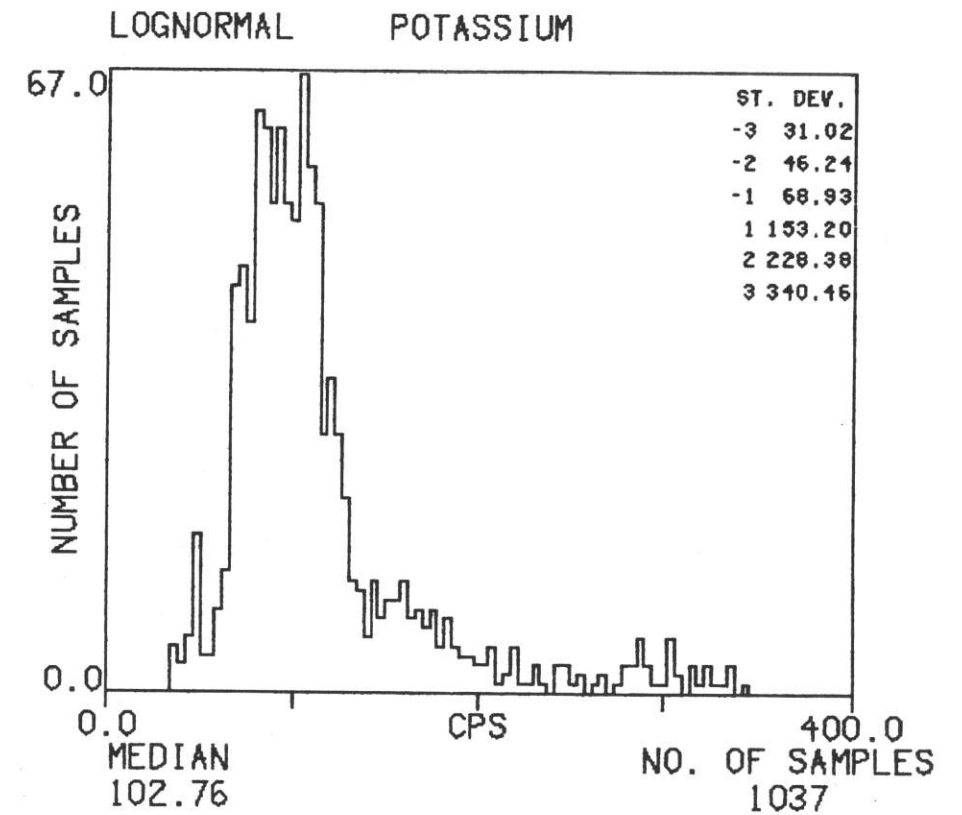
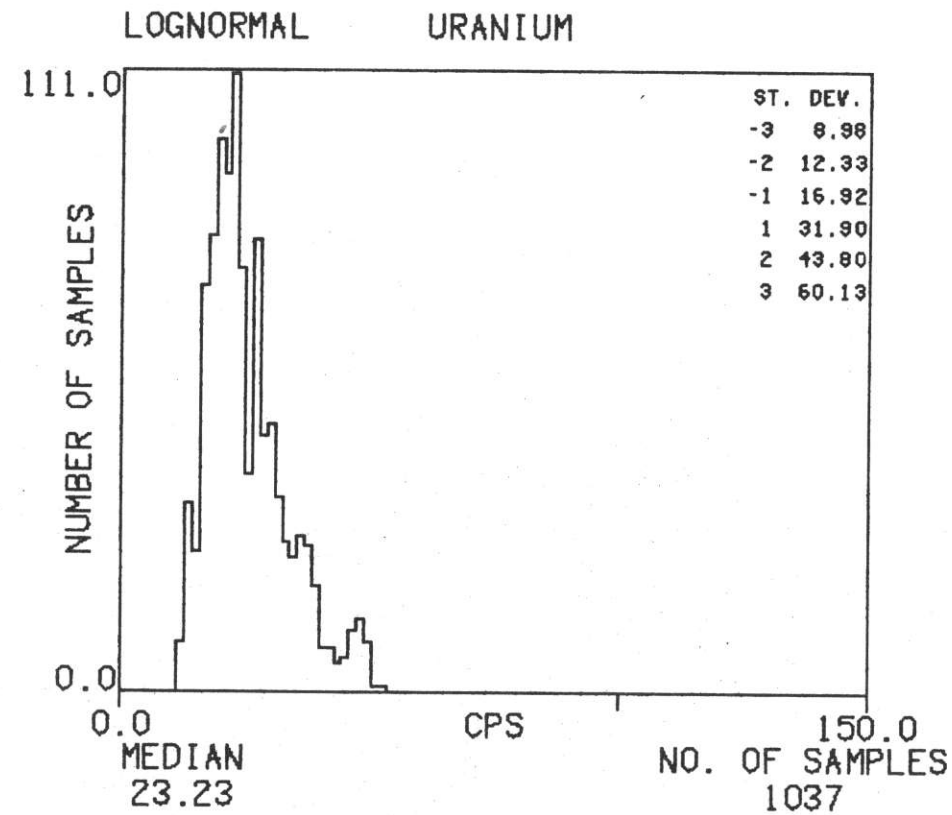
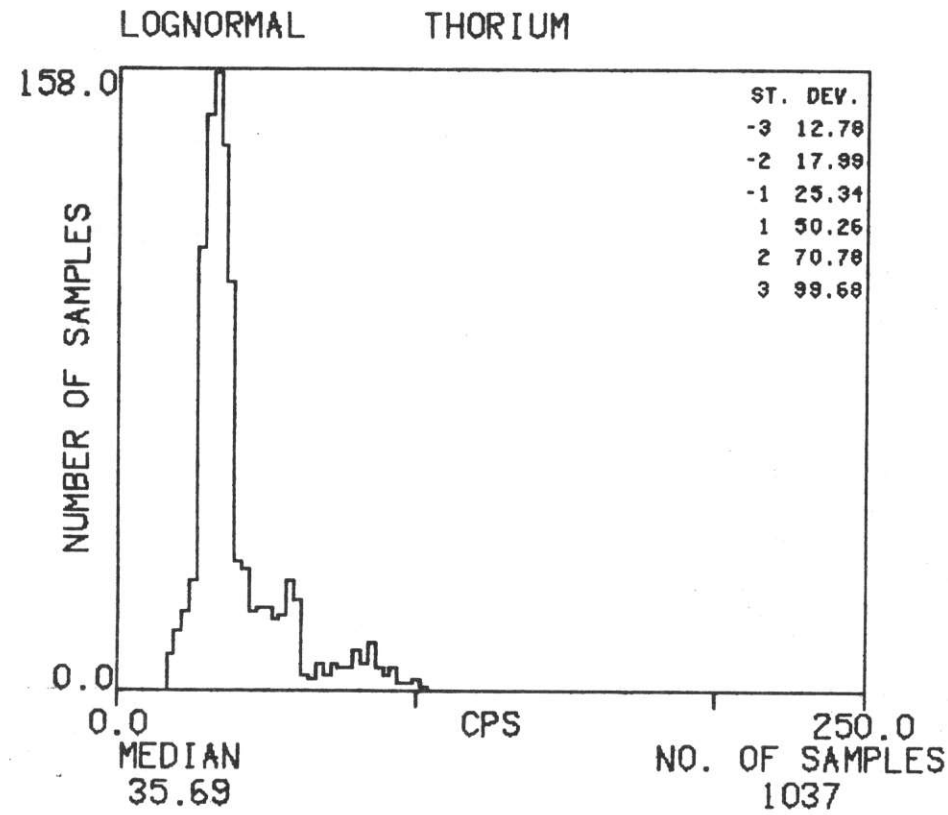
HISTOGRAMS : TN

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



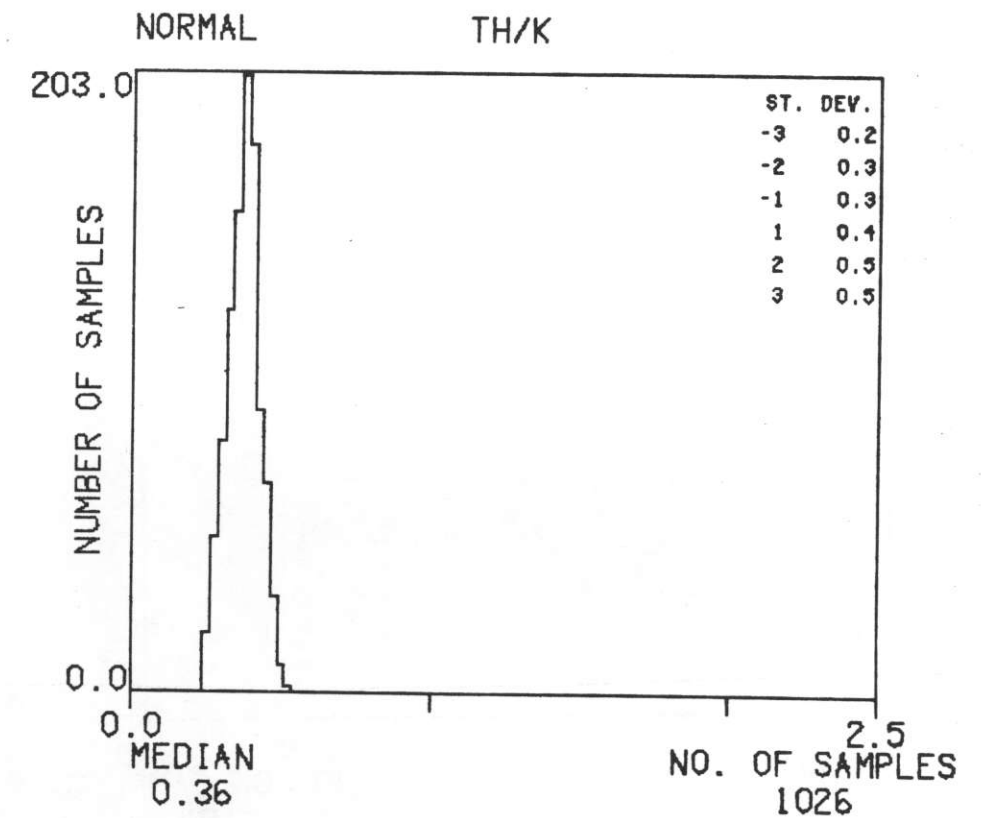
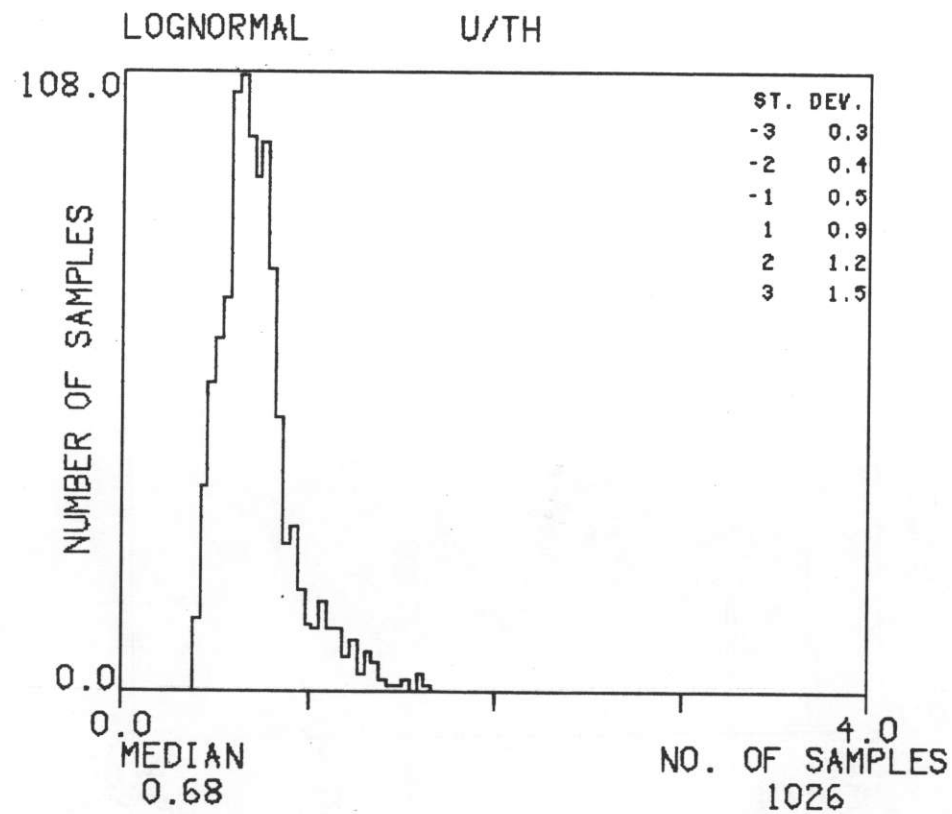
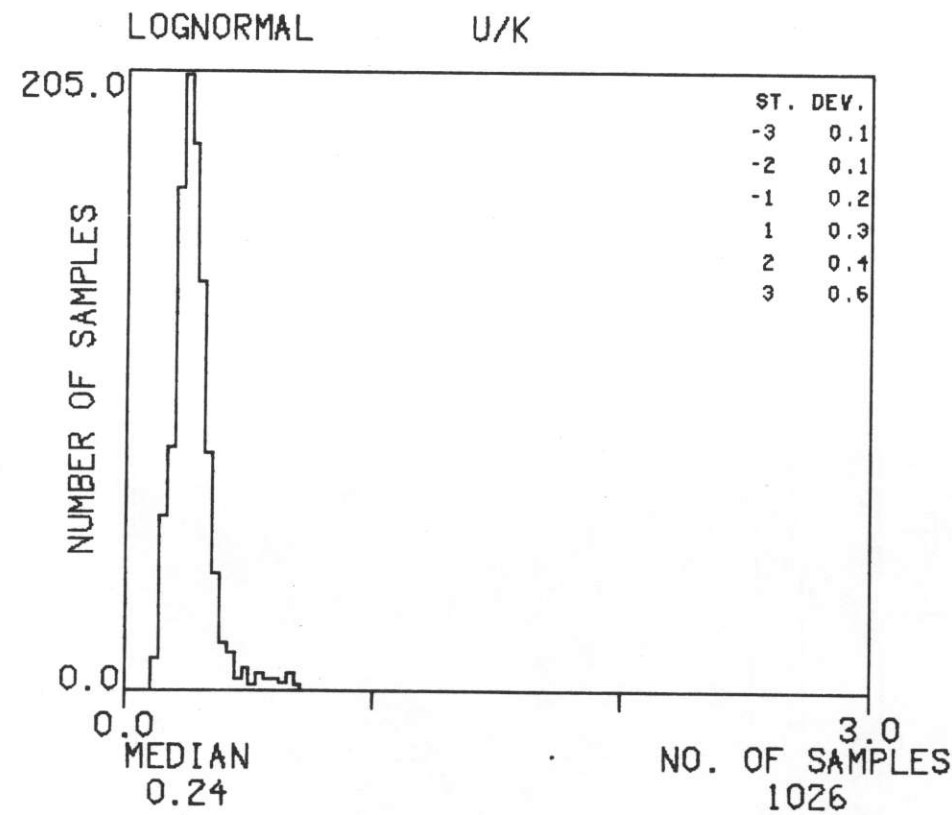
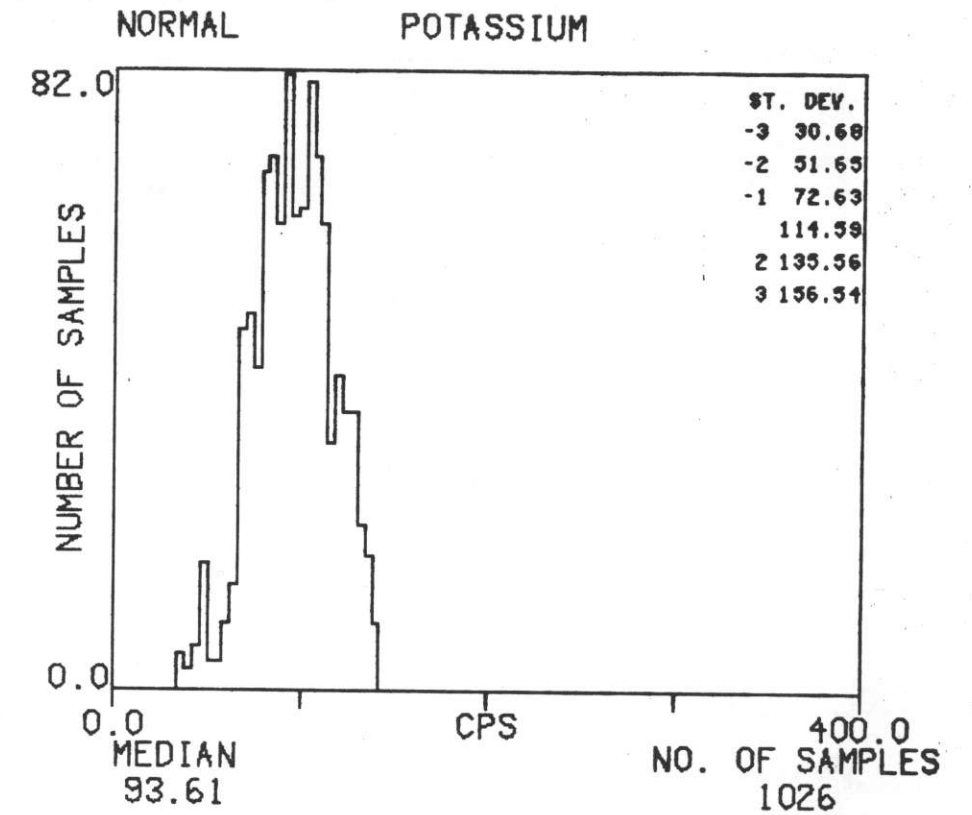
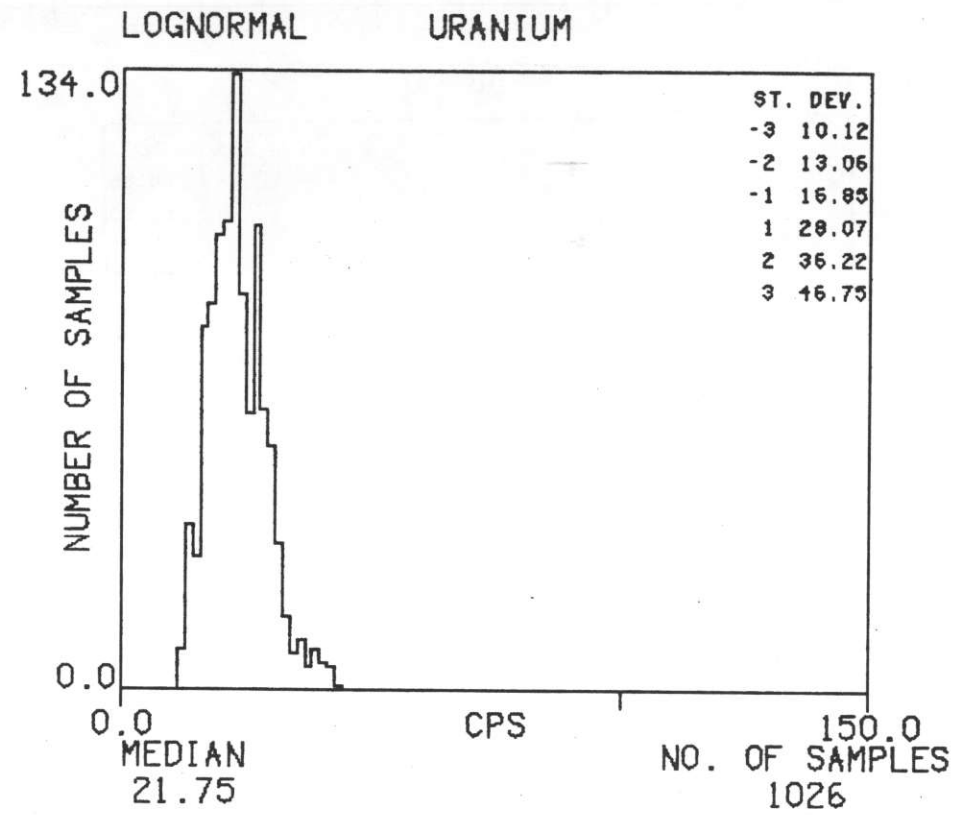
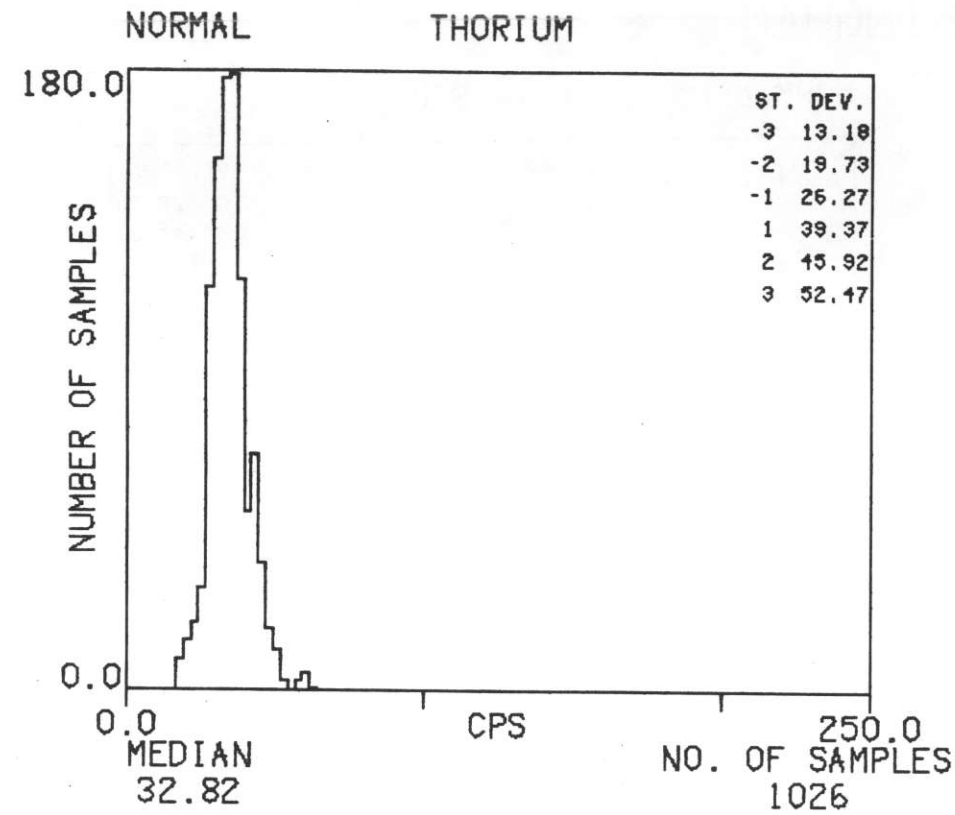
HISTOGRAMS : TMZU

TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



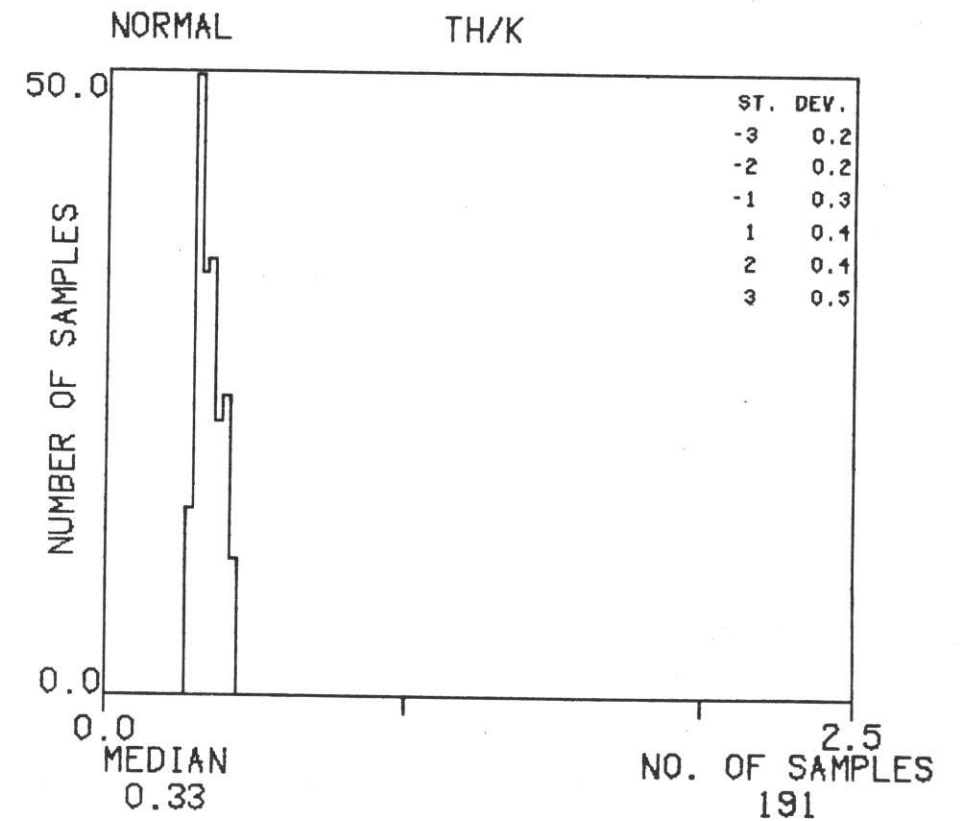
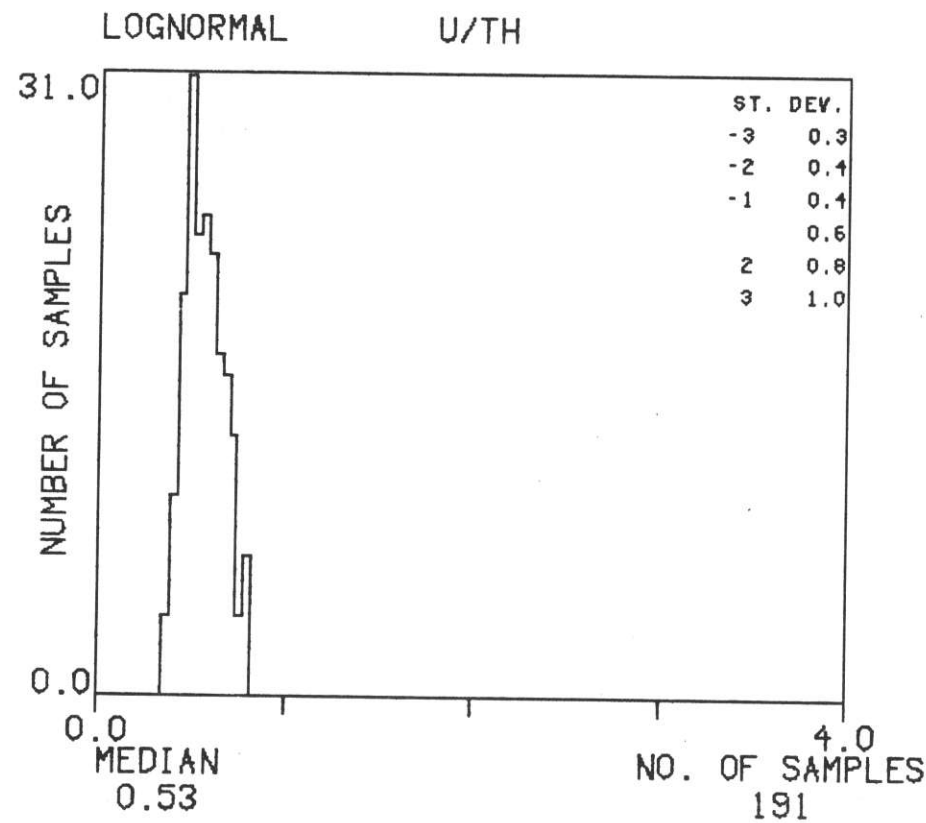
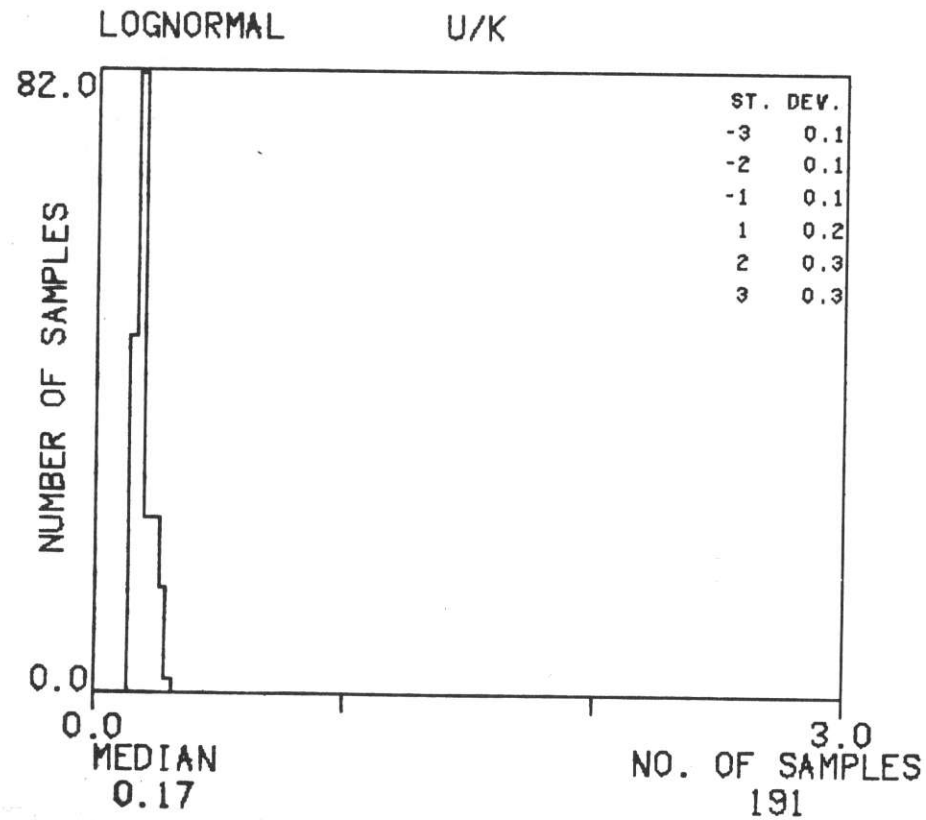
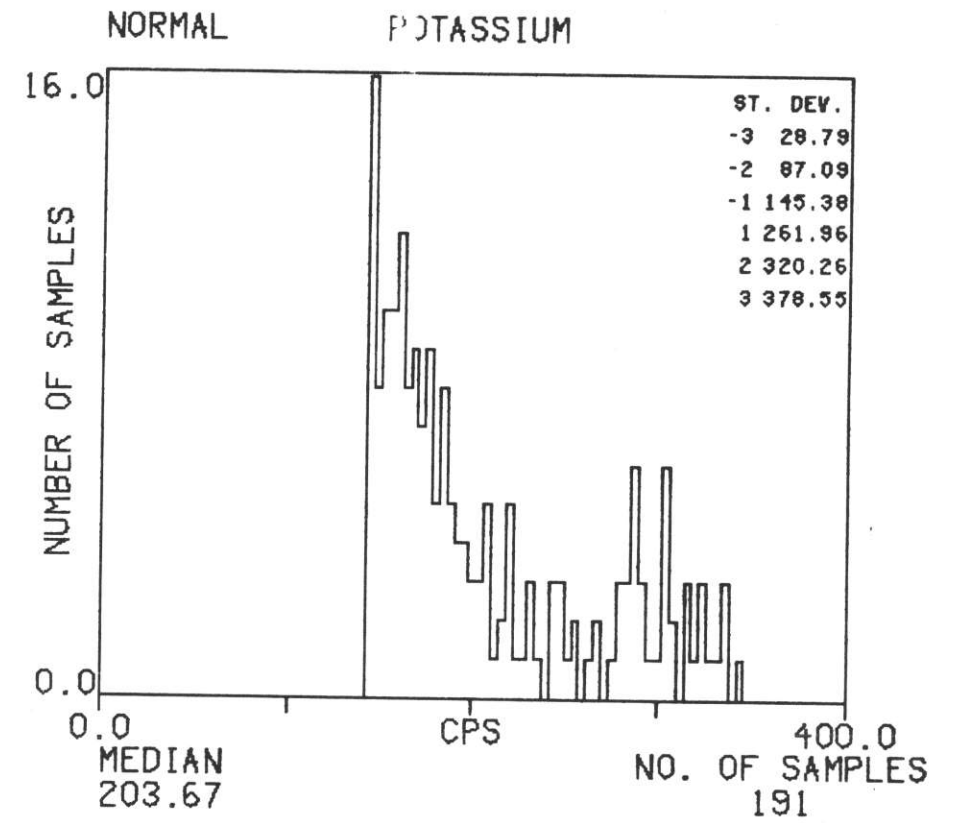
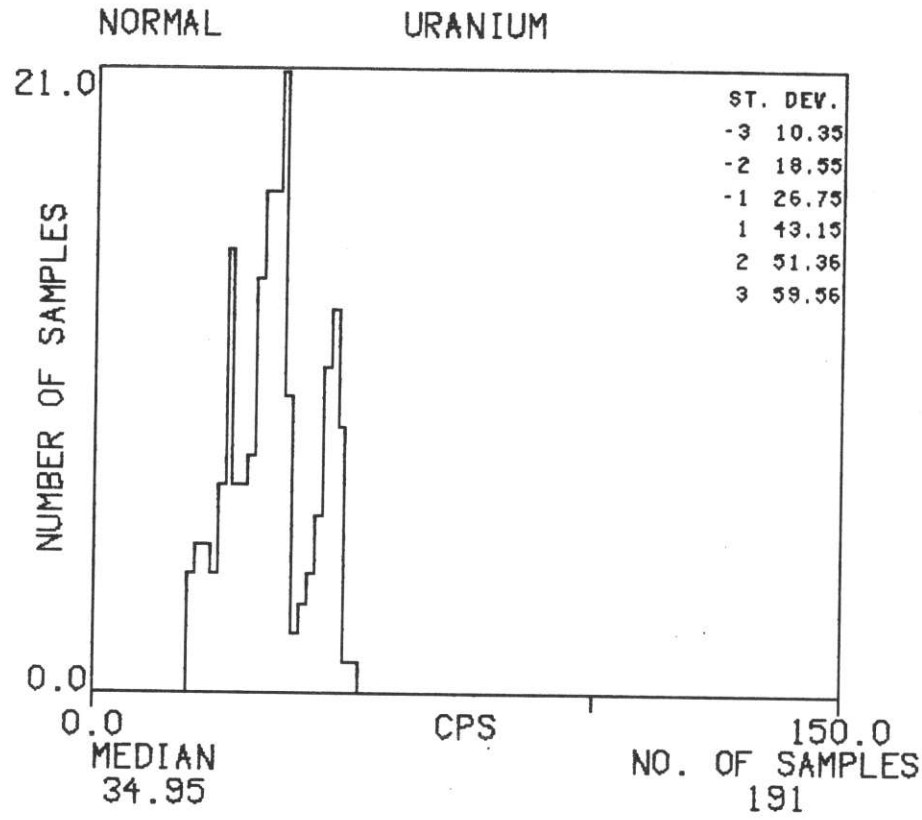
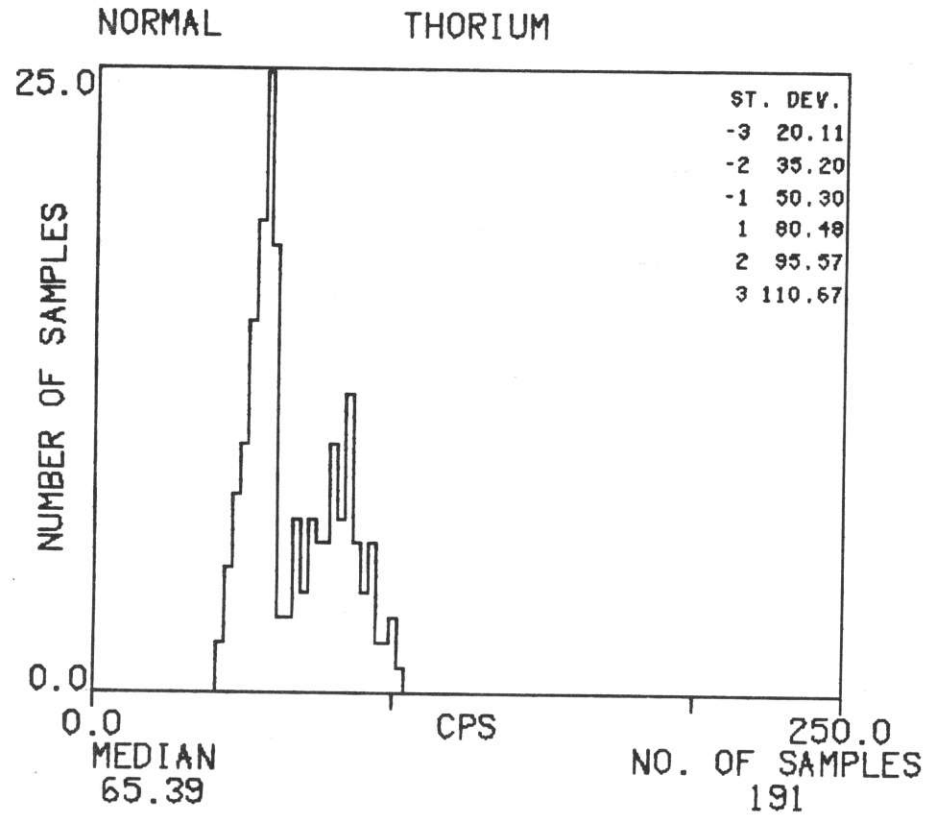
HISTOGRAMS : TMZU-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



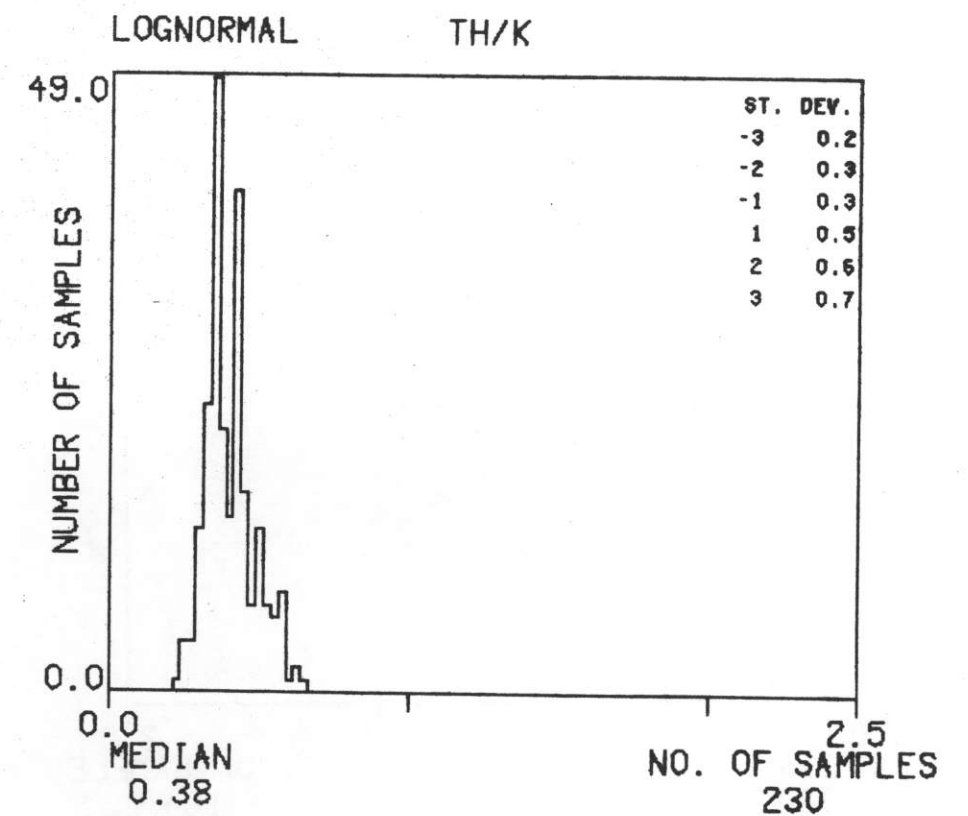
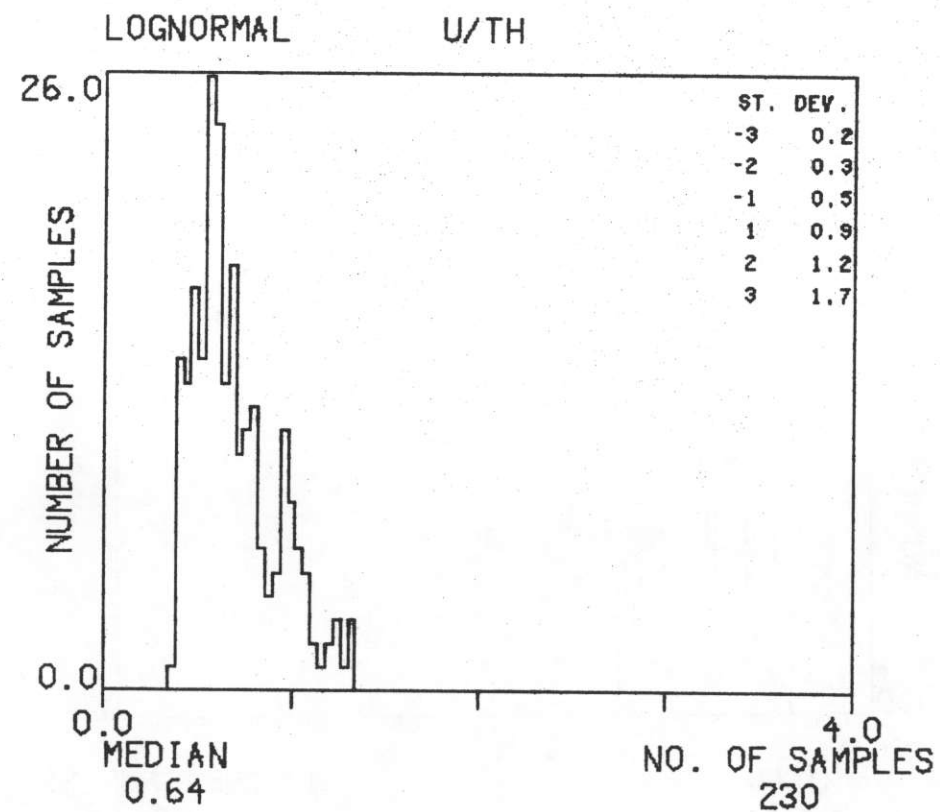
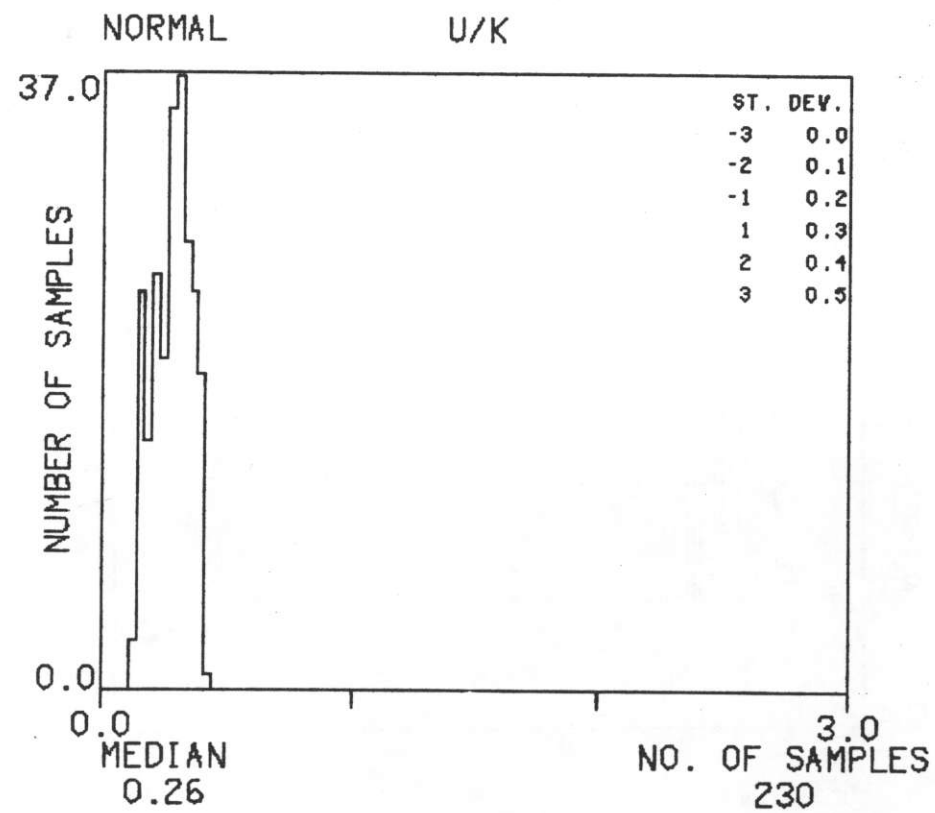
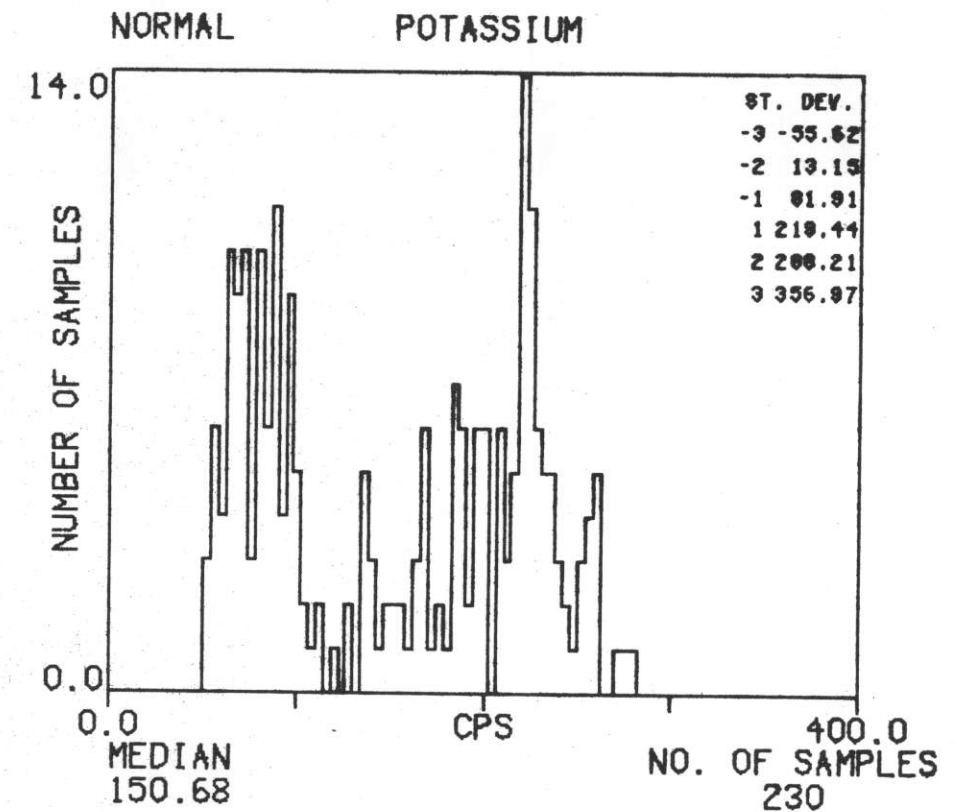
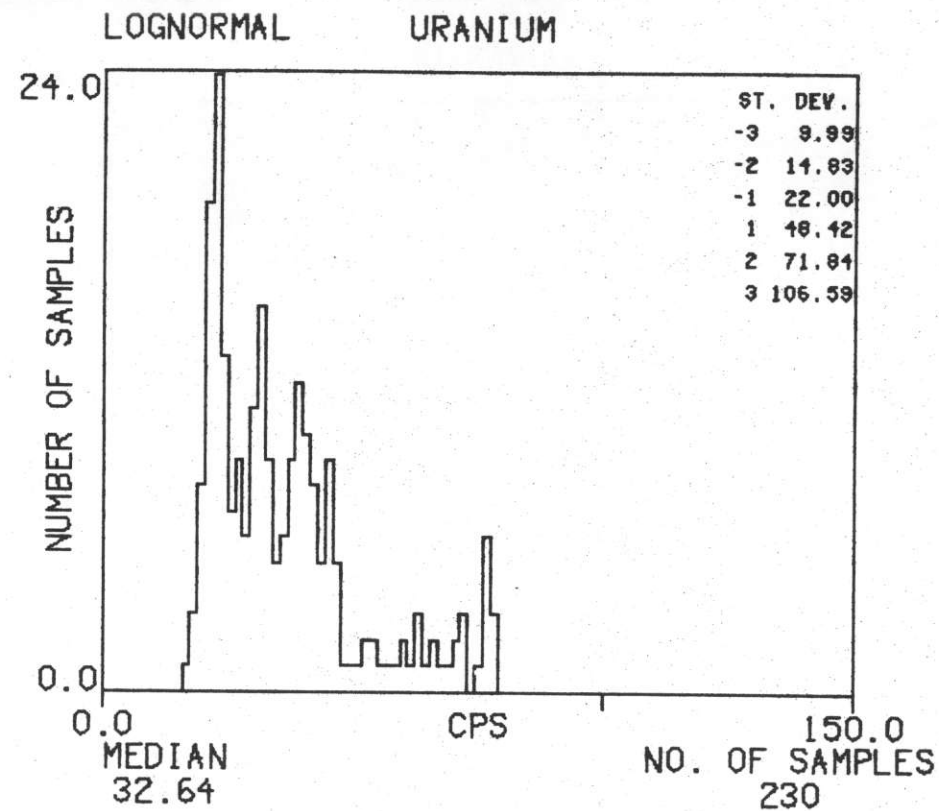
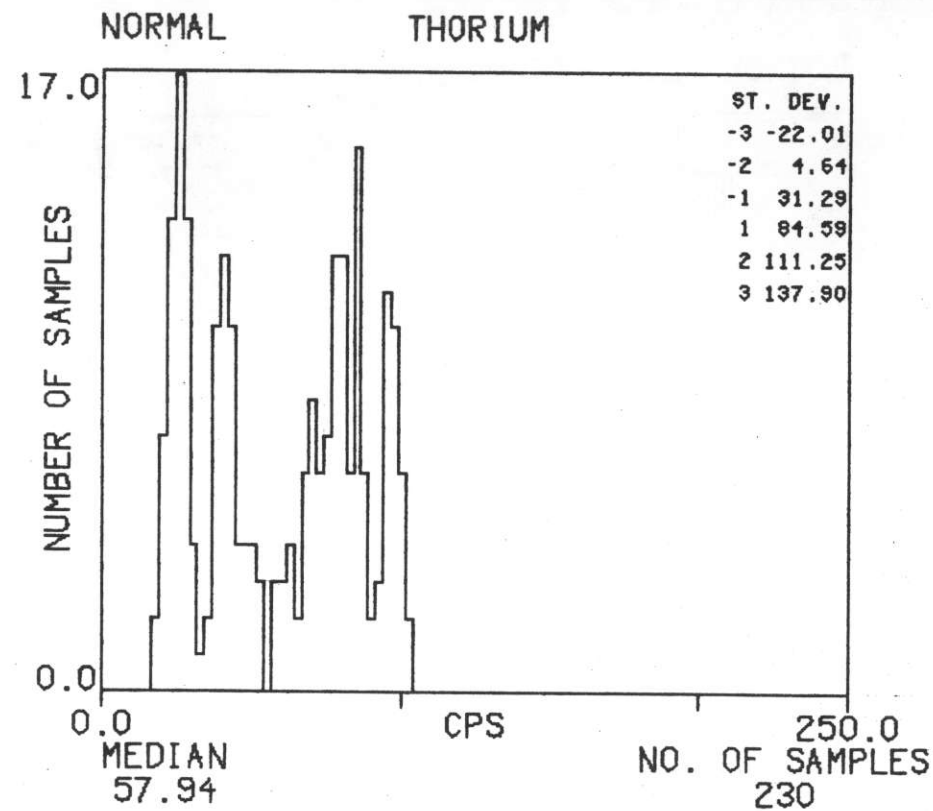
HISTOGRAMS : TMZU-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 197



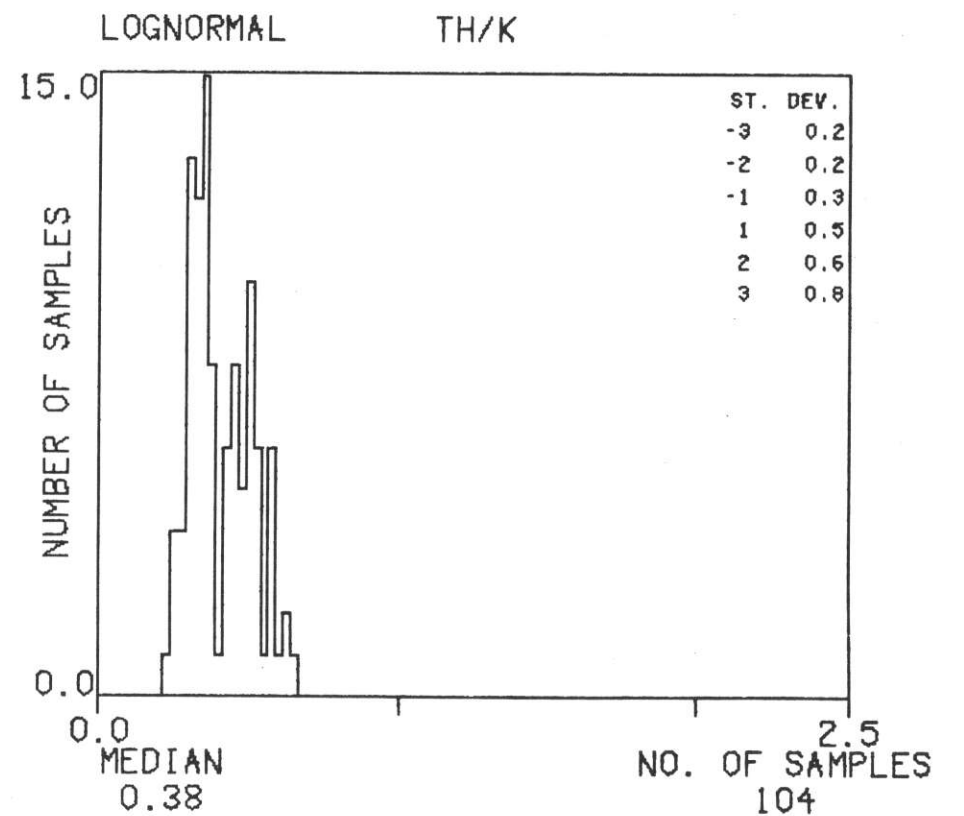
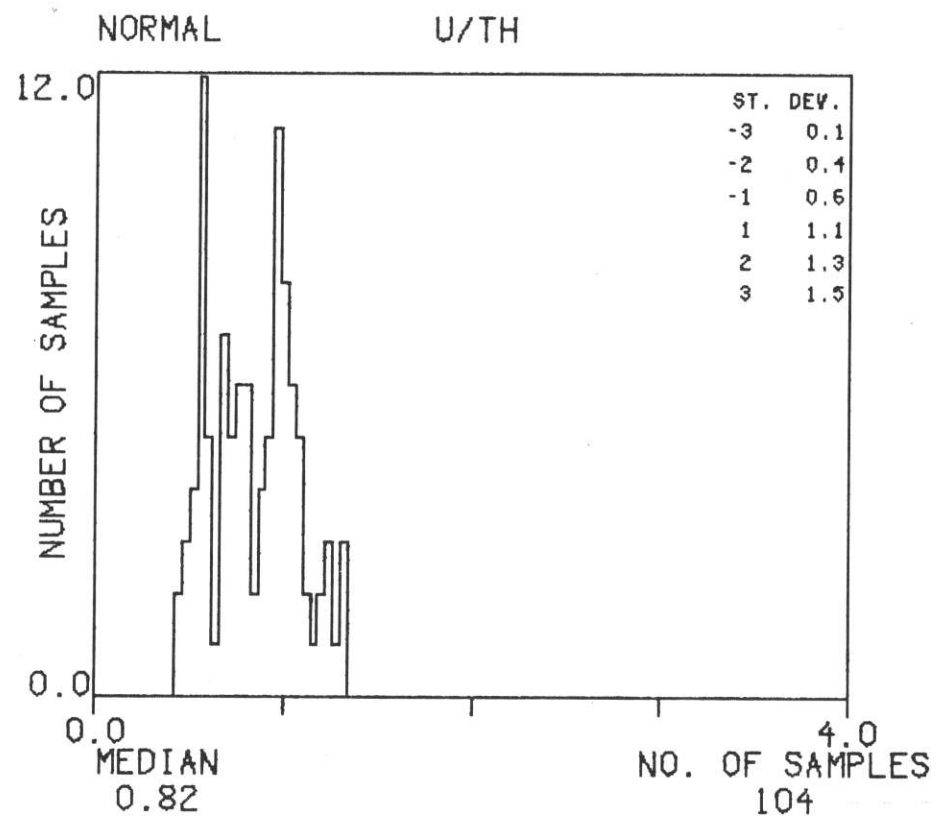
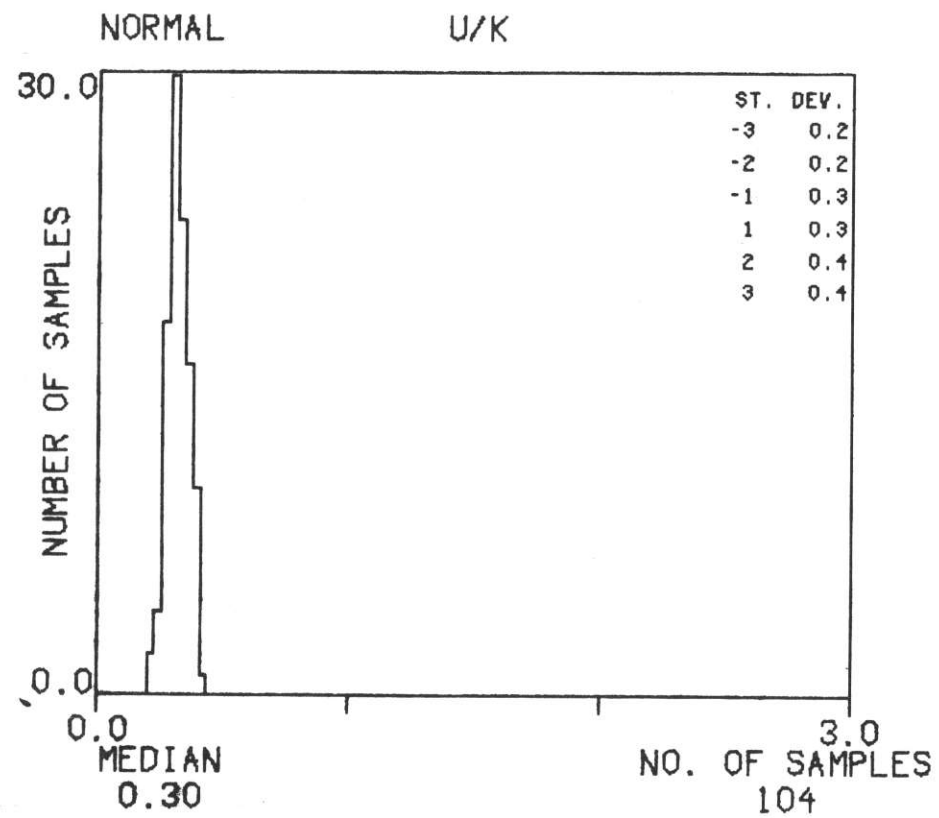
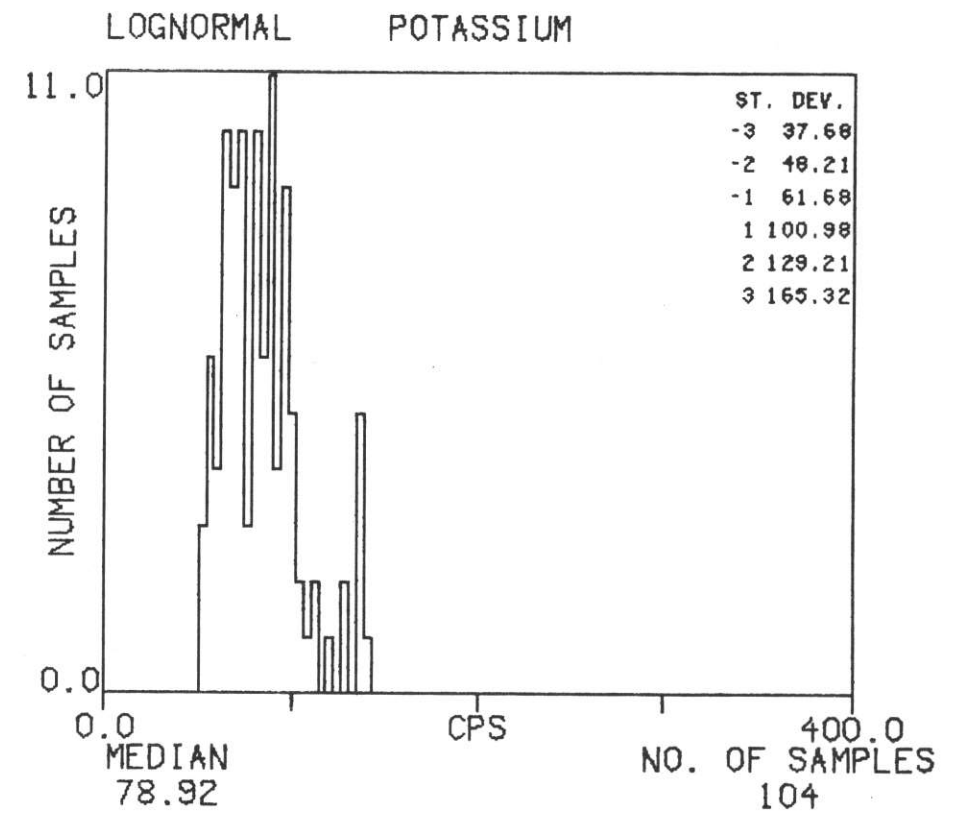
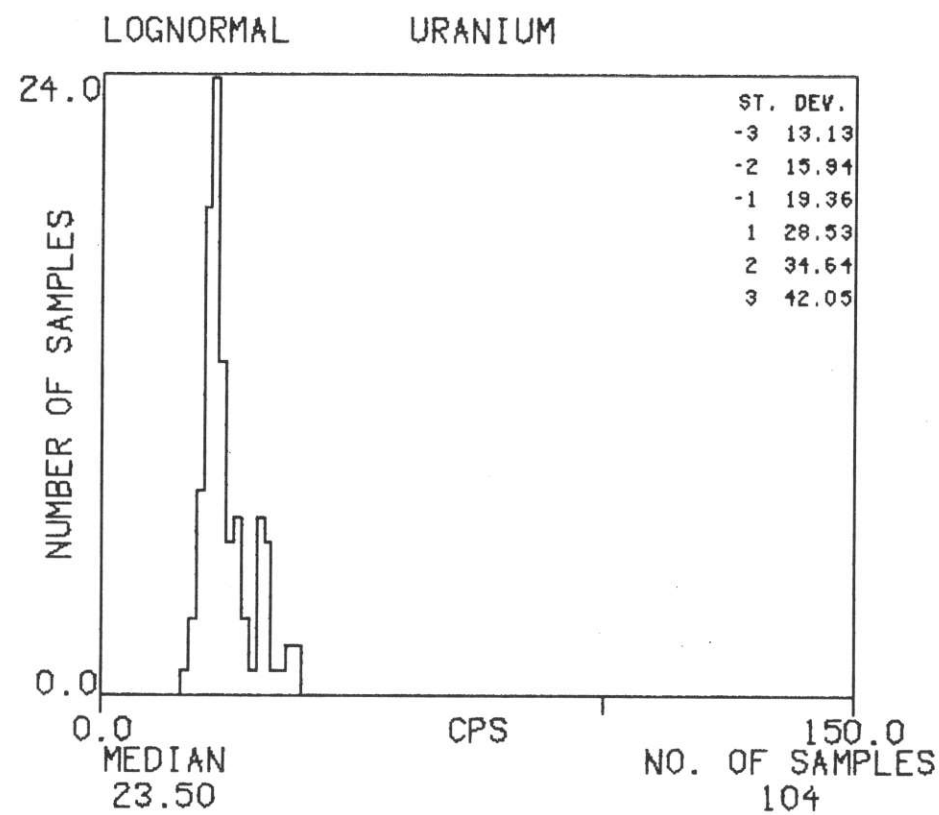
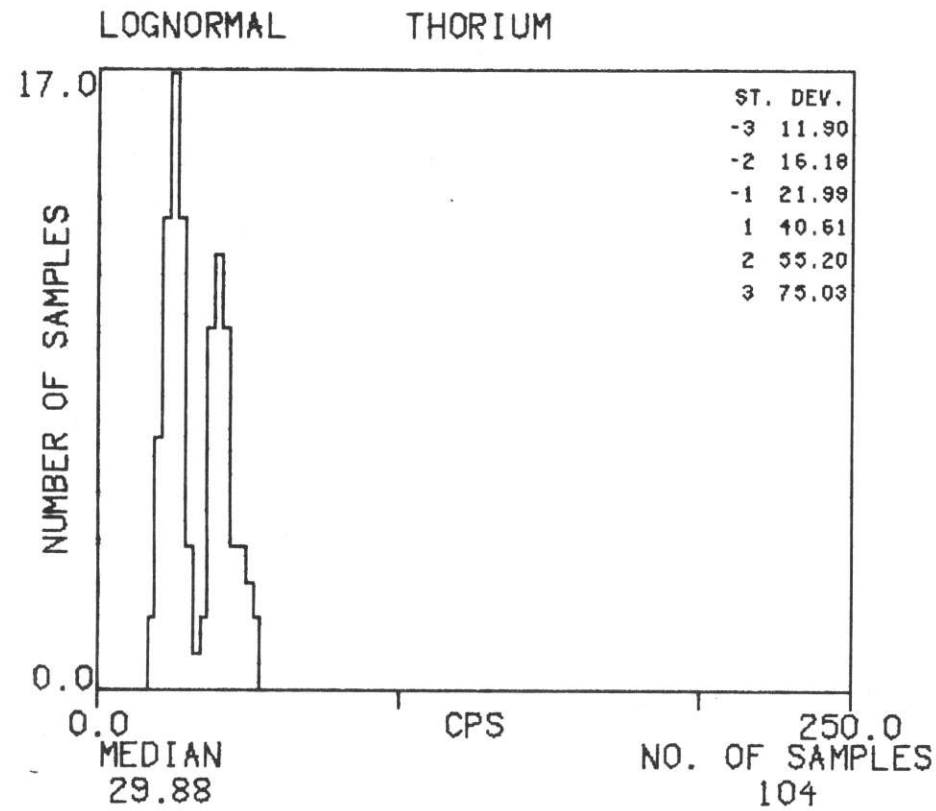
HISTOGRAMS : TF

TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



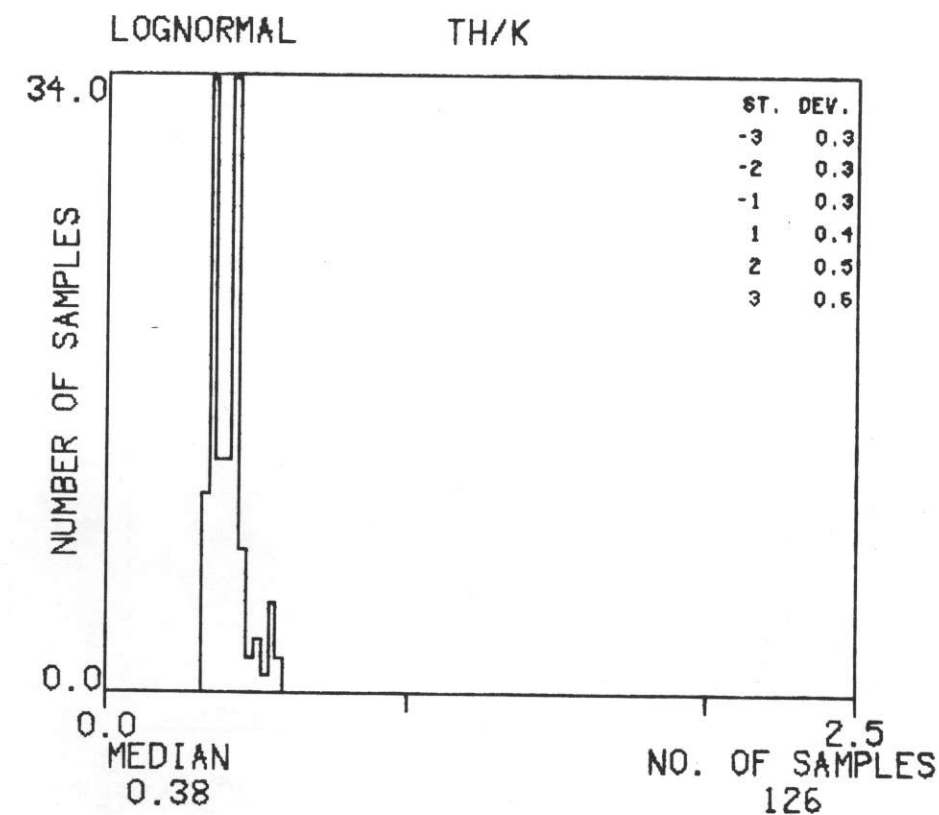
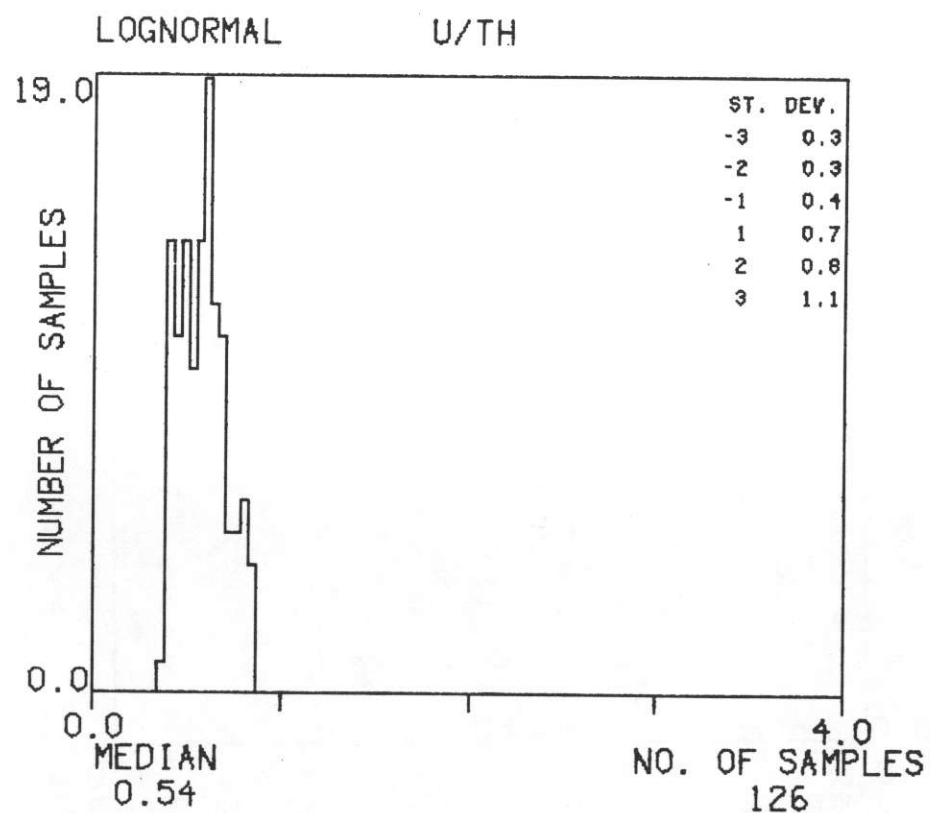
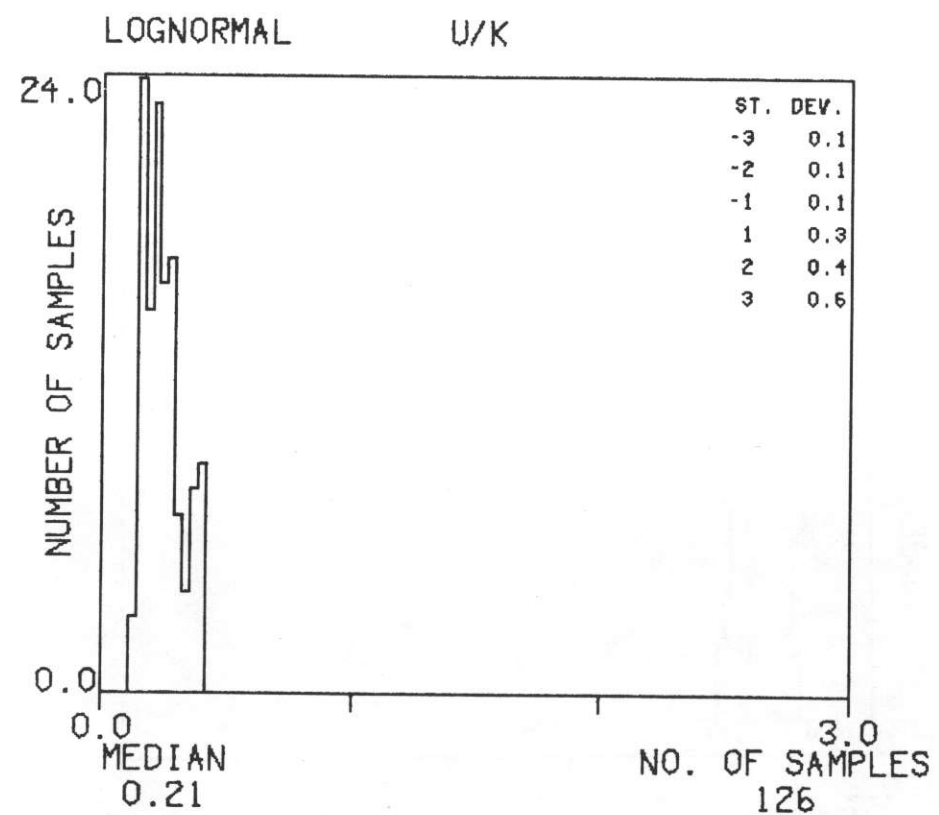
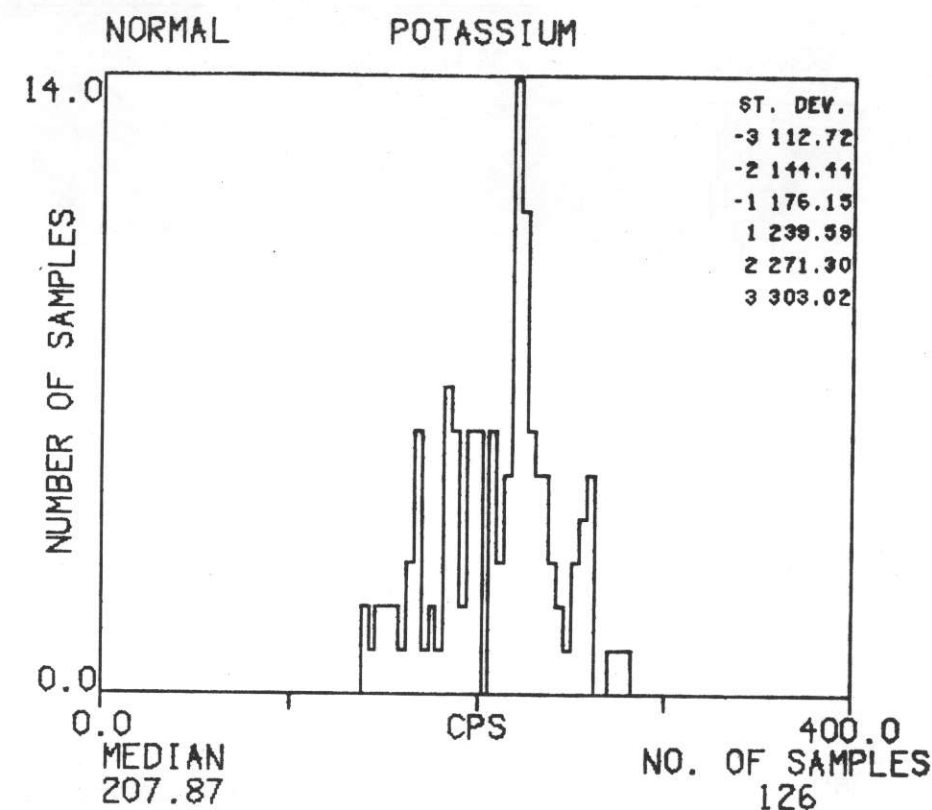
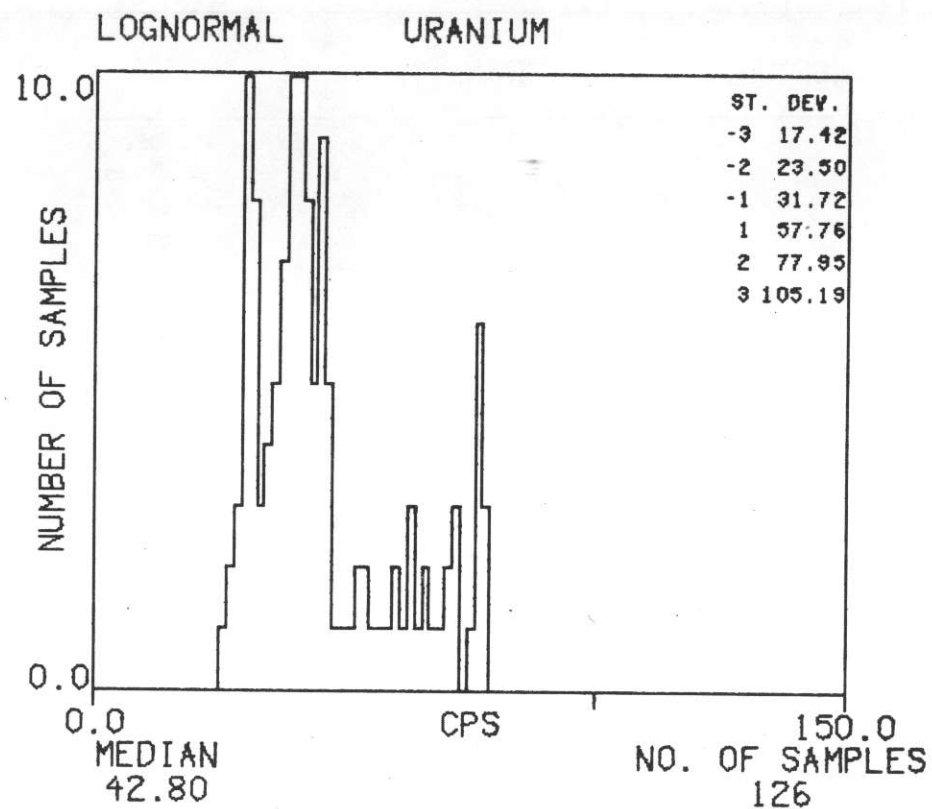
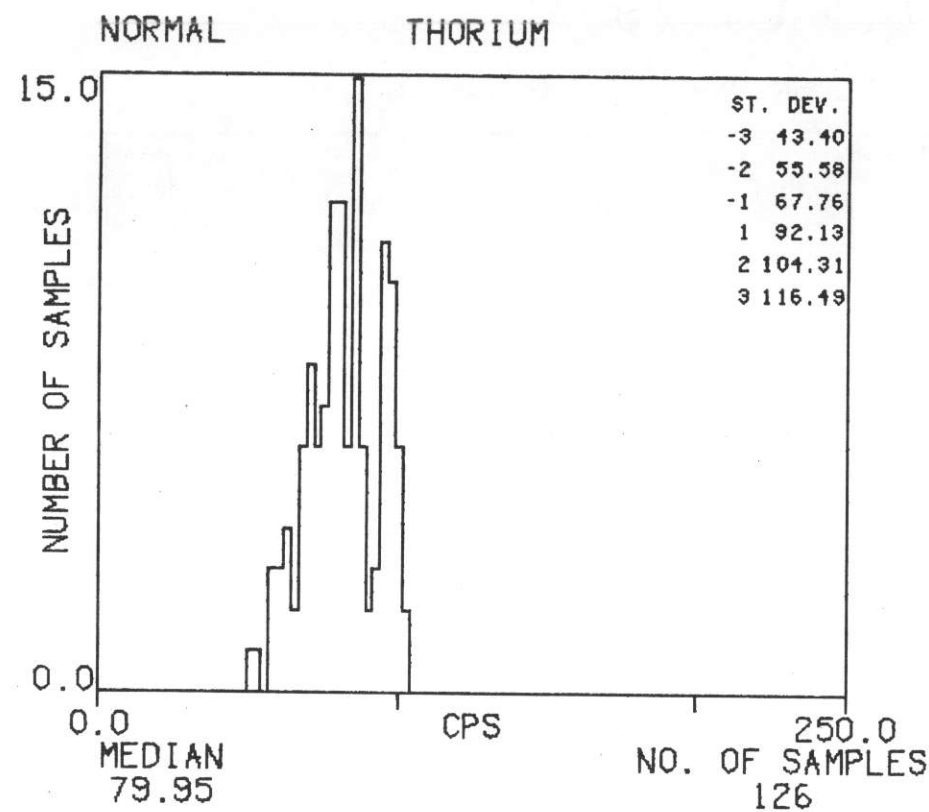
HISTOGRAMS : TF-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



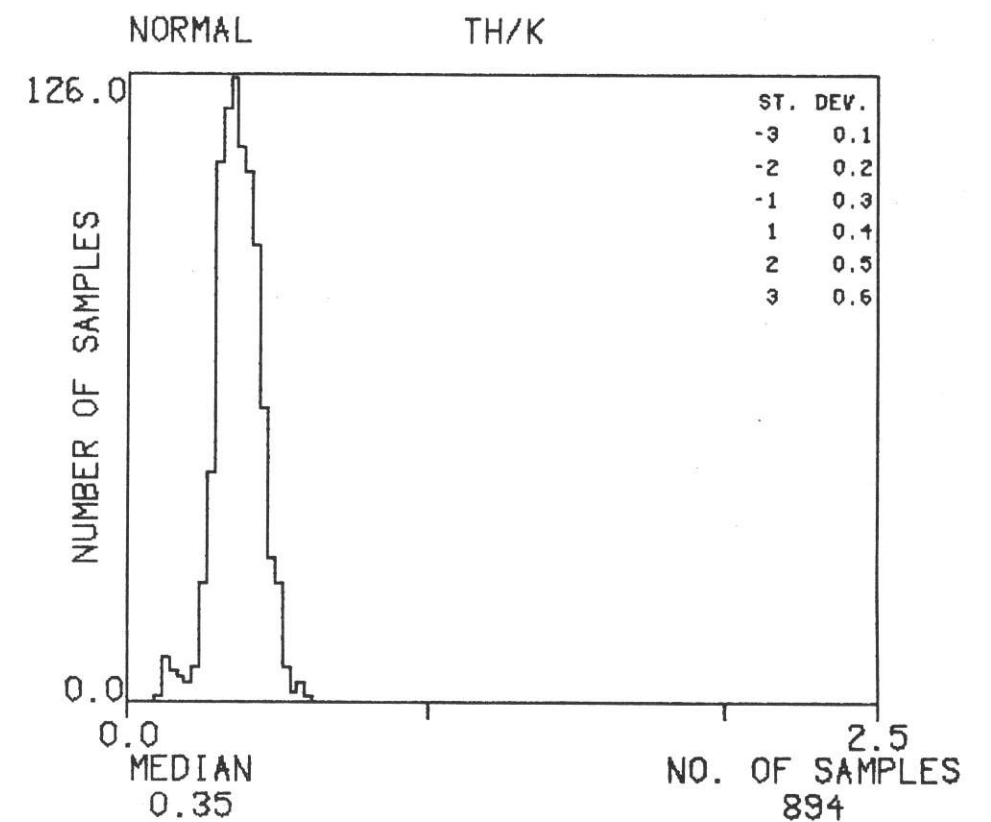
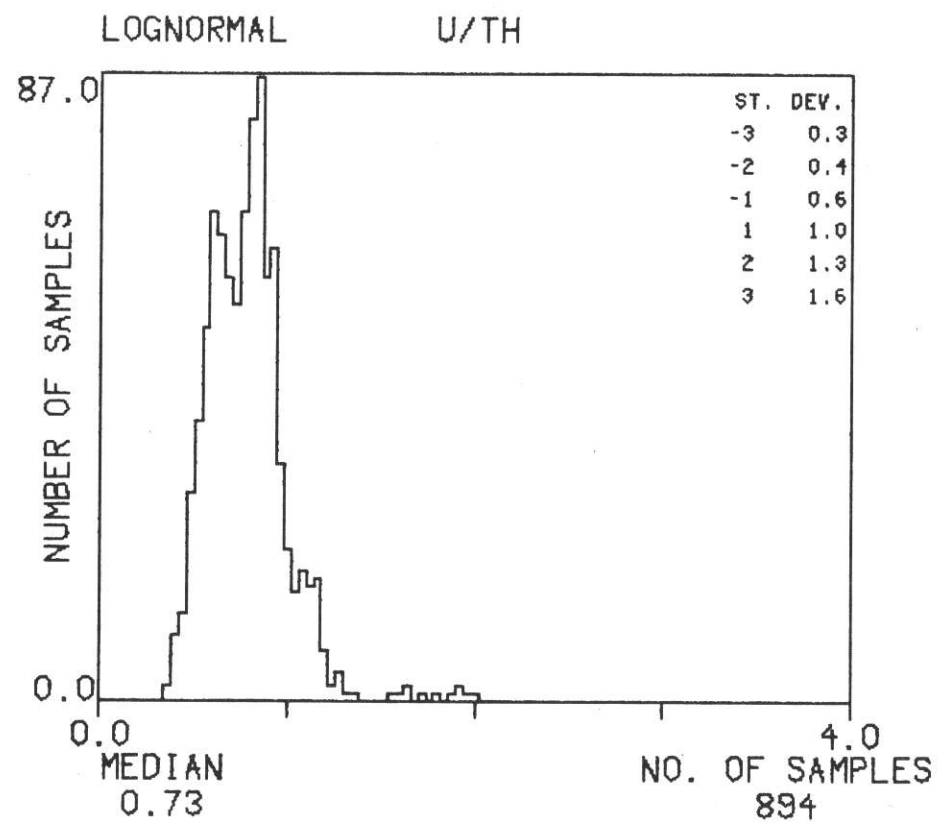
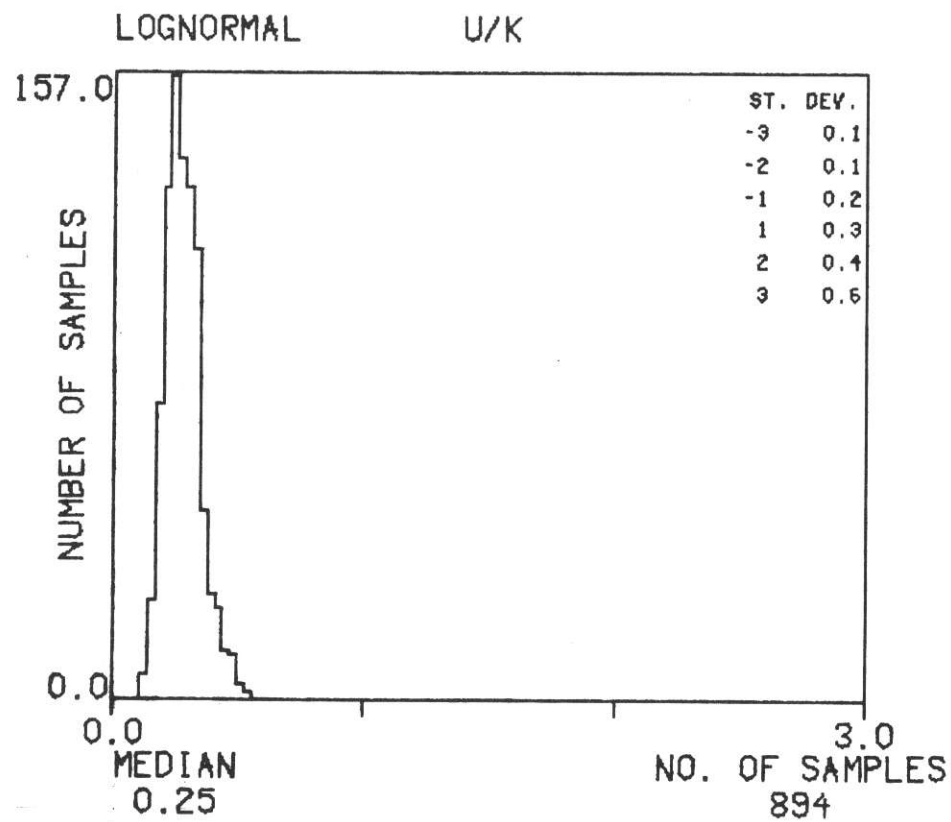
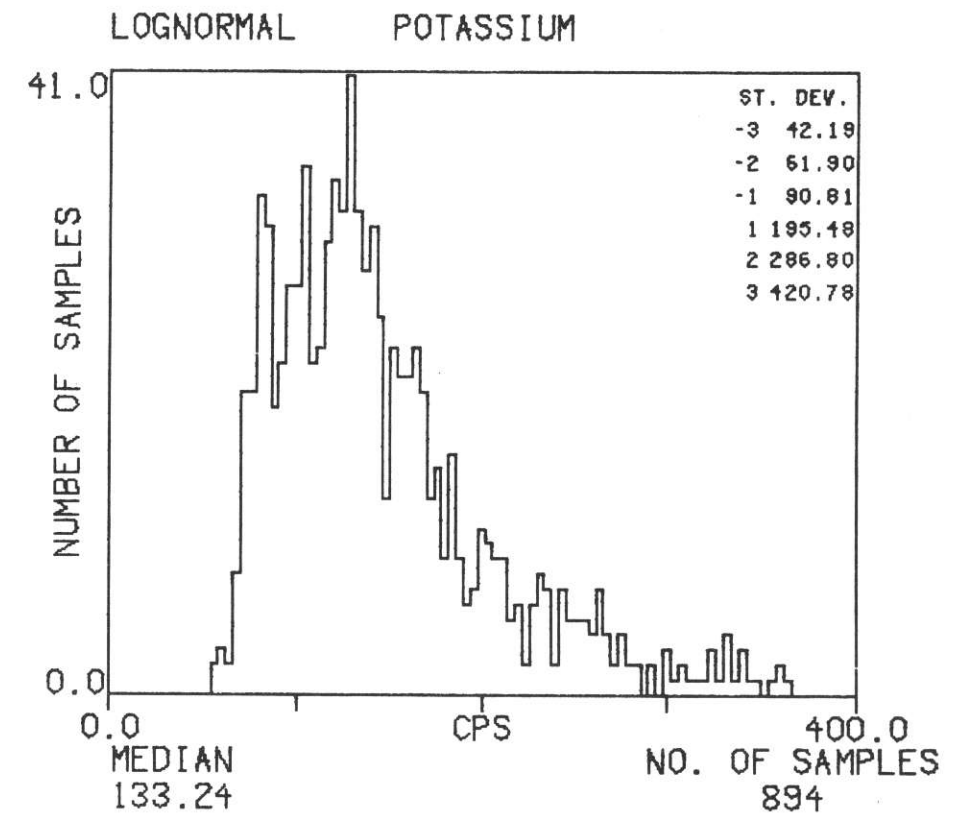
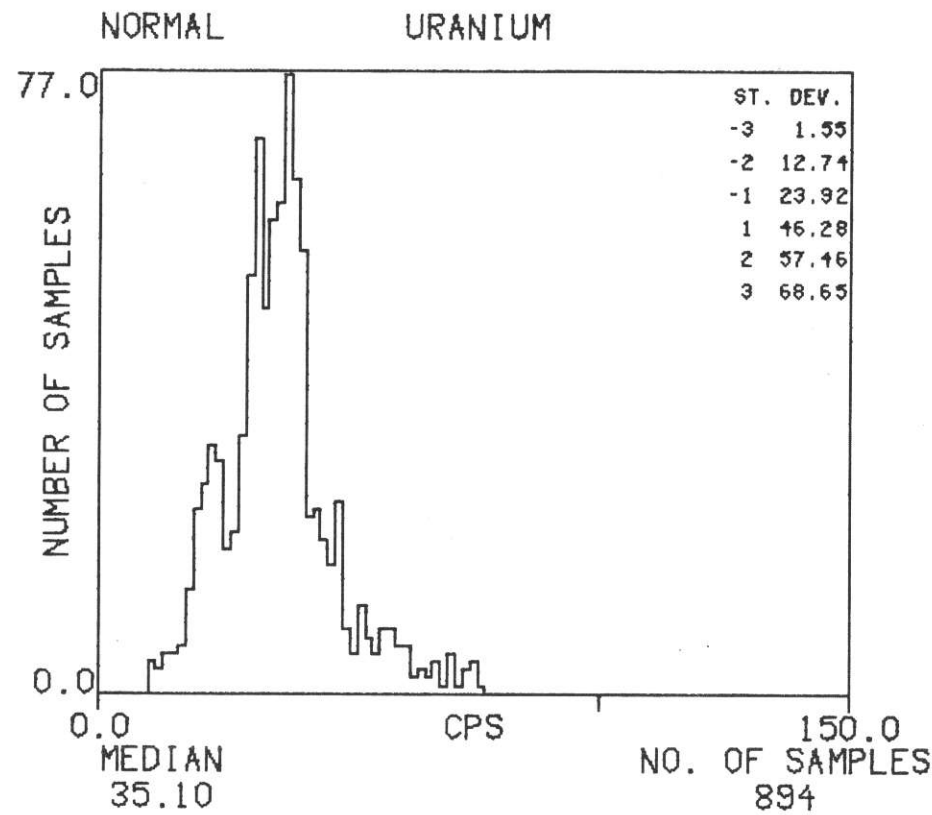
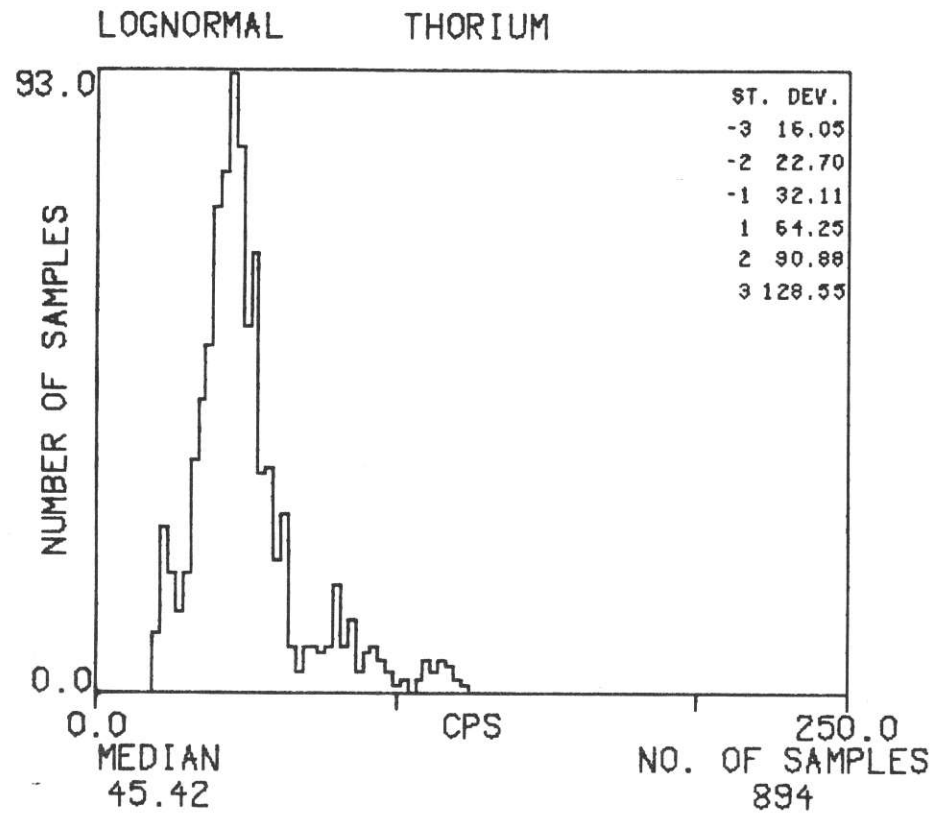
HISTOGRAMS : TF-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



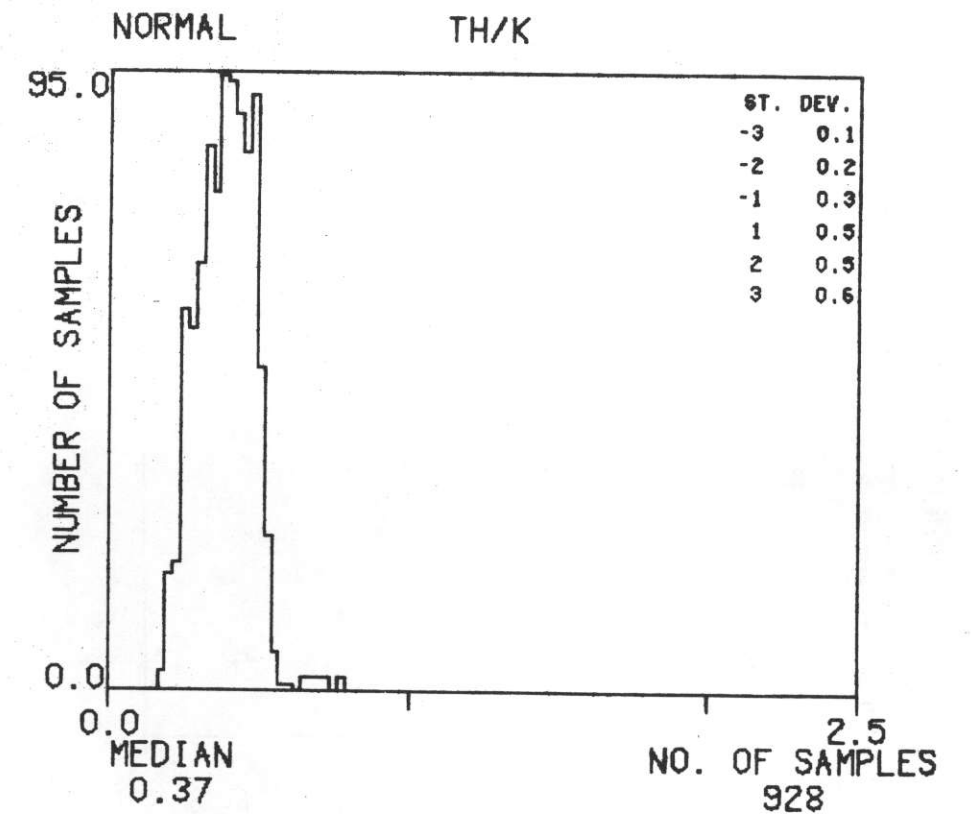
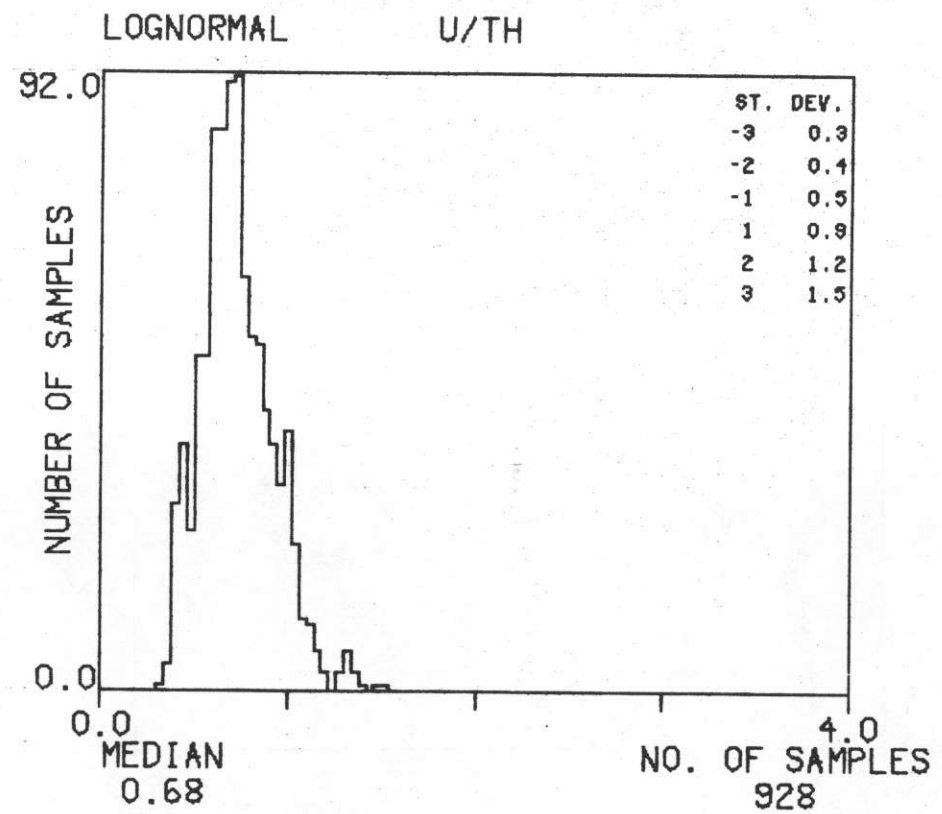
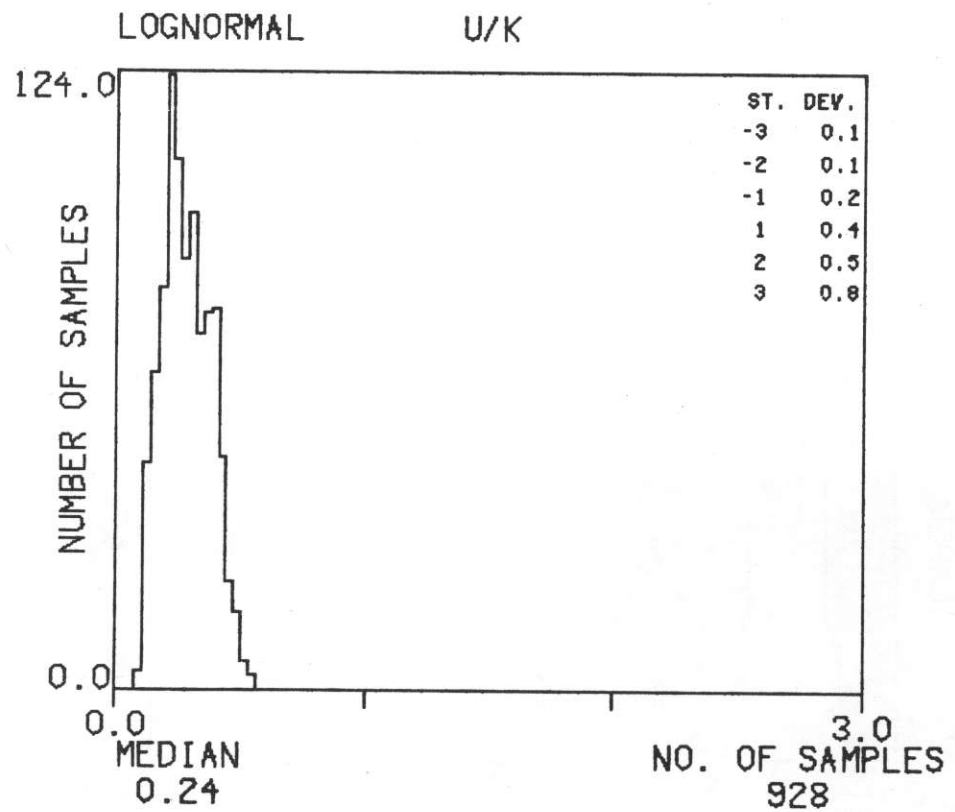
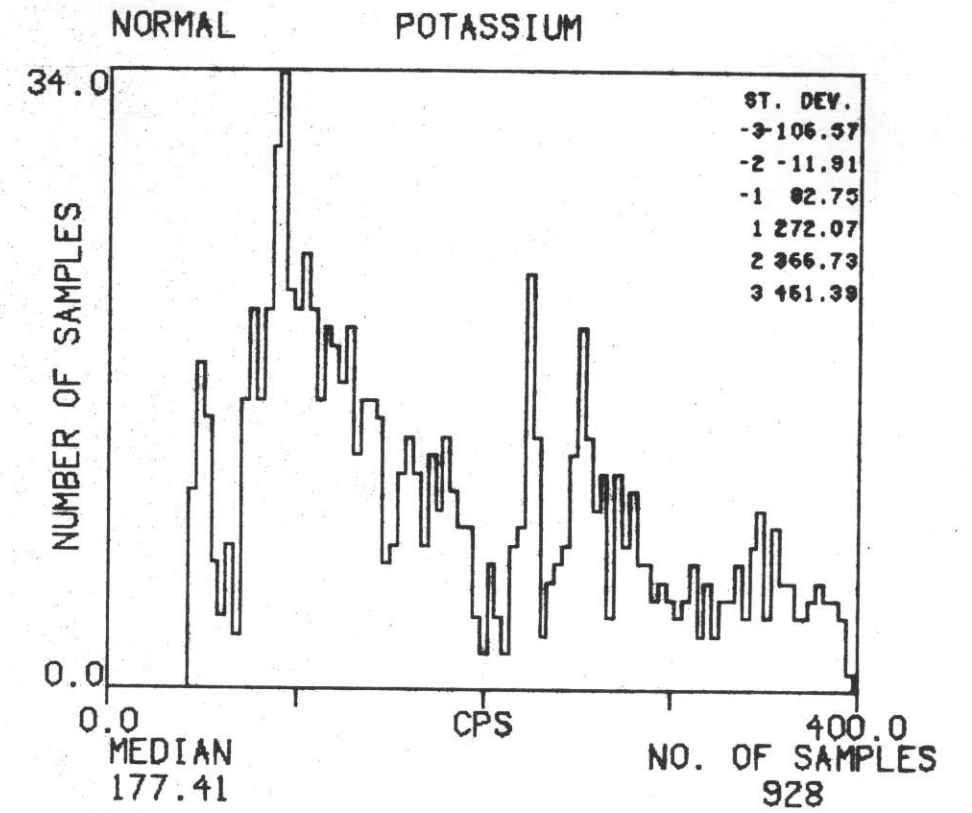
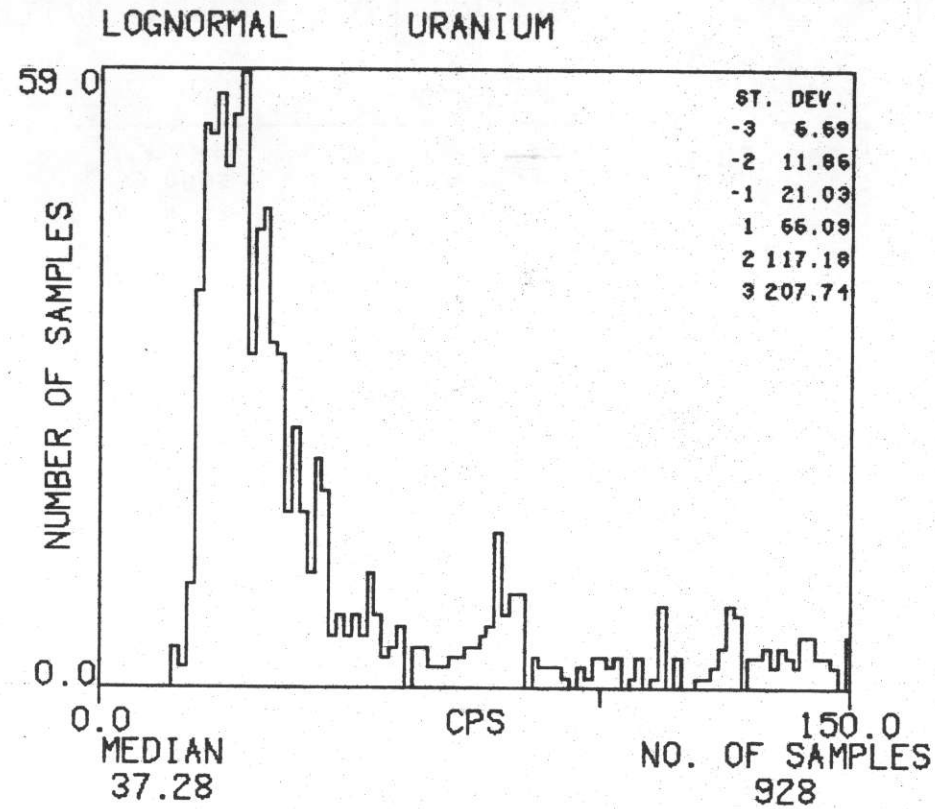
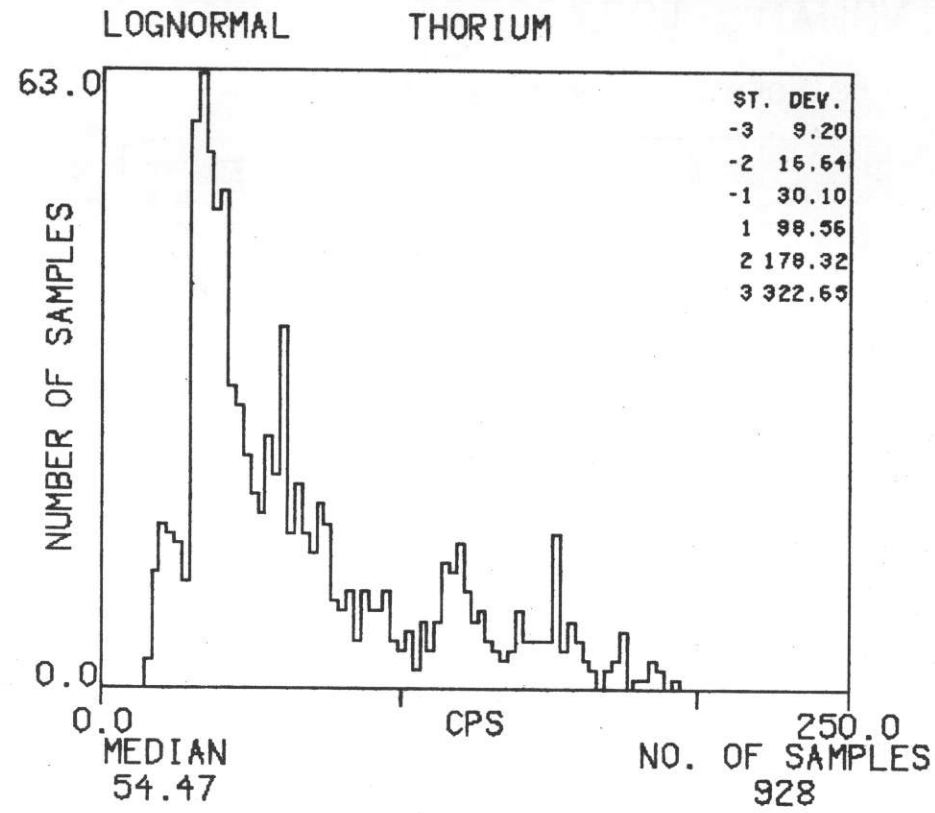
HISTOGRAMS : TKG

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



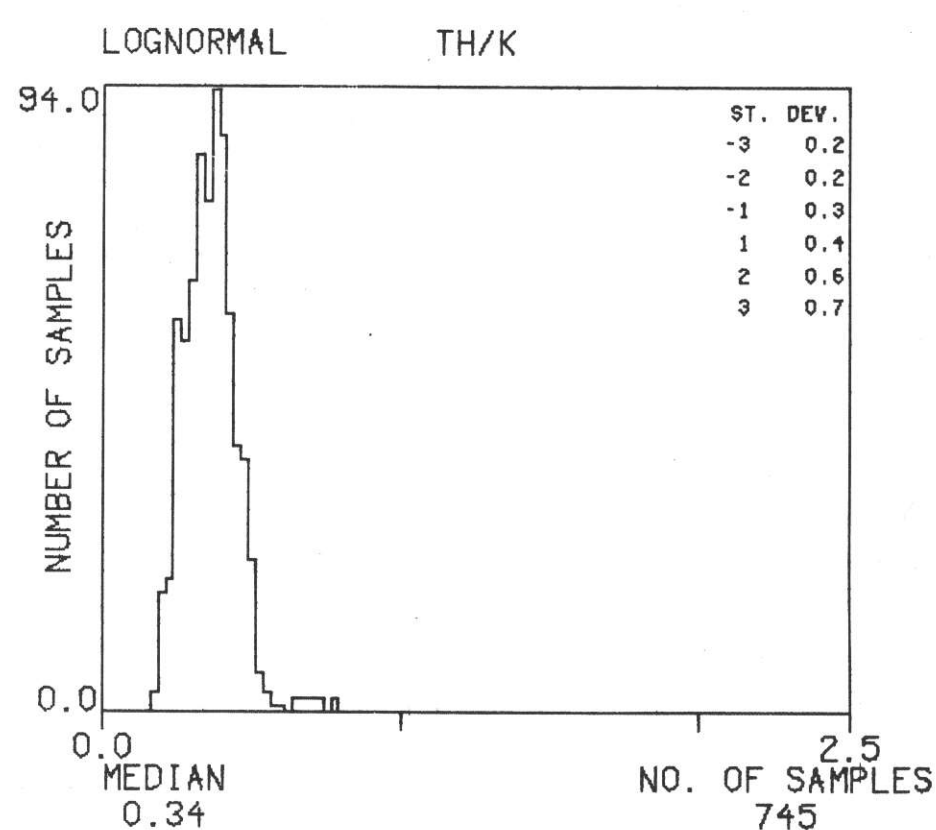
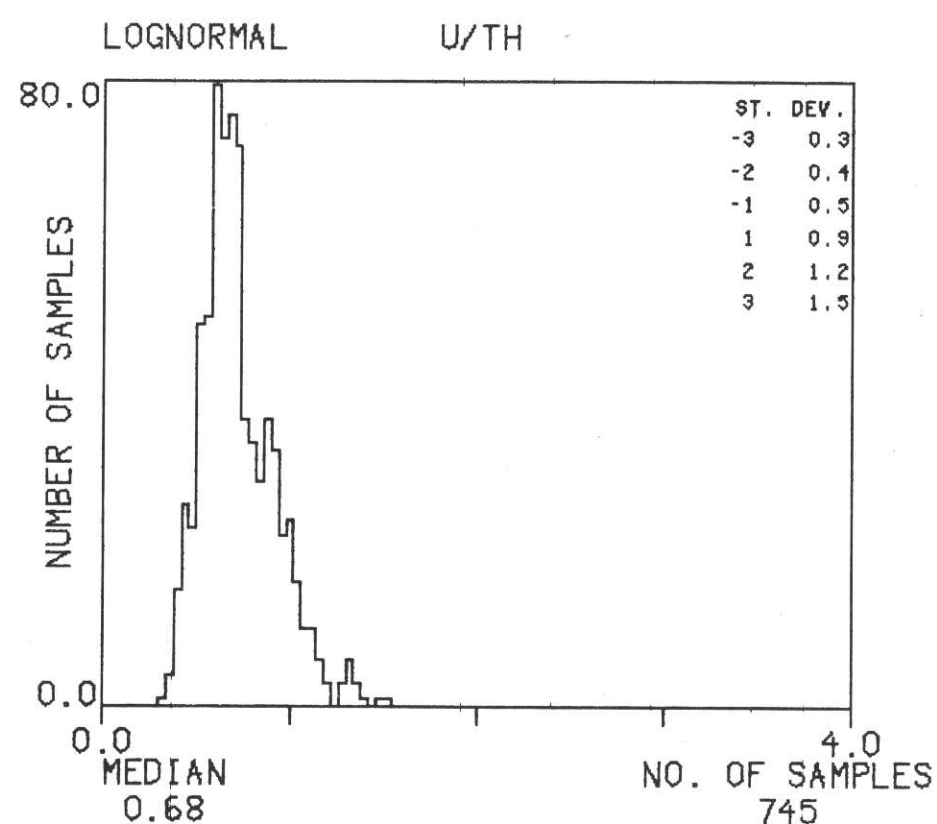
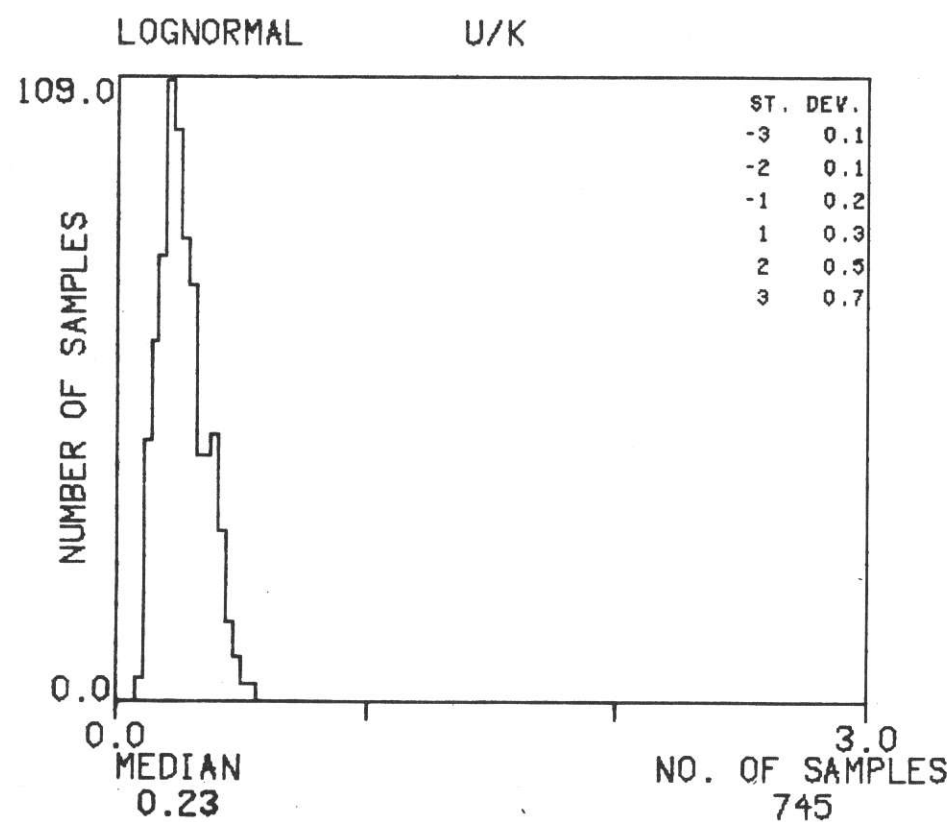
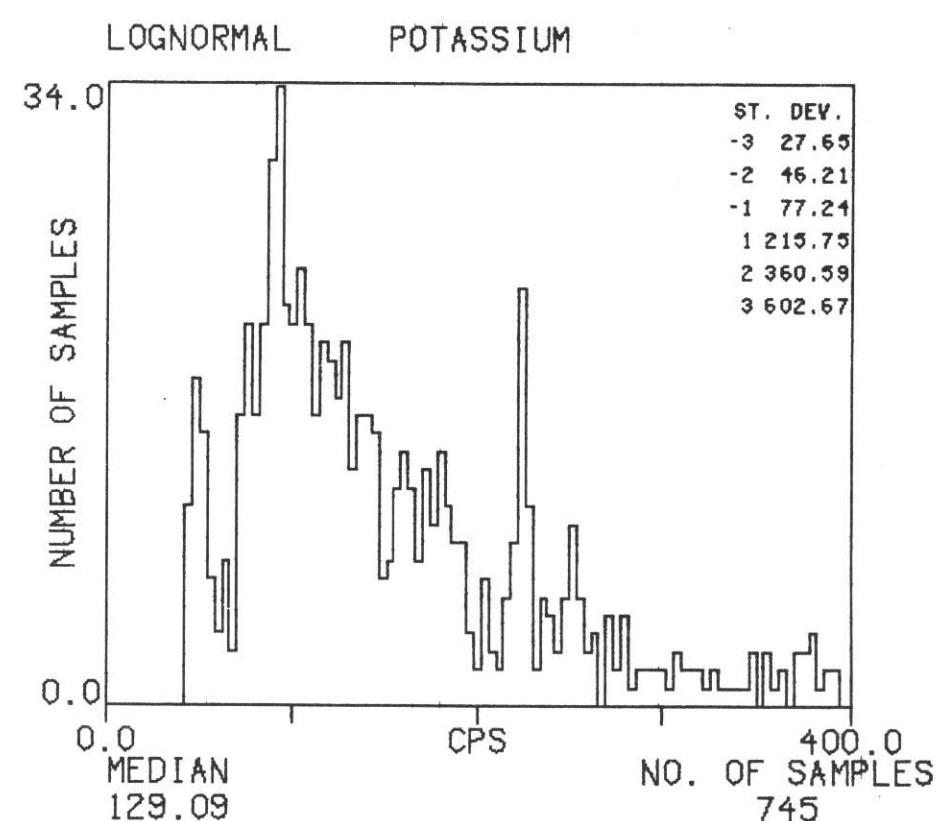
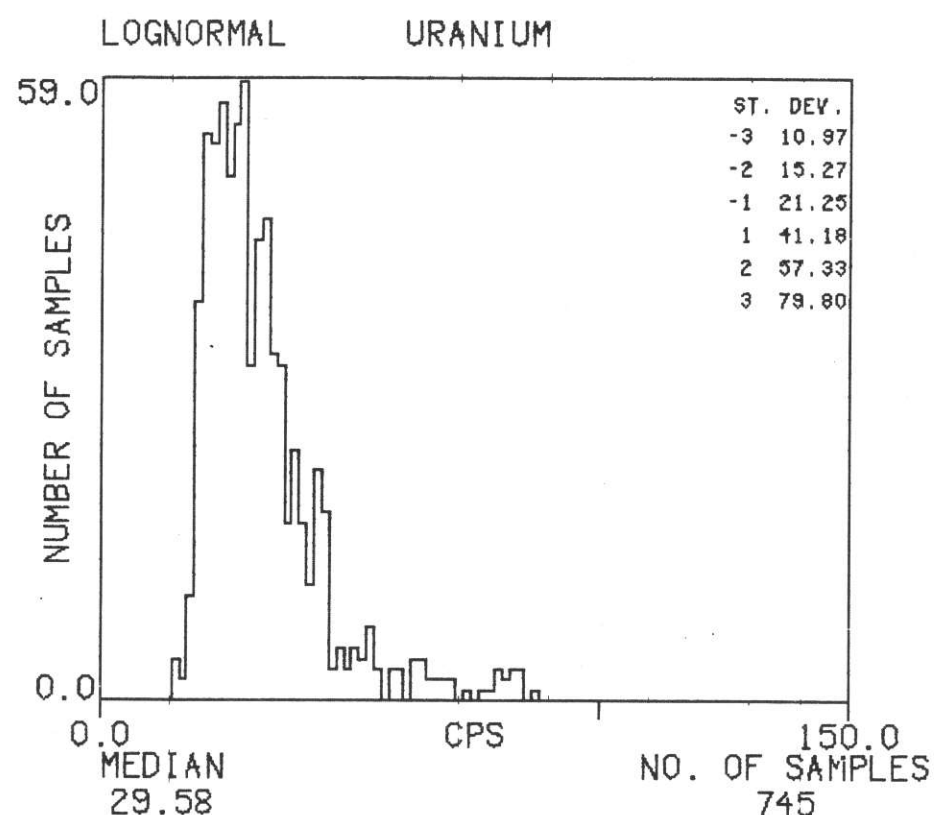
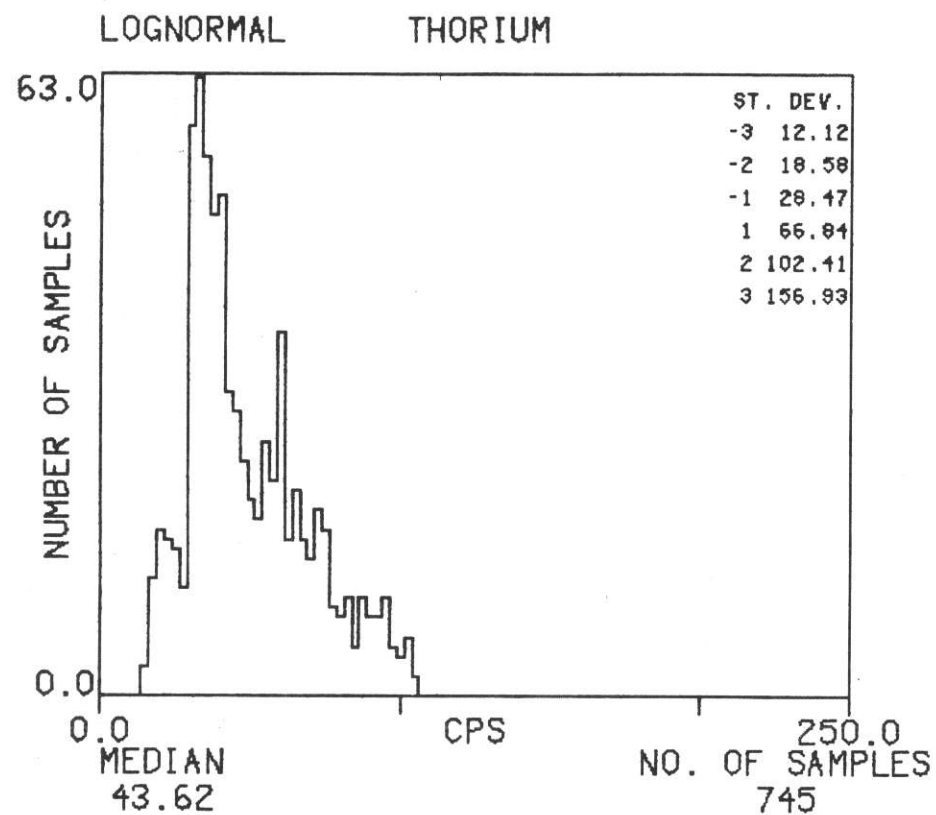
HISTOGRAMS : TMZG

TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



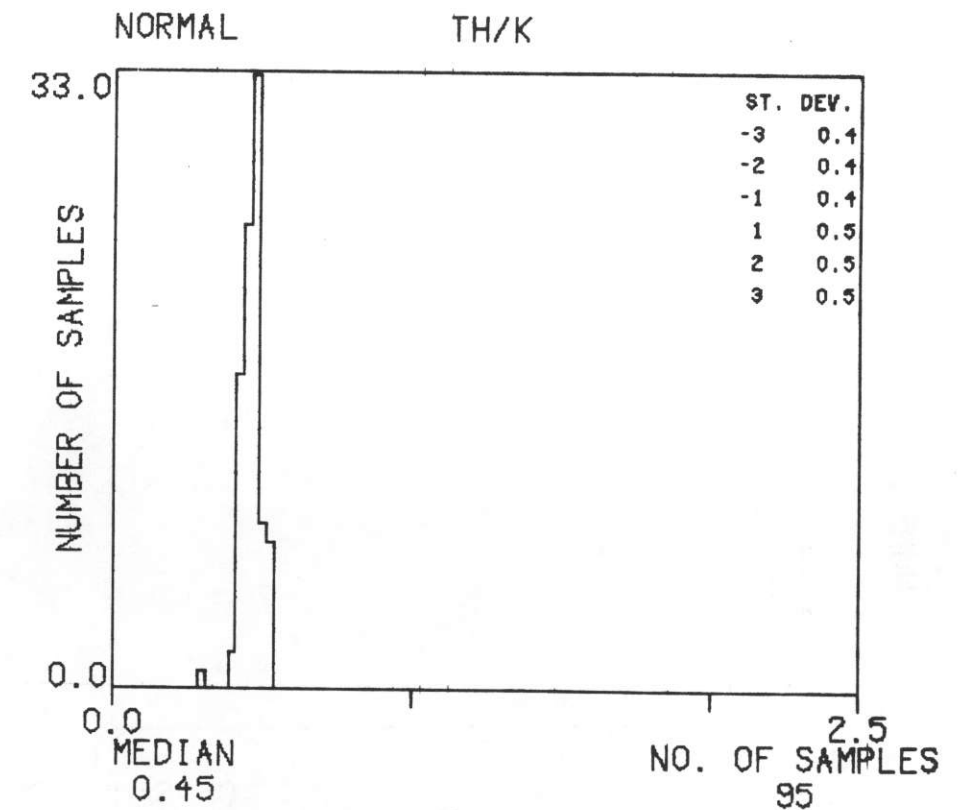
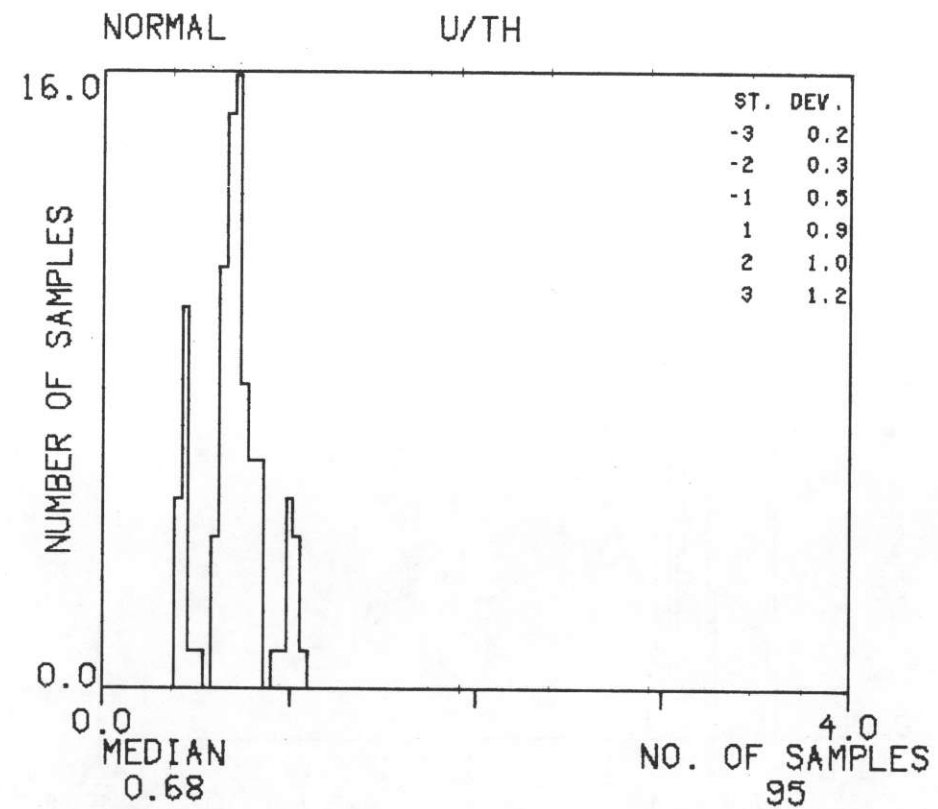
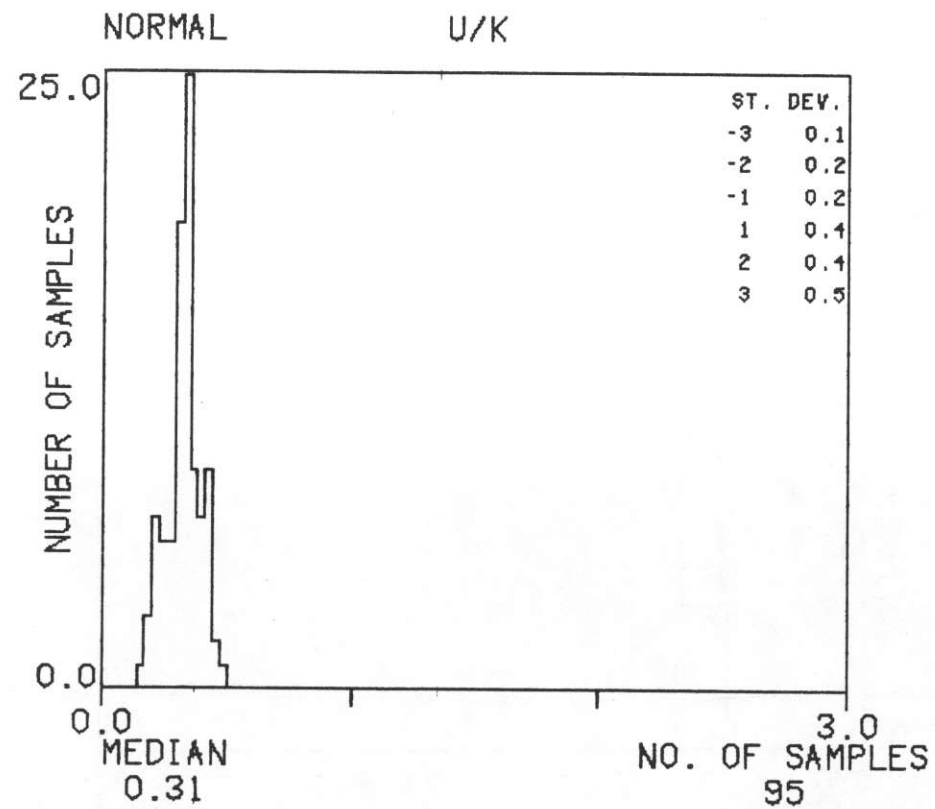
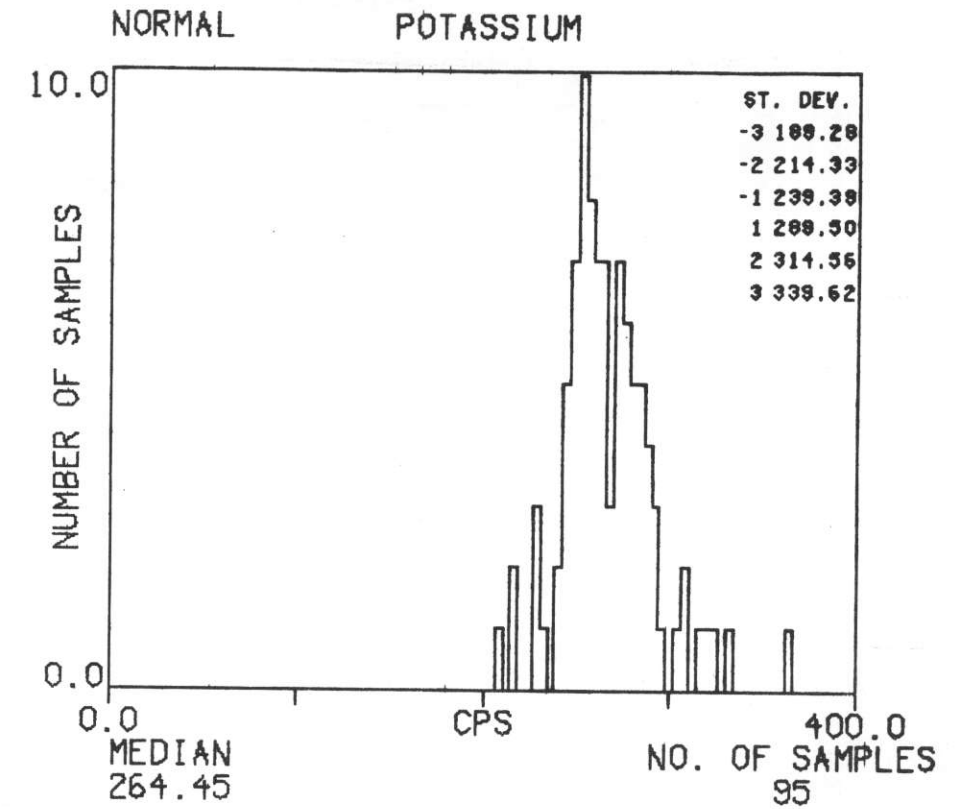
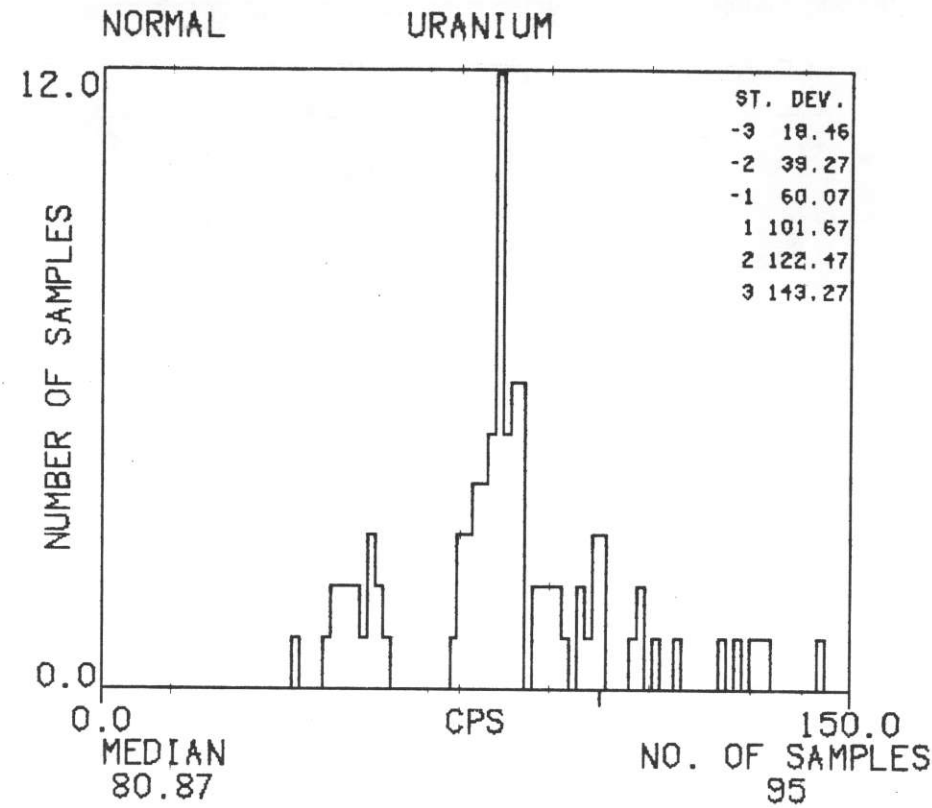
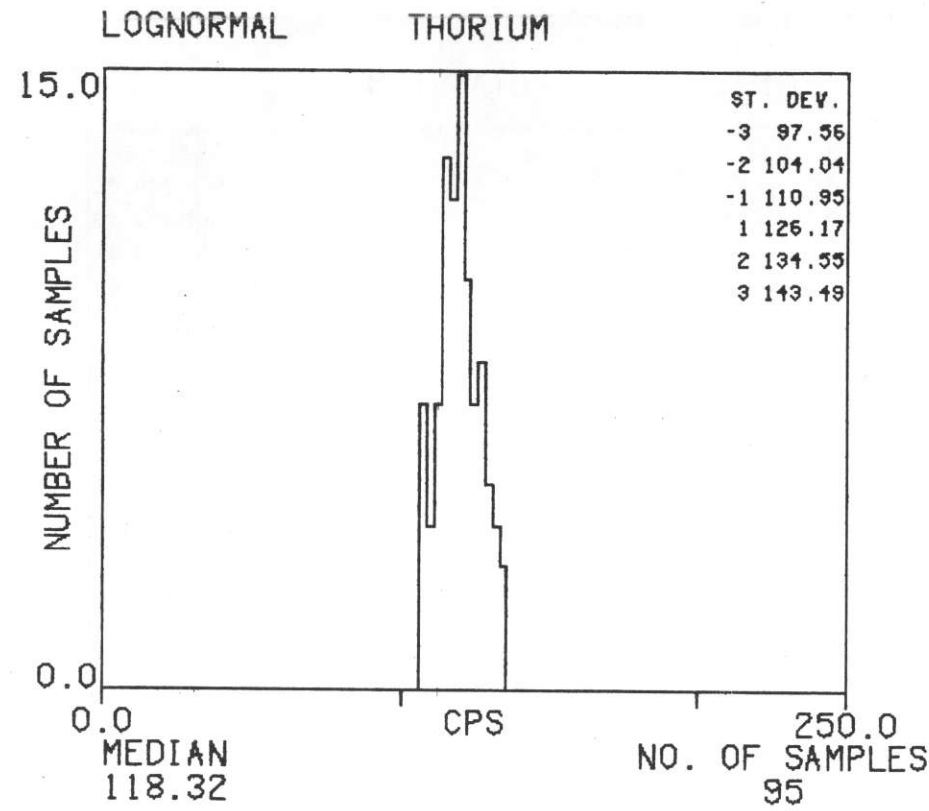
HISTOGRAMS : TMZG-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



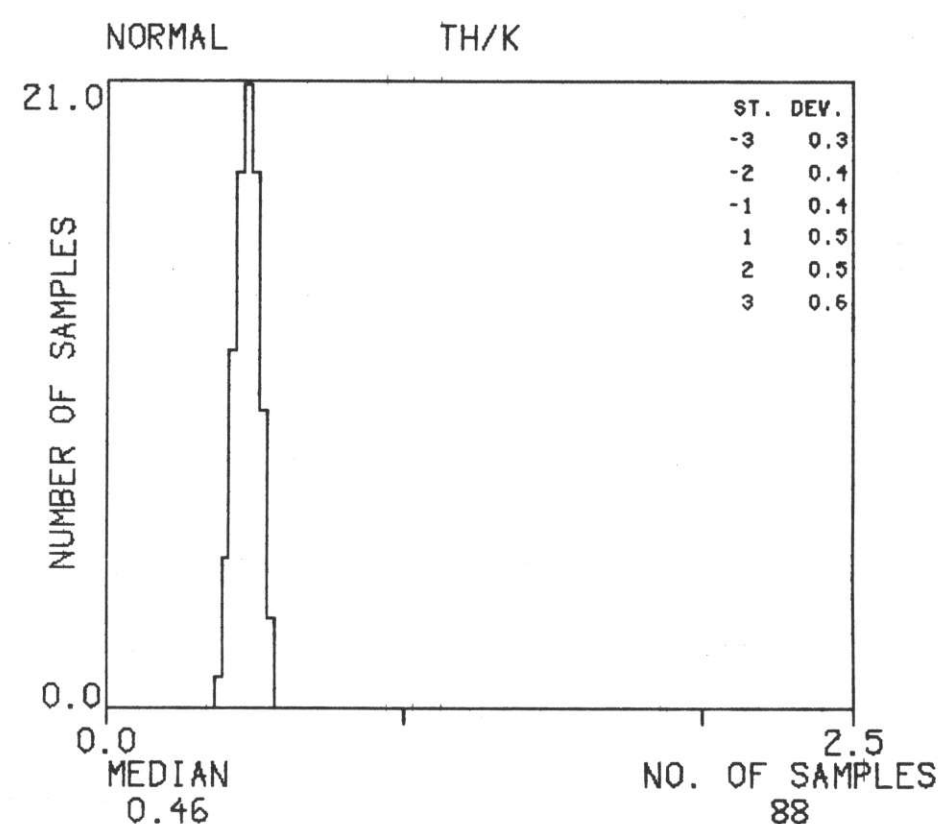
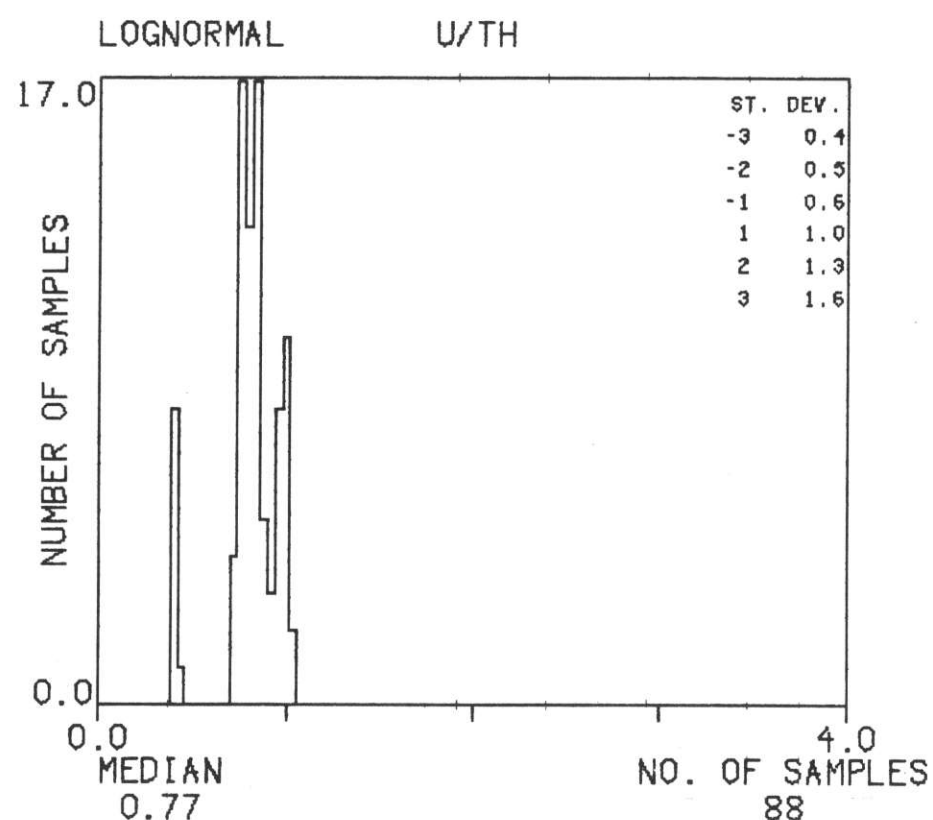
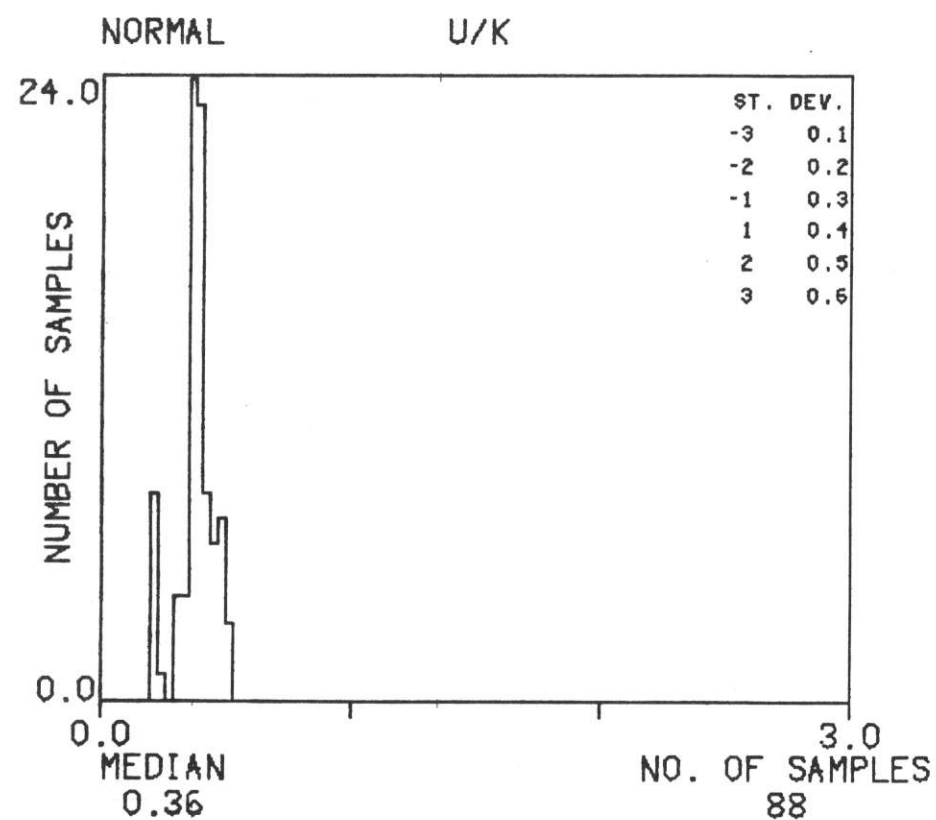
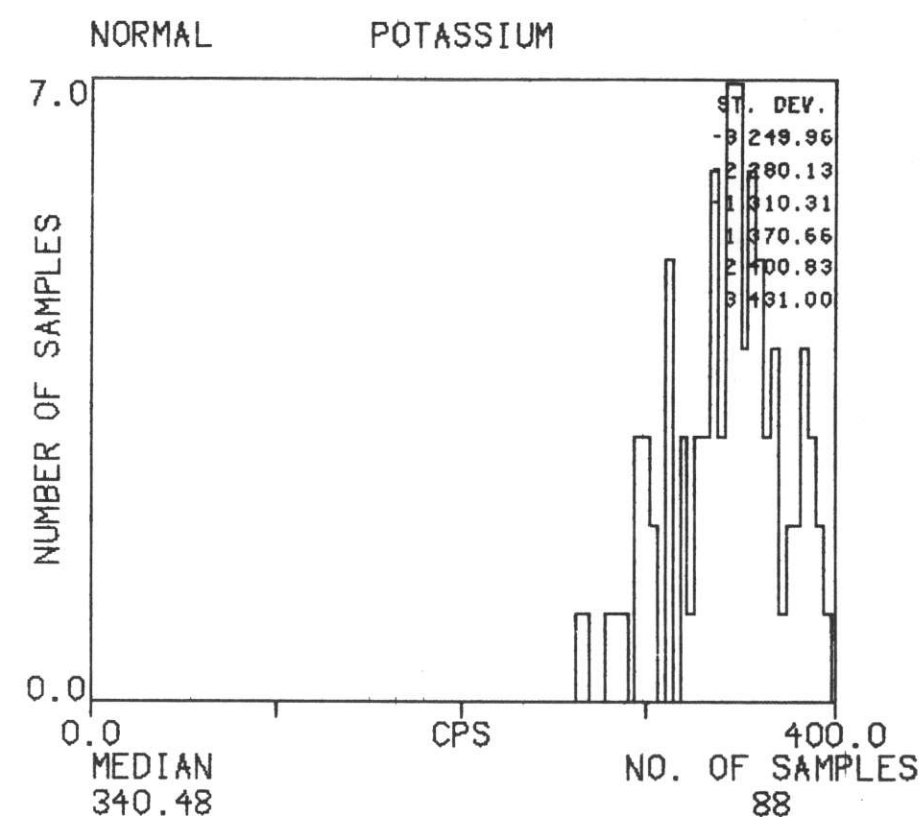
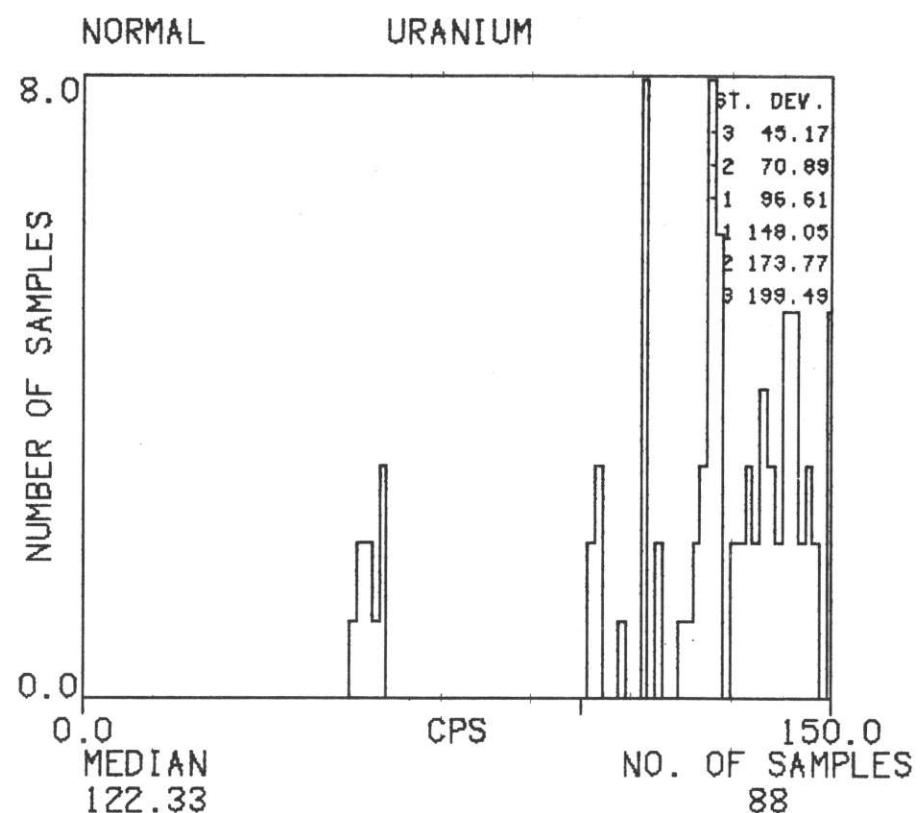
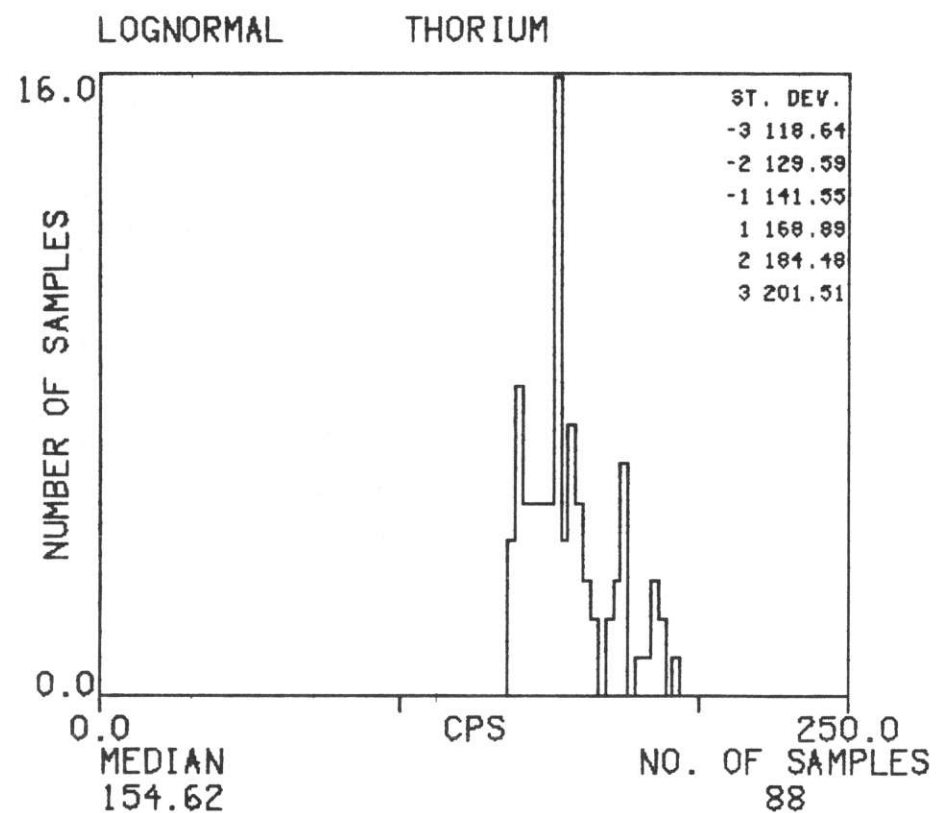
HISTOGRAMS : TMZG-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



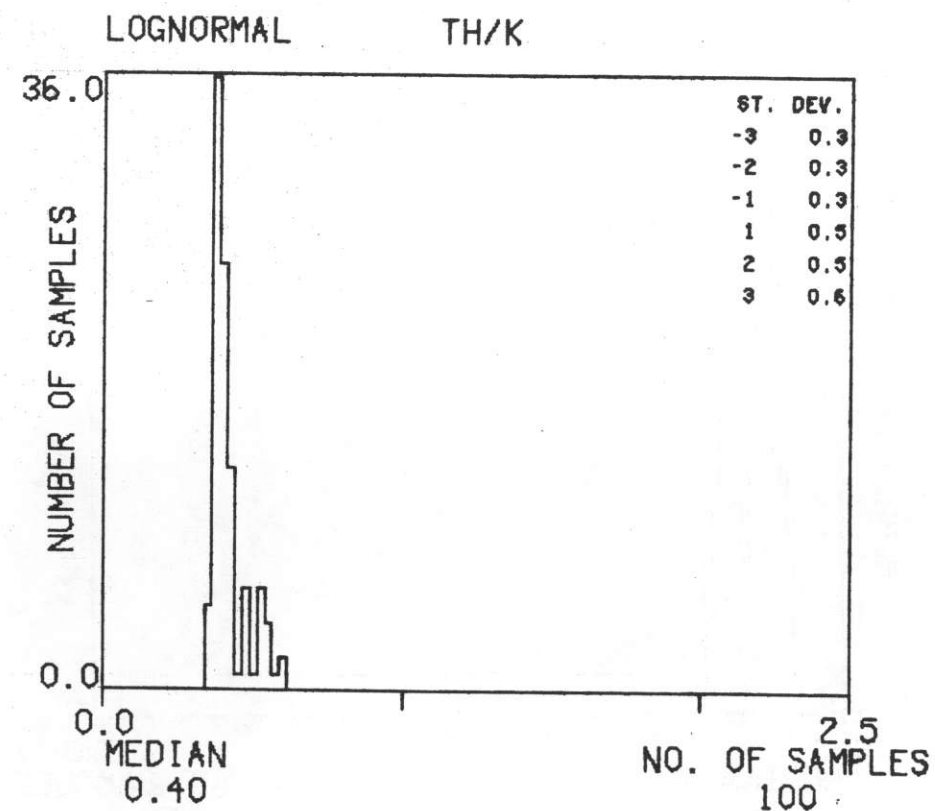
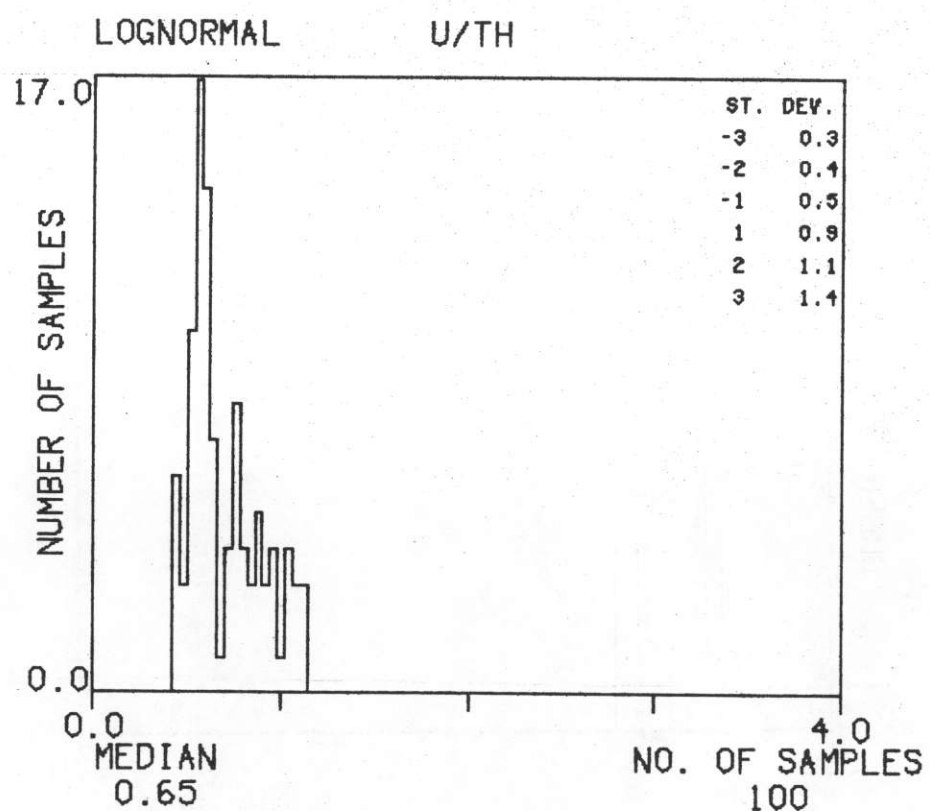
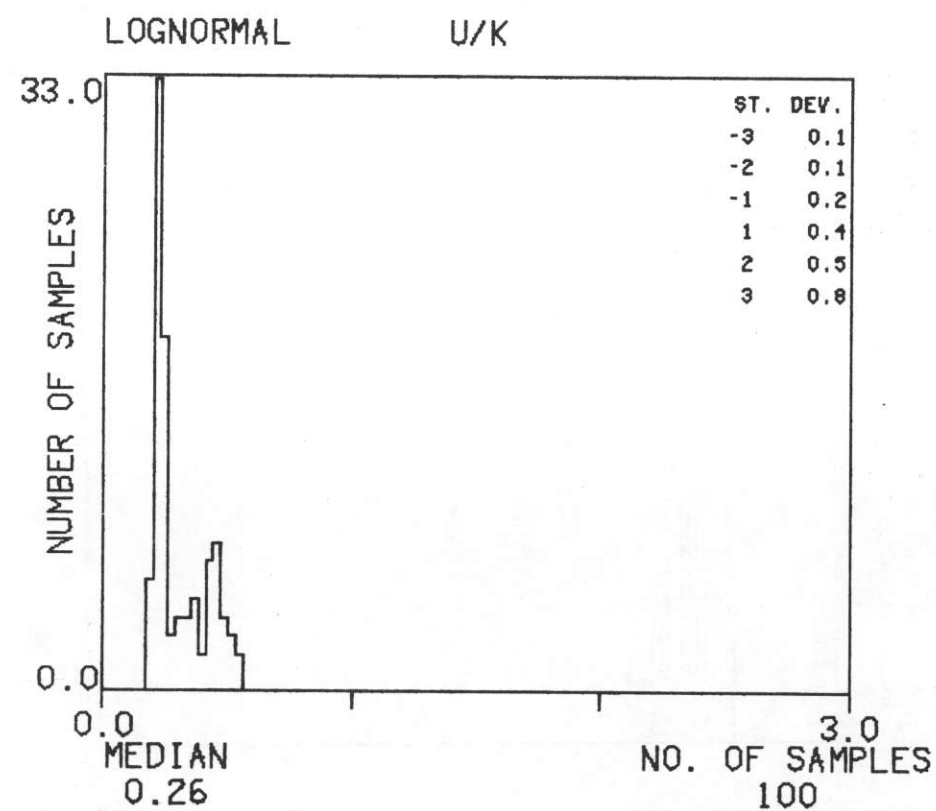
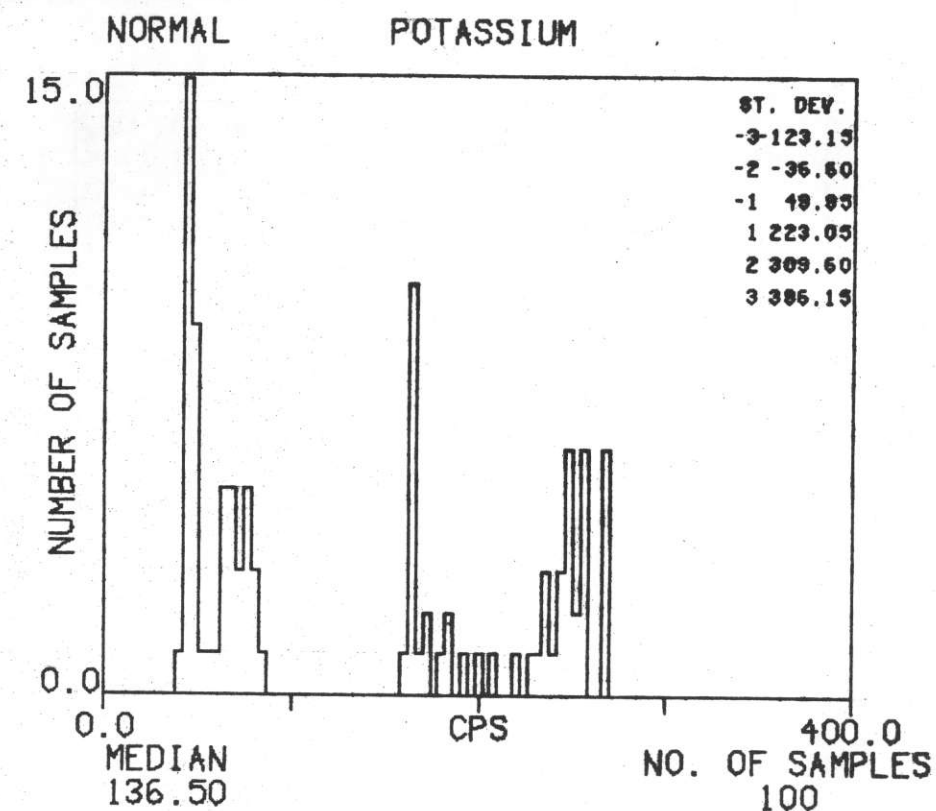
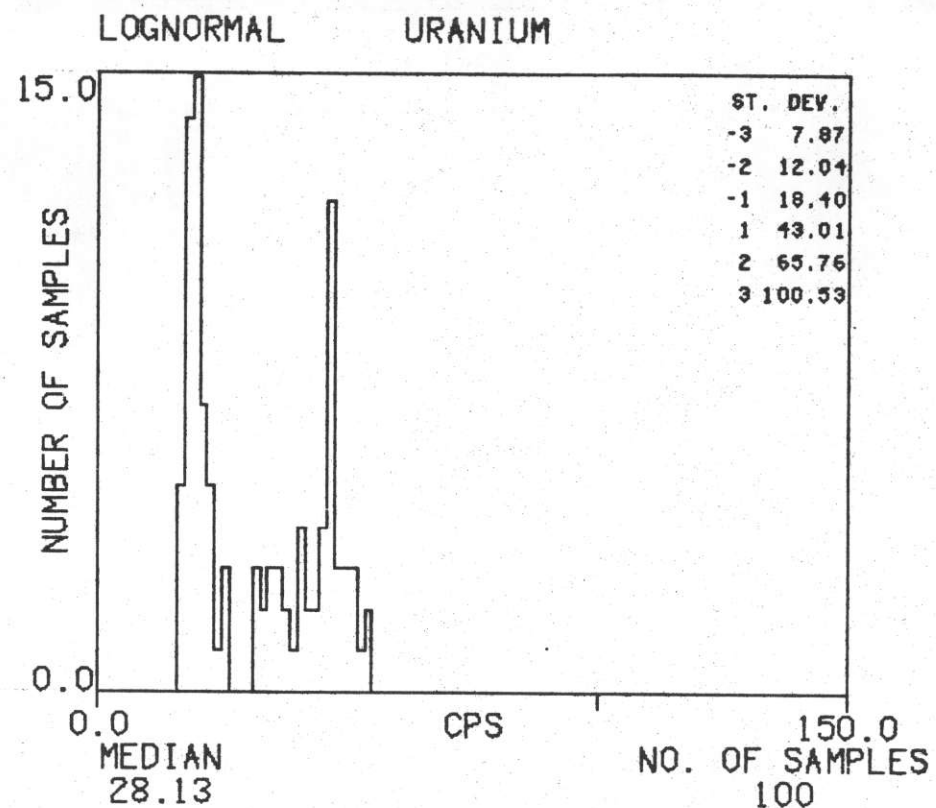
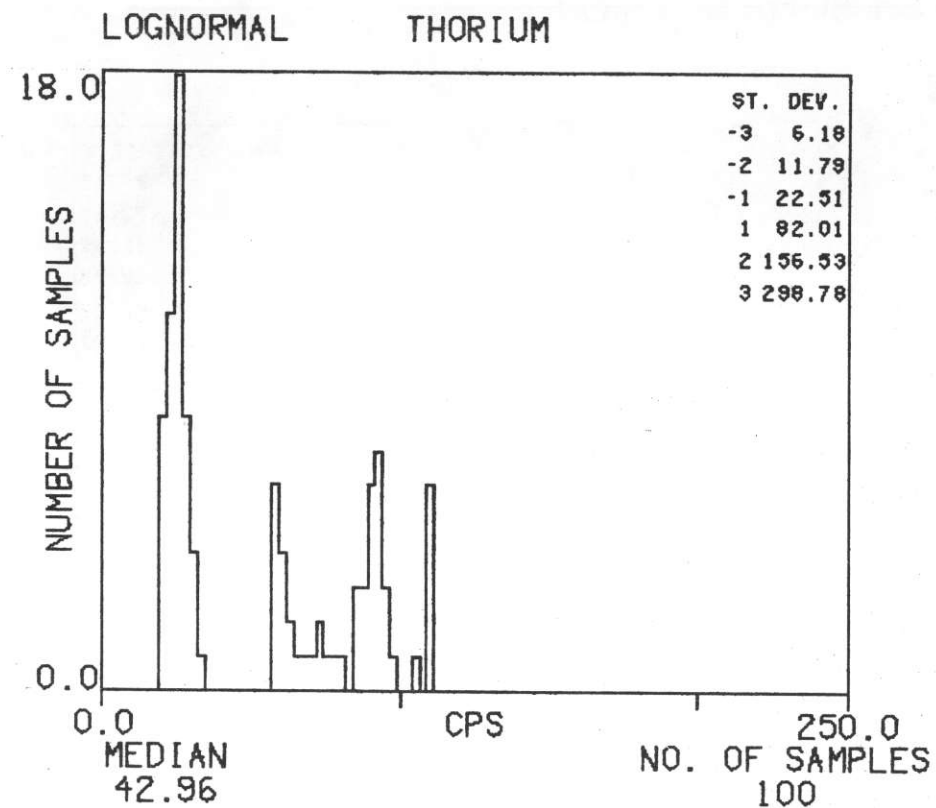
HISTOGRAMS : TMZG-3

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



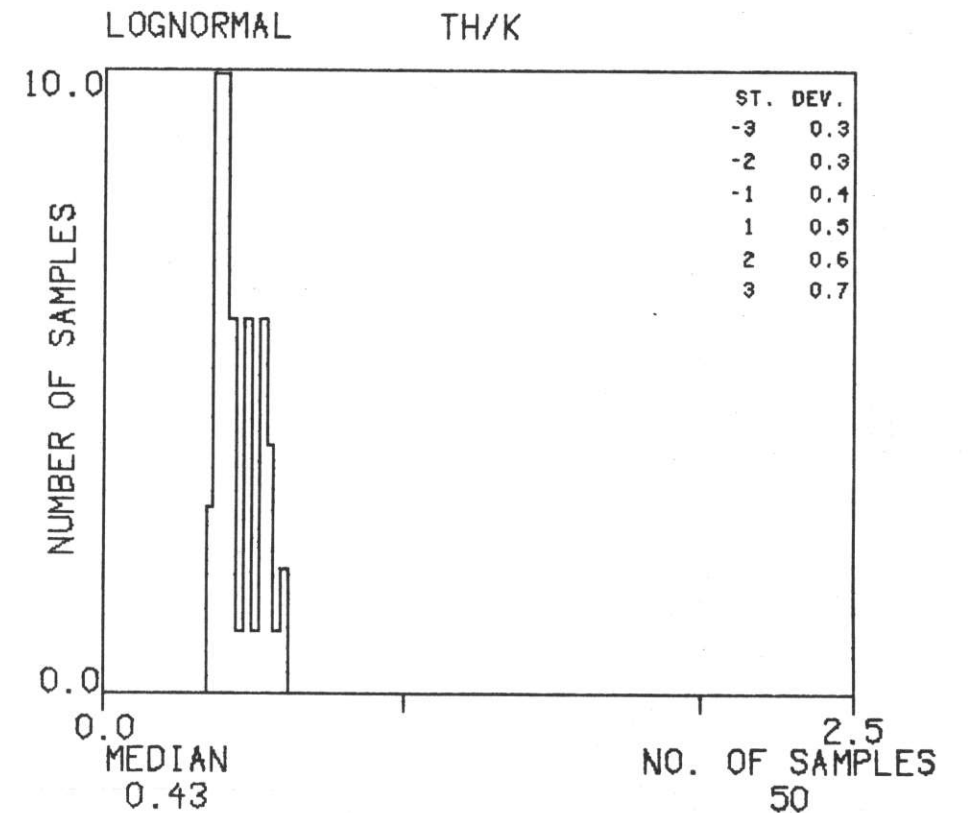
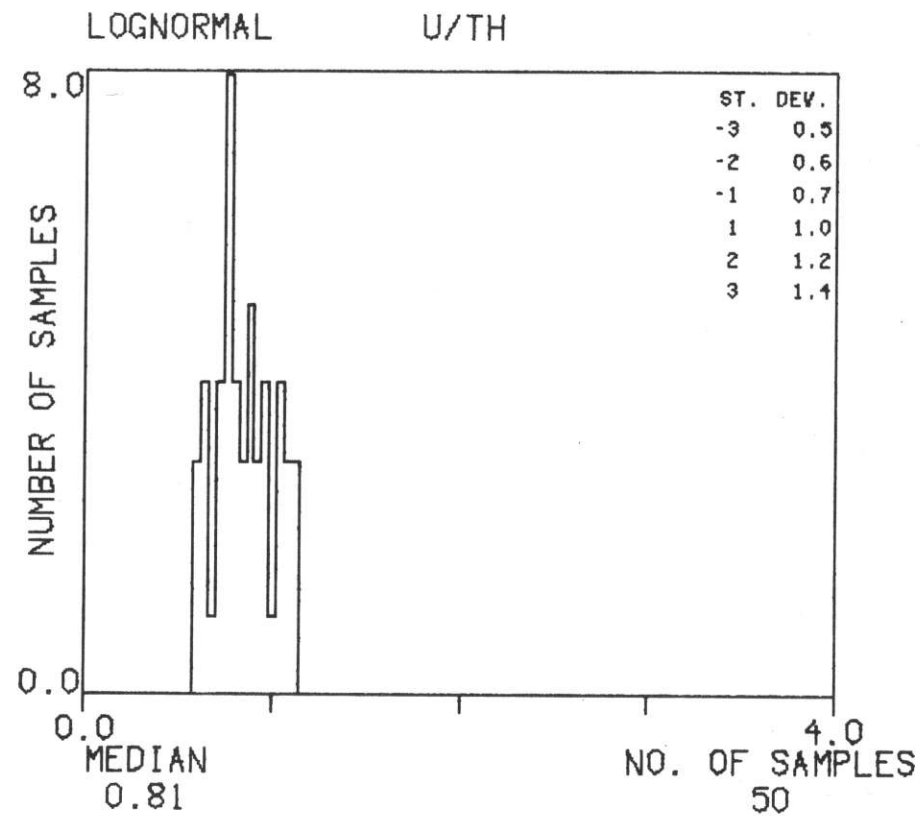
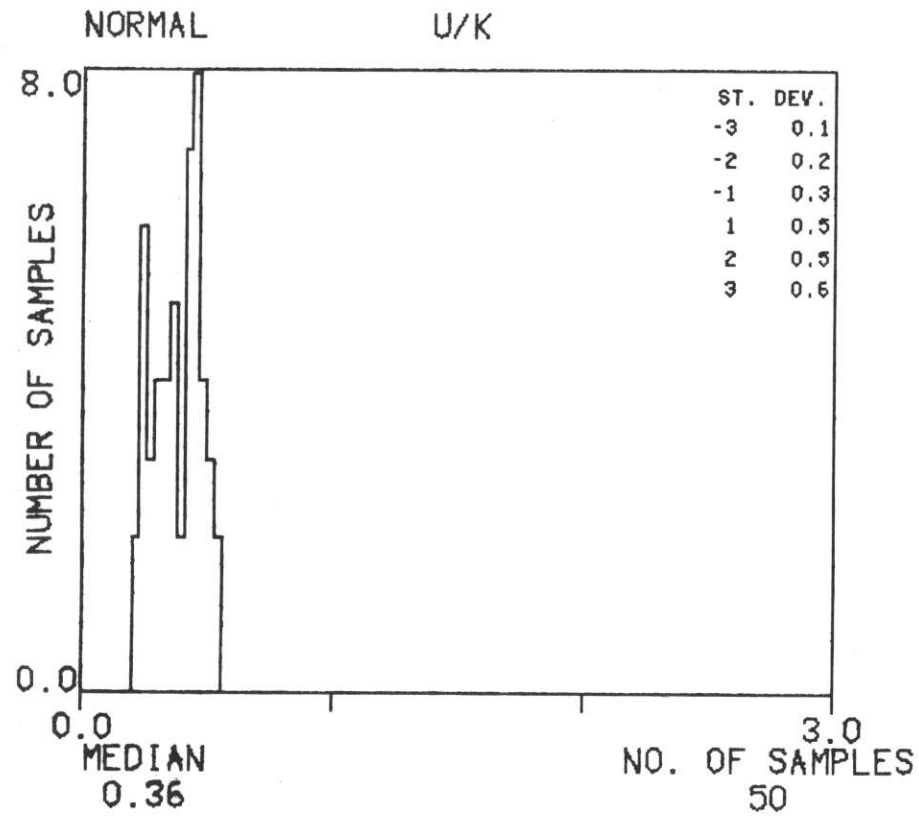
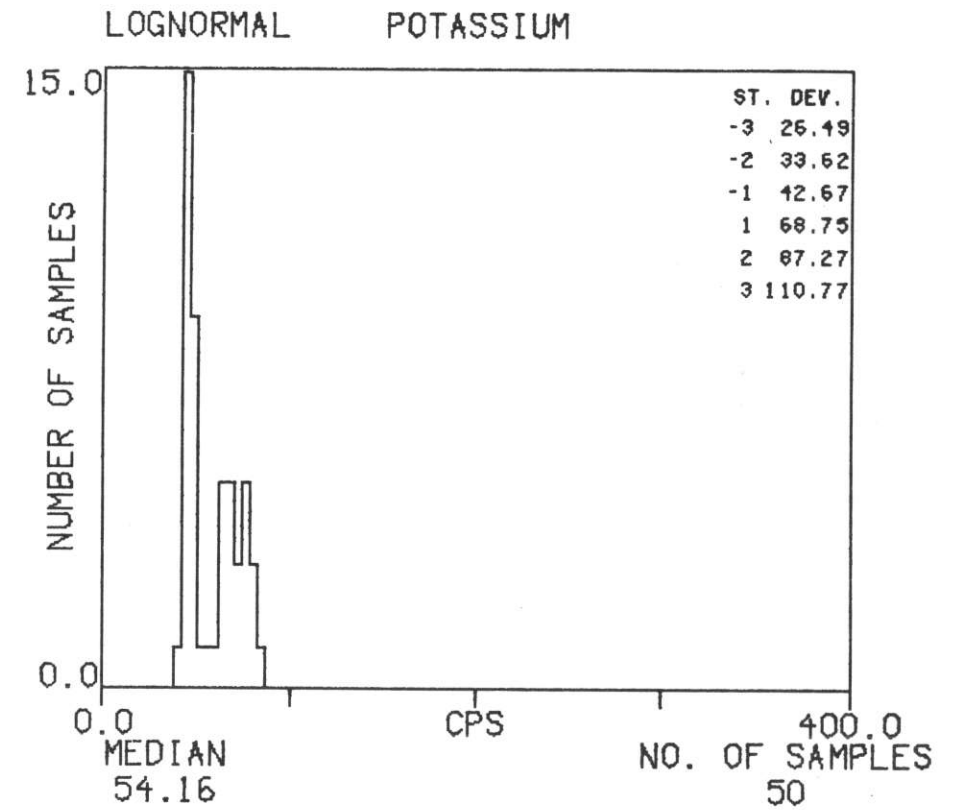
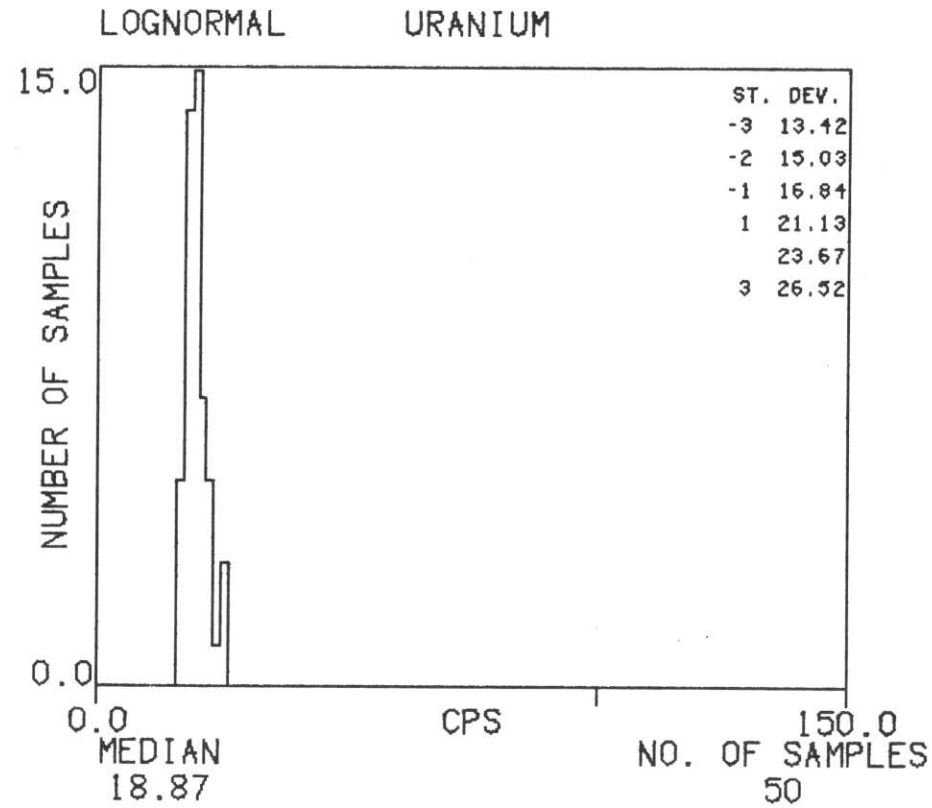
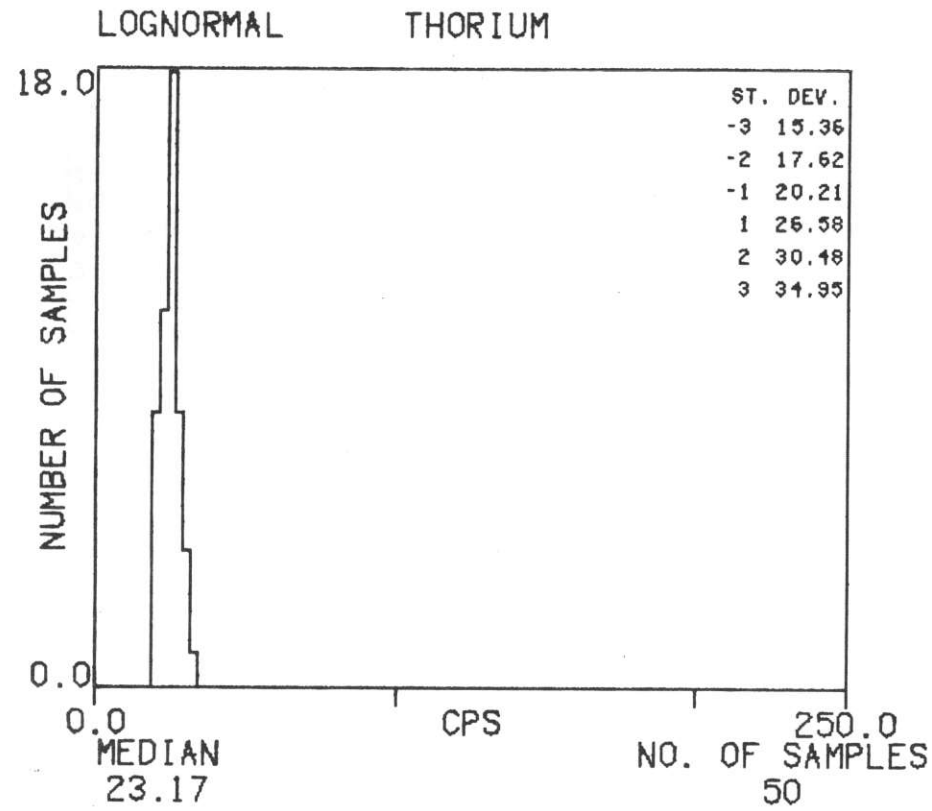
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TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



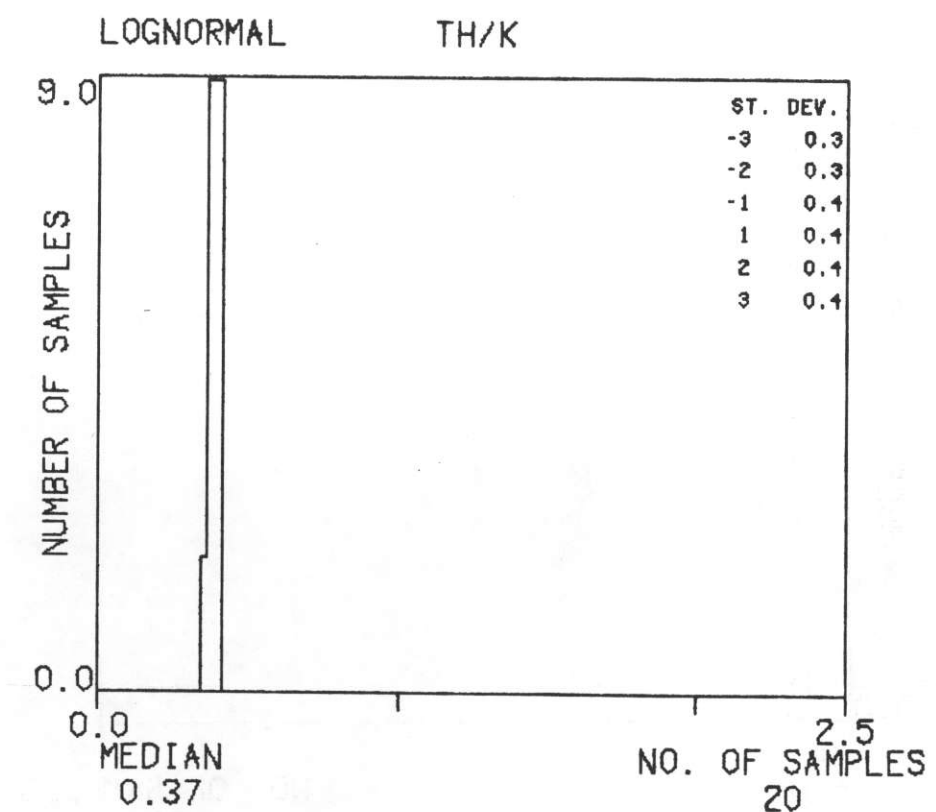
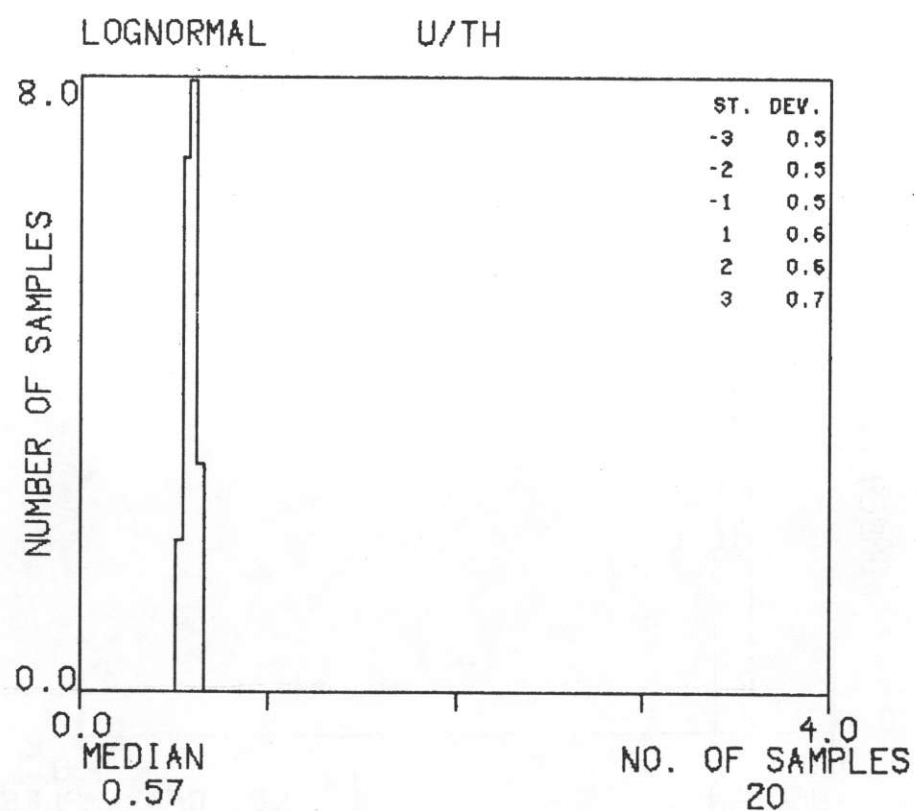
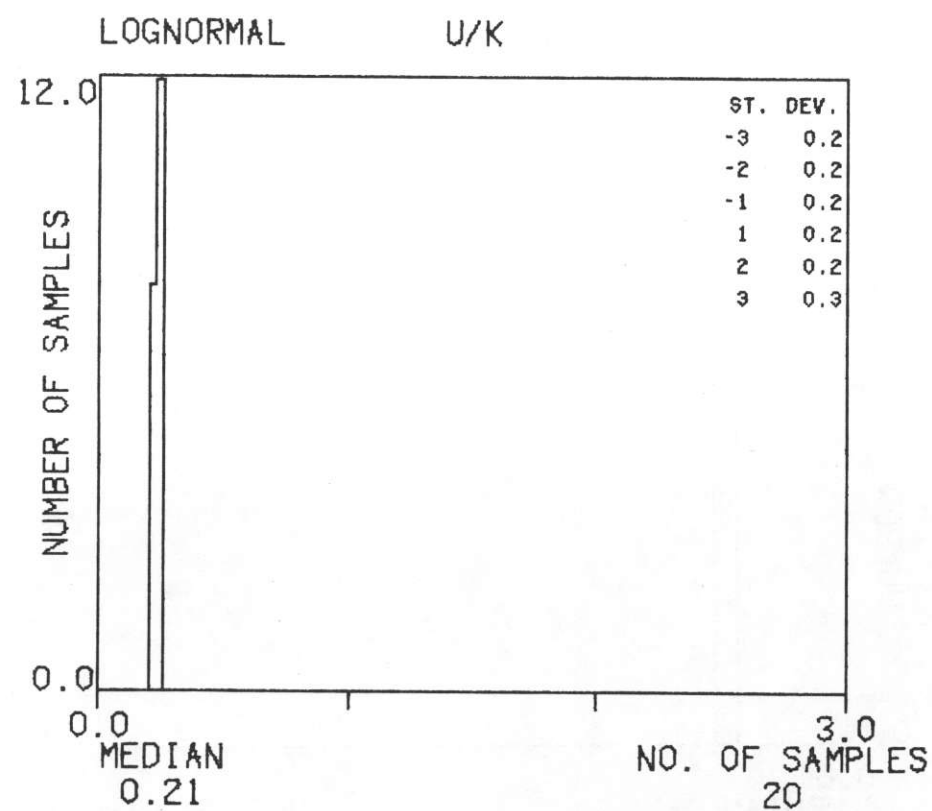
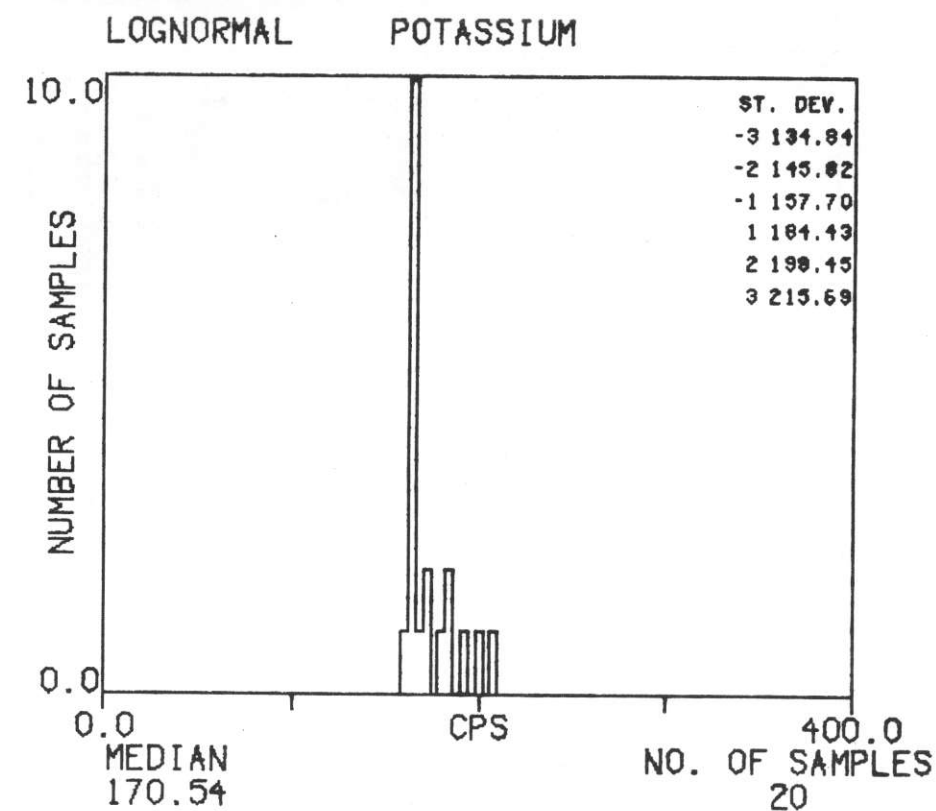
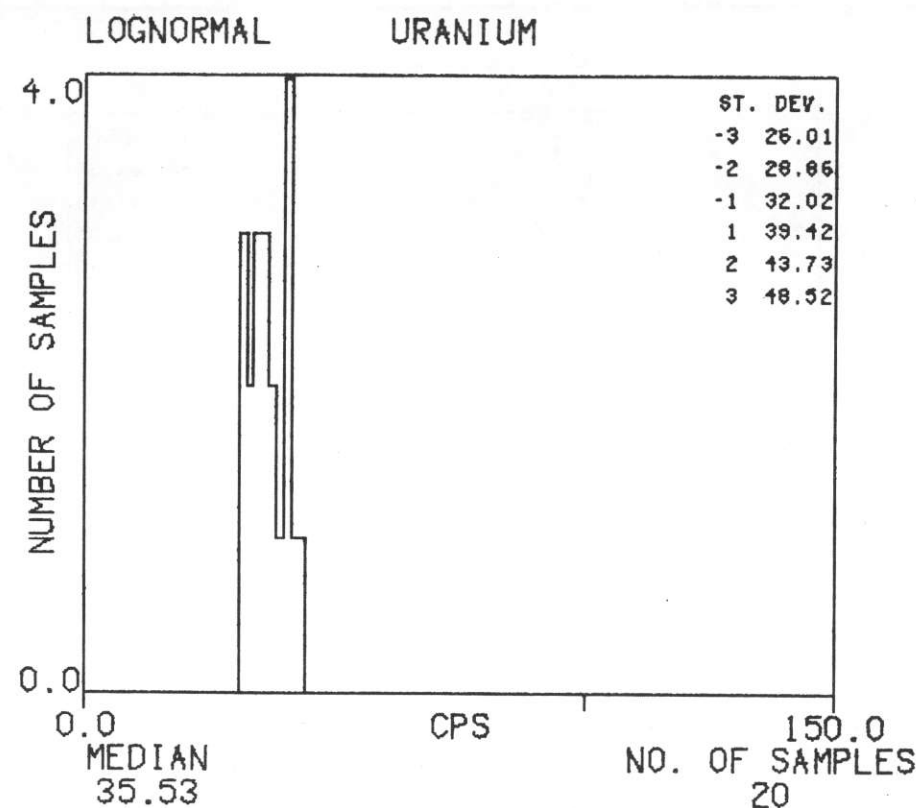
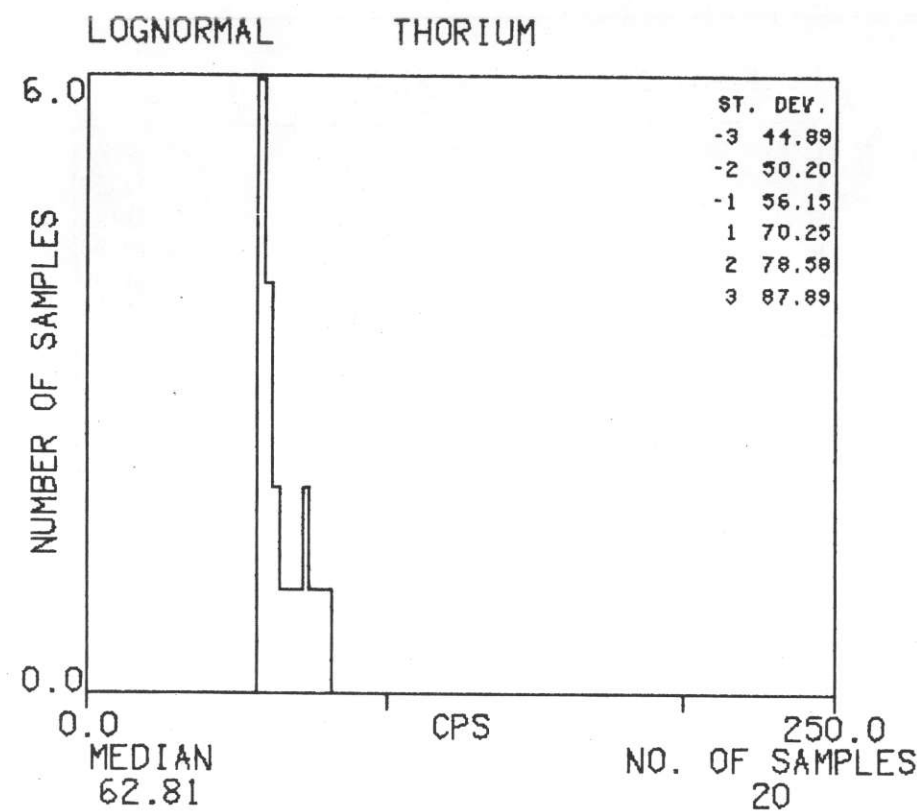
HISTOGRAMS : TMZG '-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



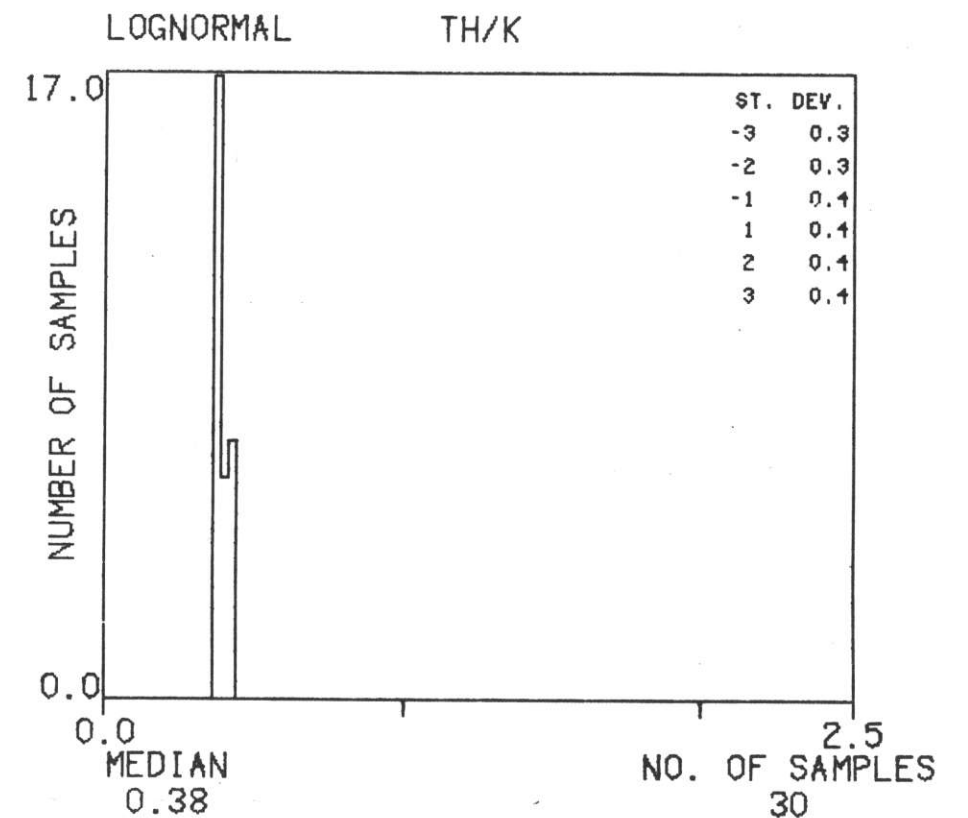
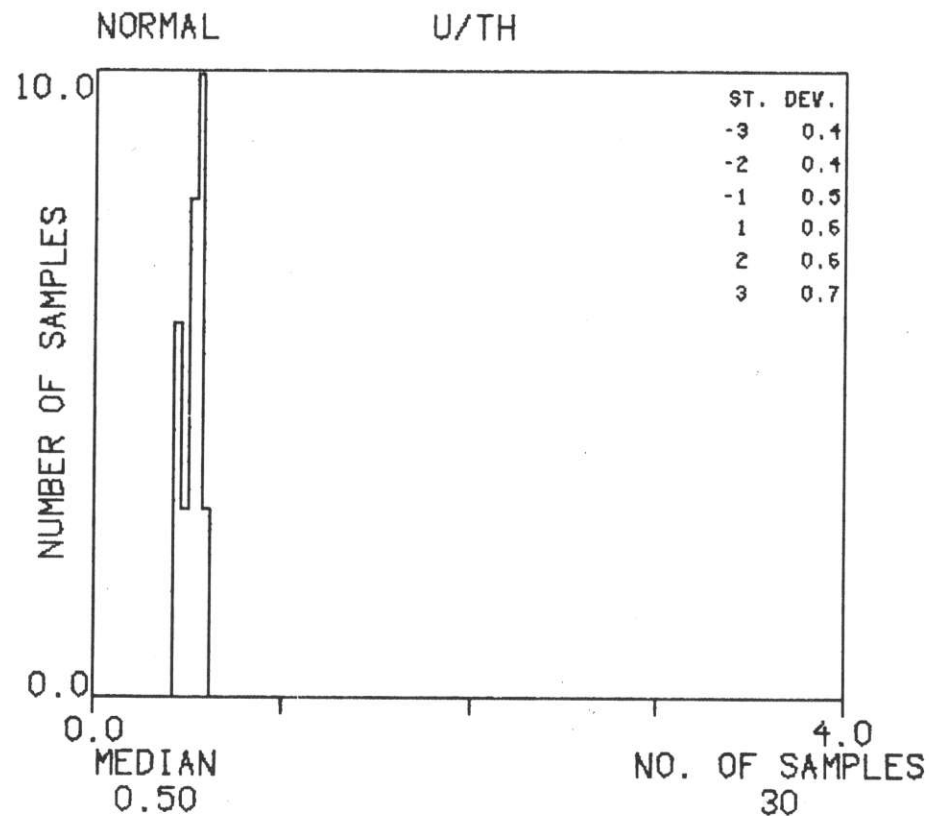
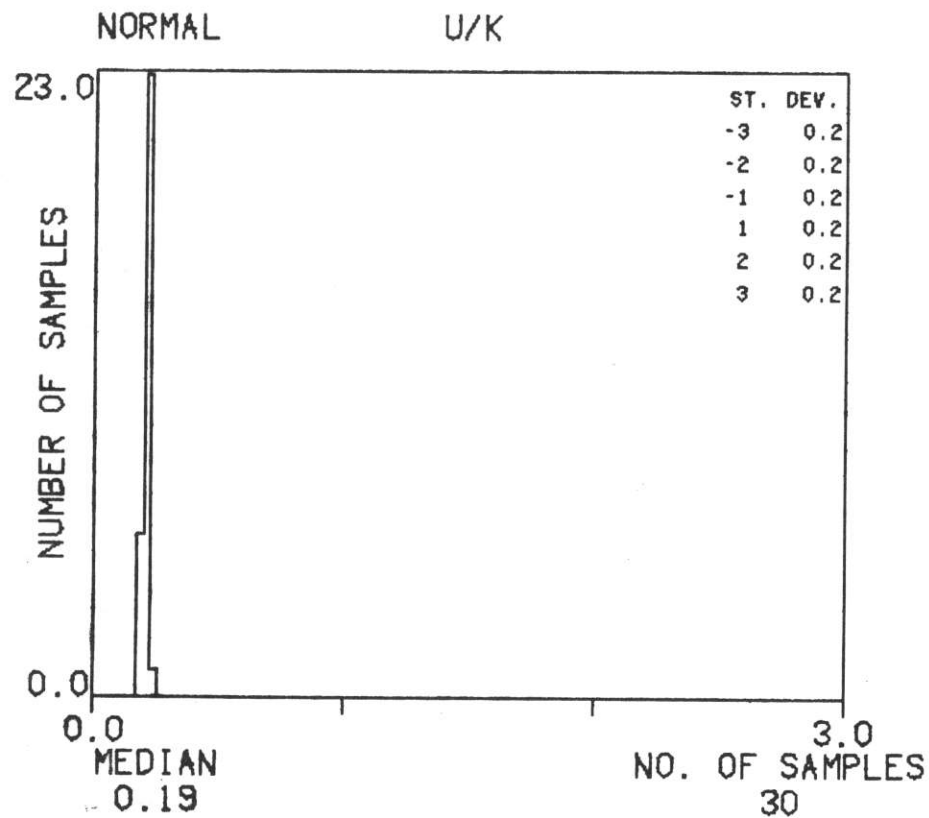
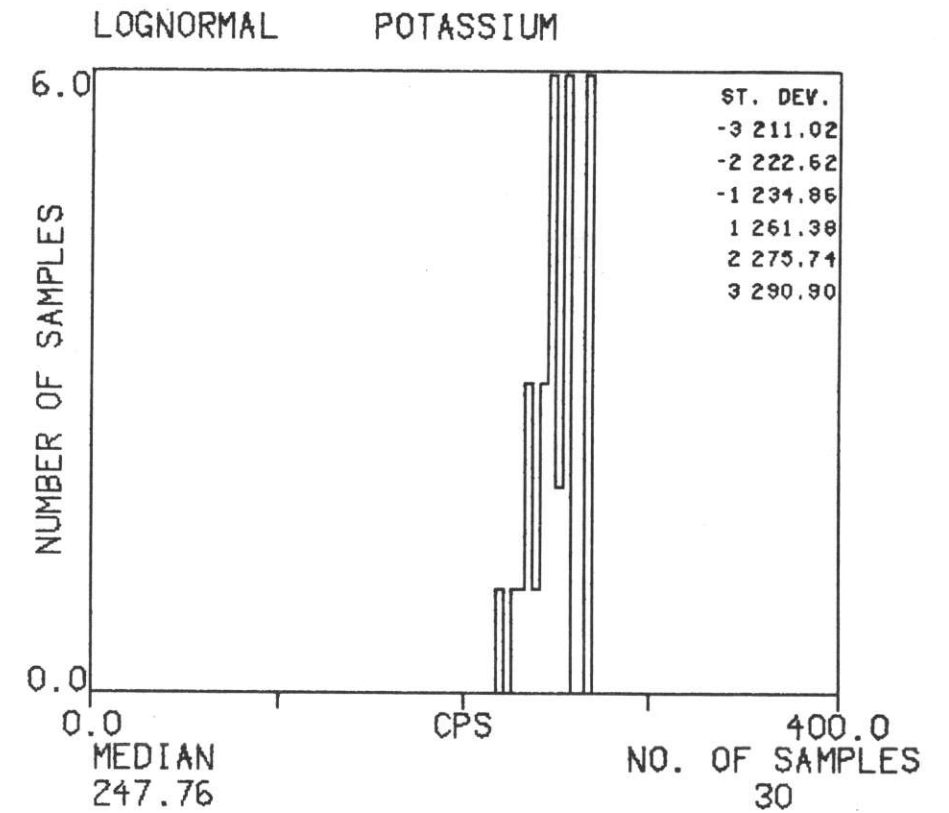
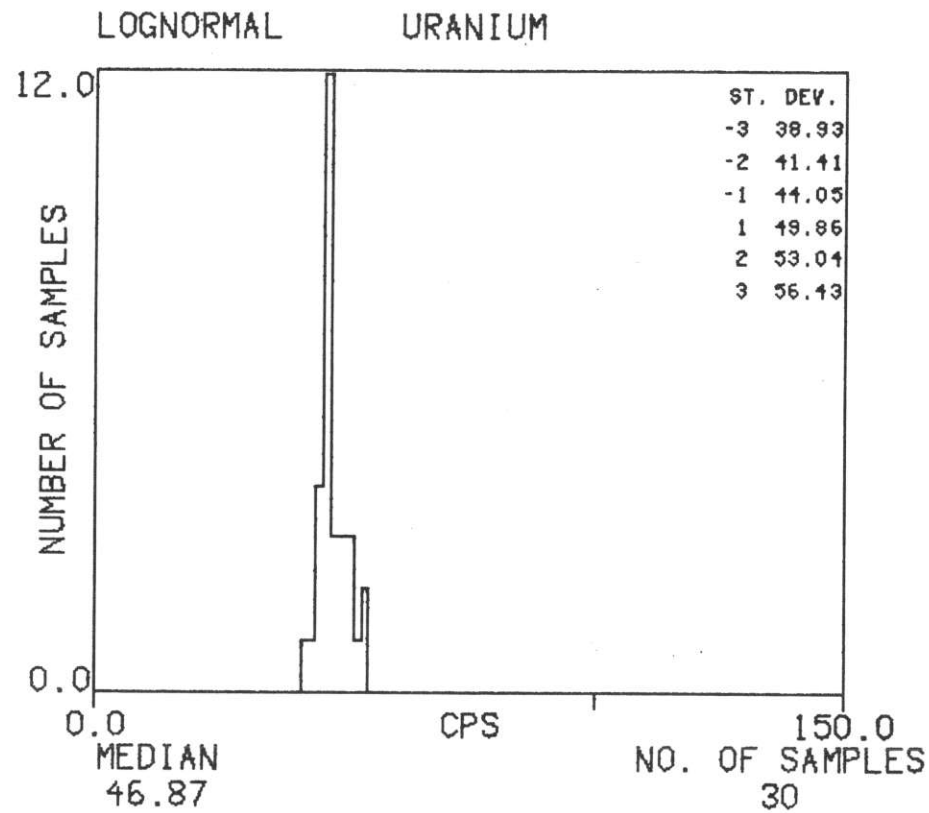
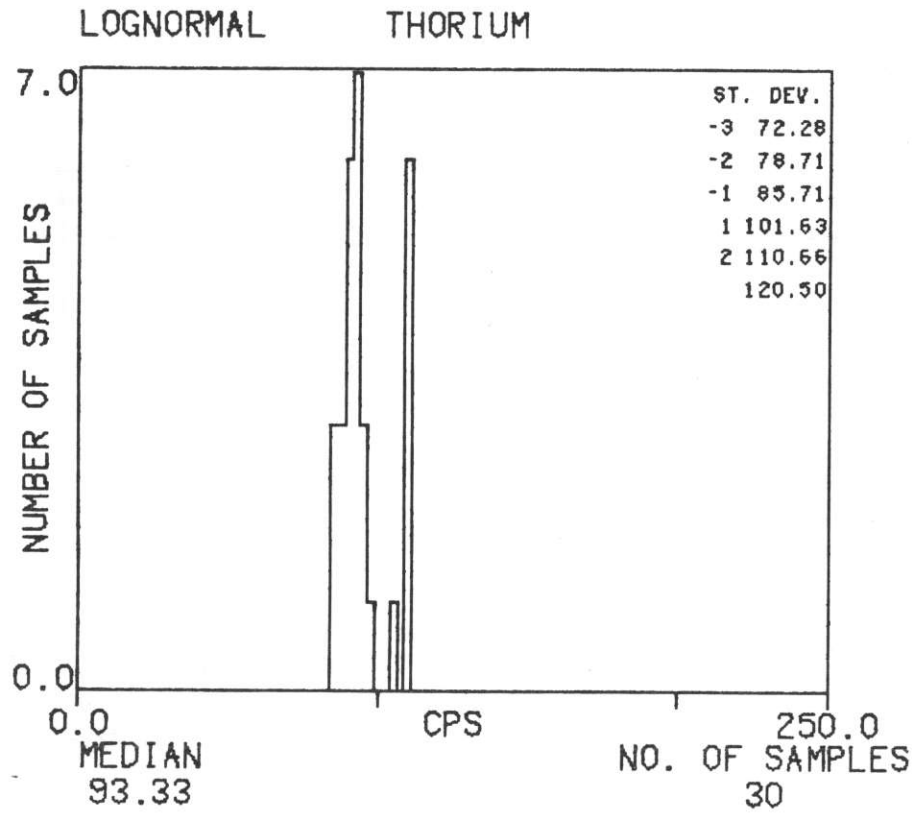
HISTOGRAMS : TMZG '-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



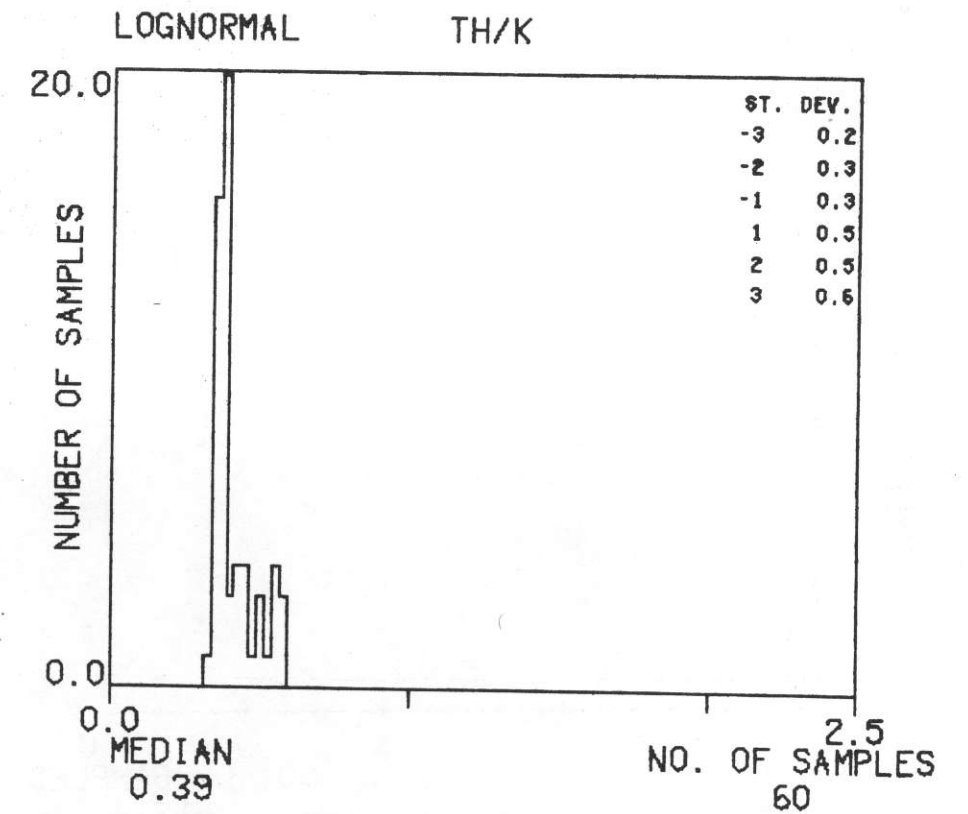
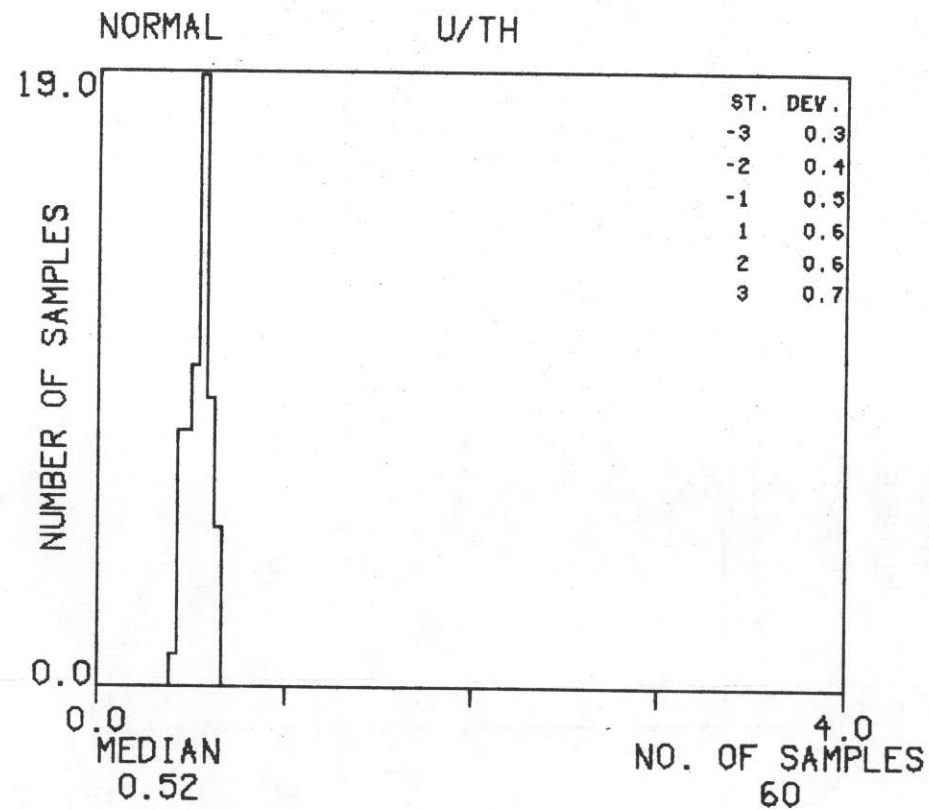
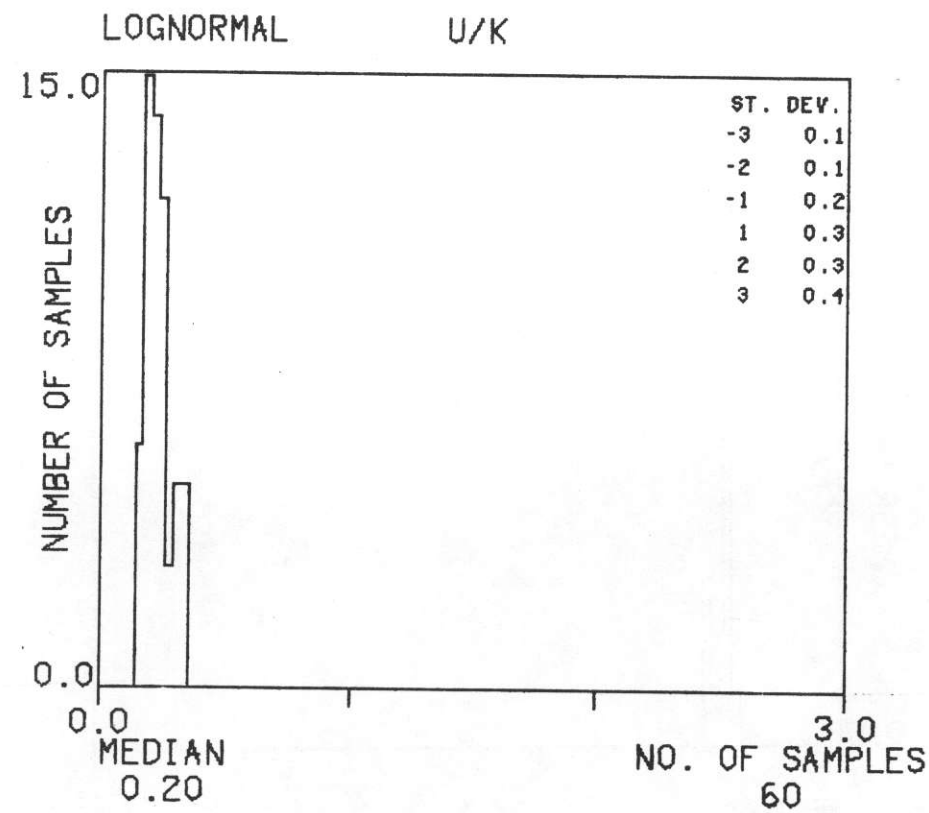
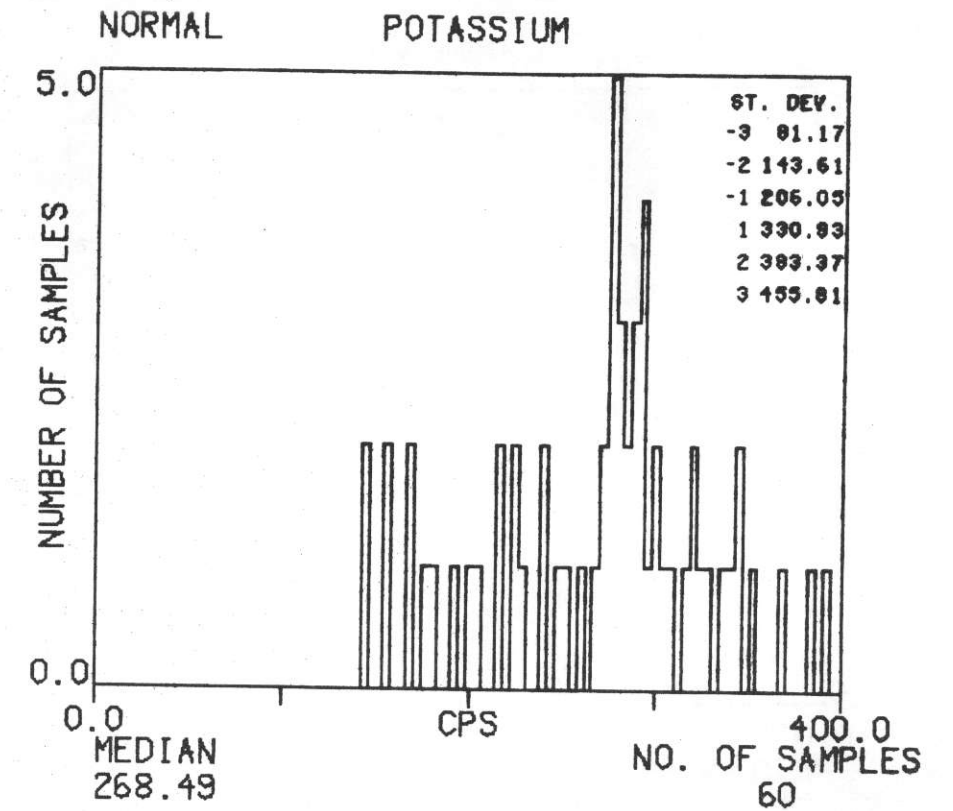
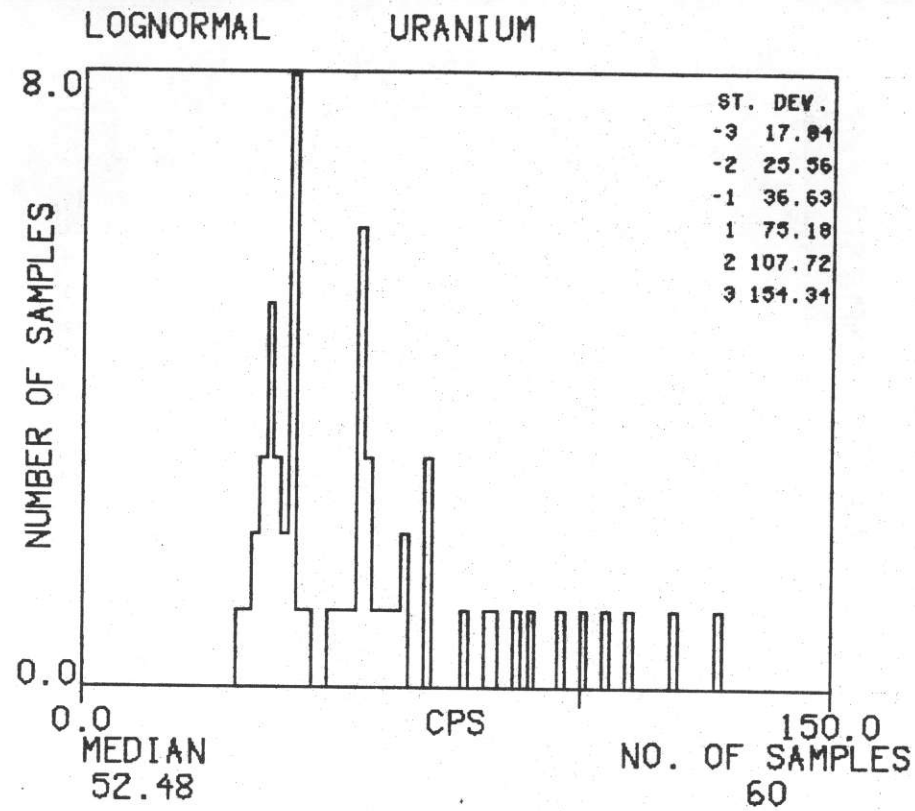
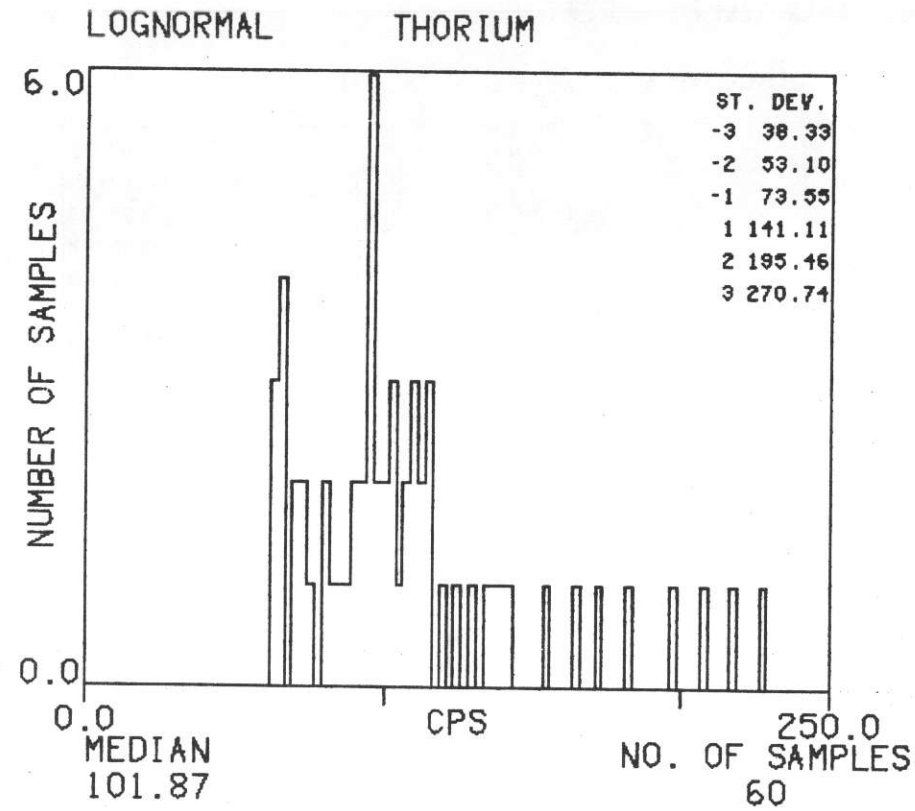
HISTOGRAMS : TMZG '-3

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



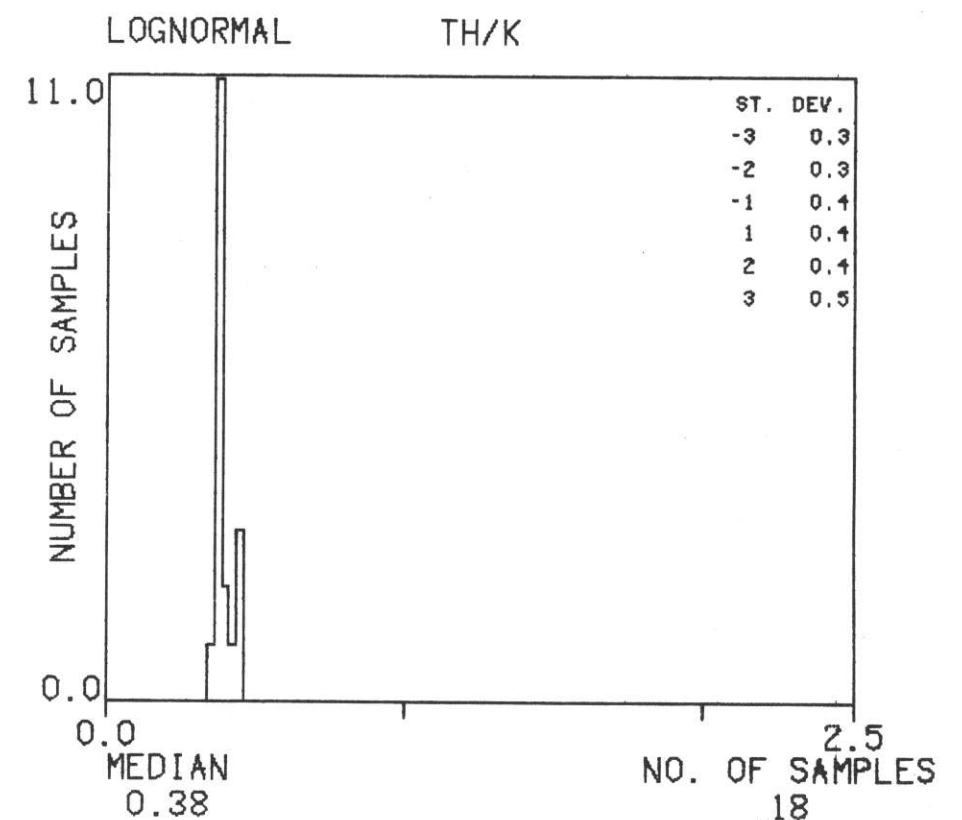
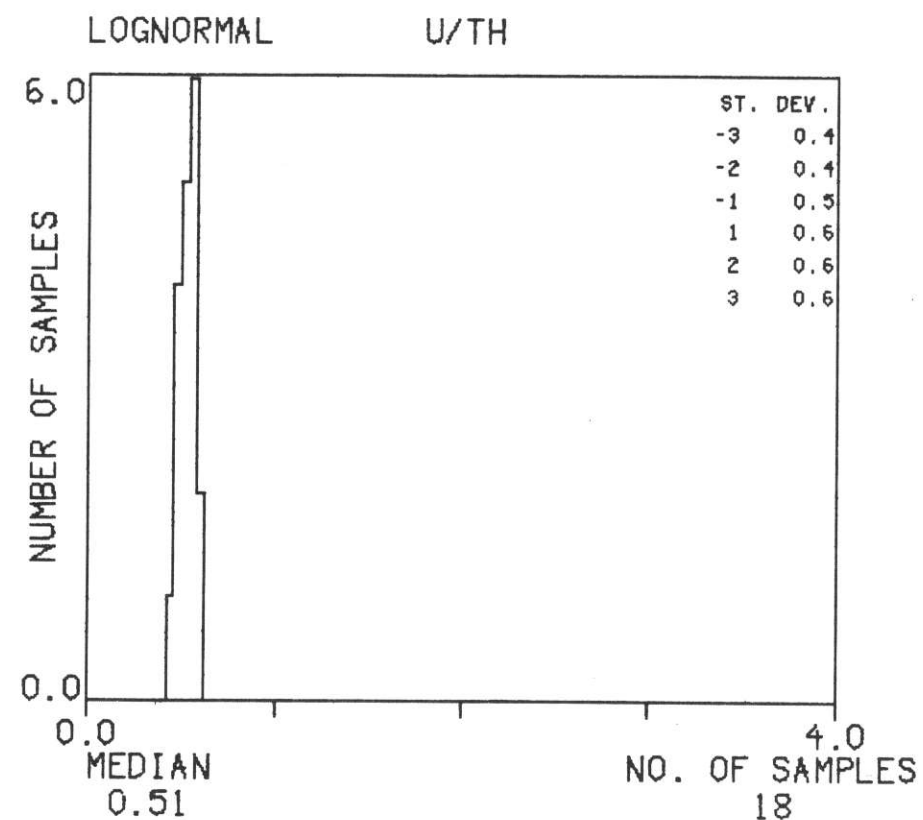
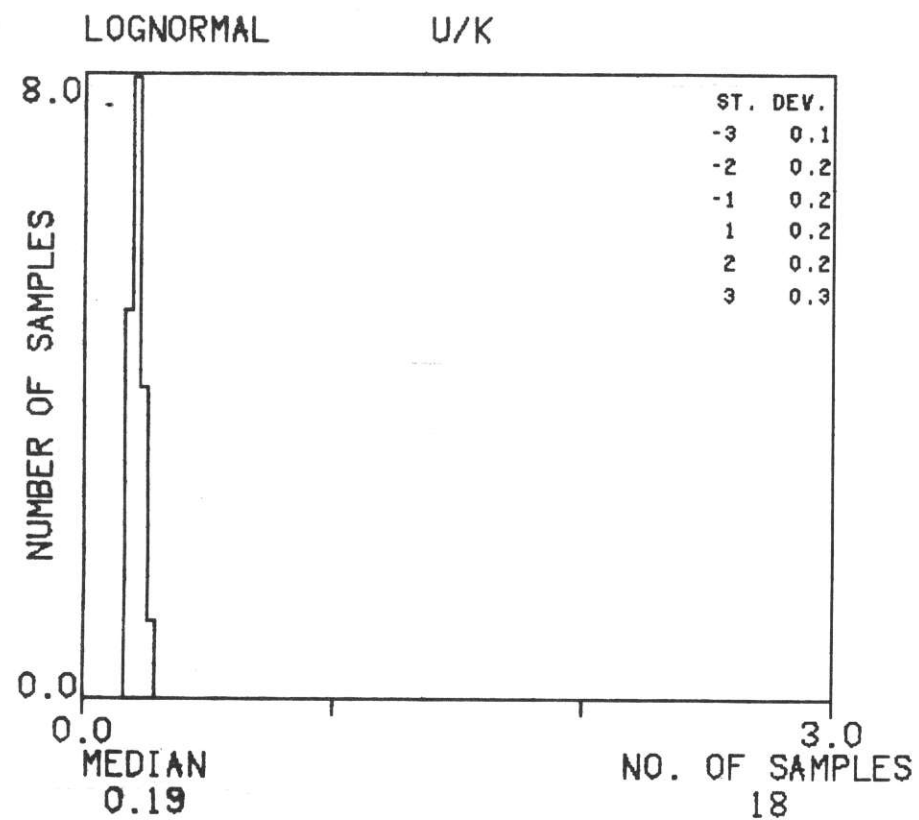
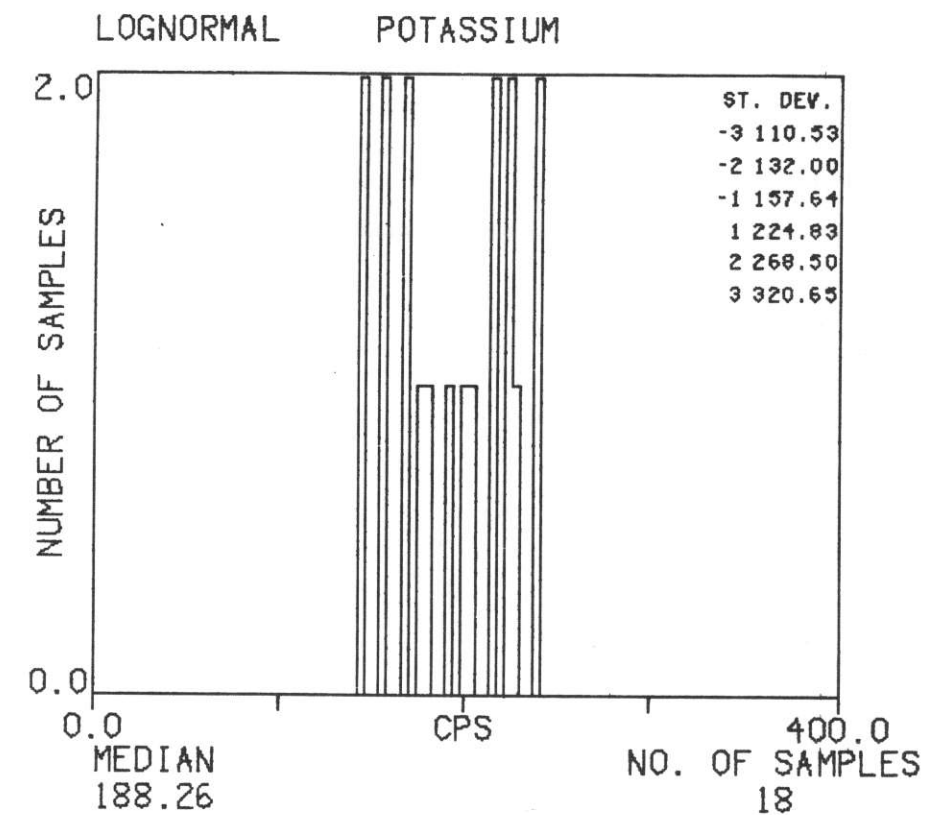
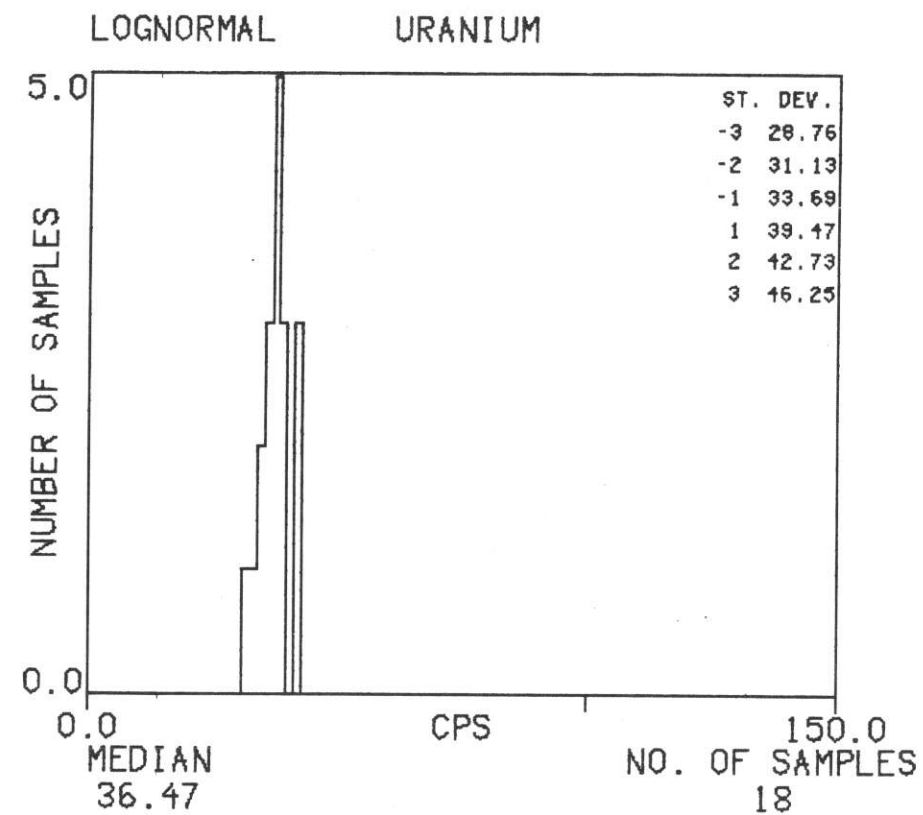
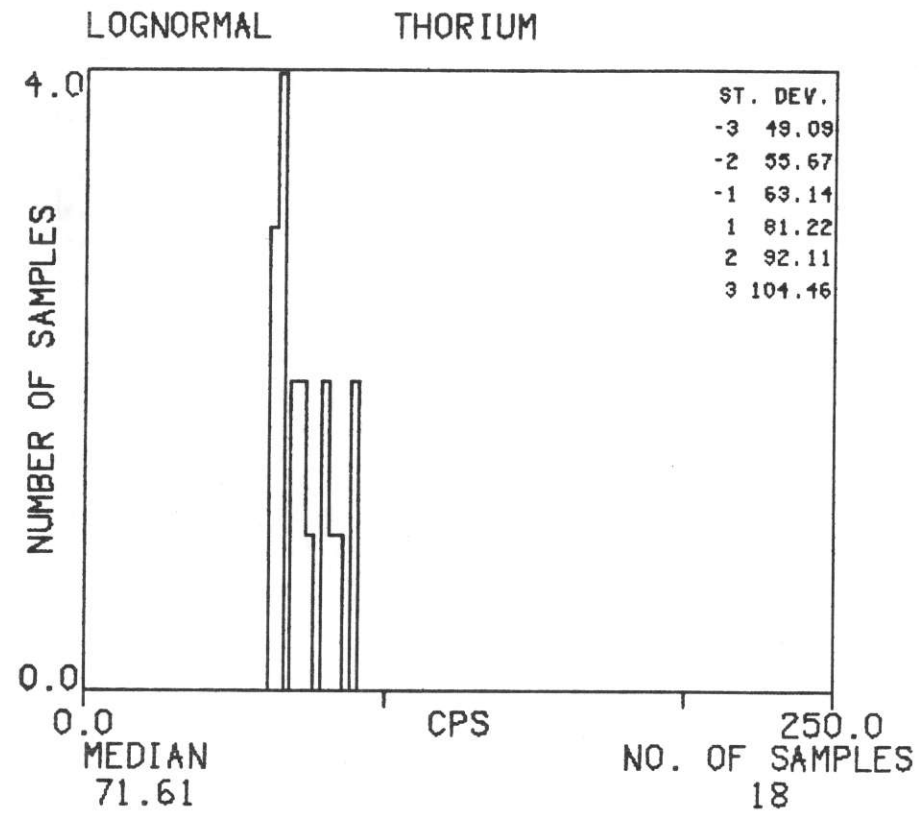
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TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



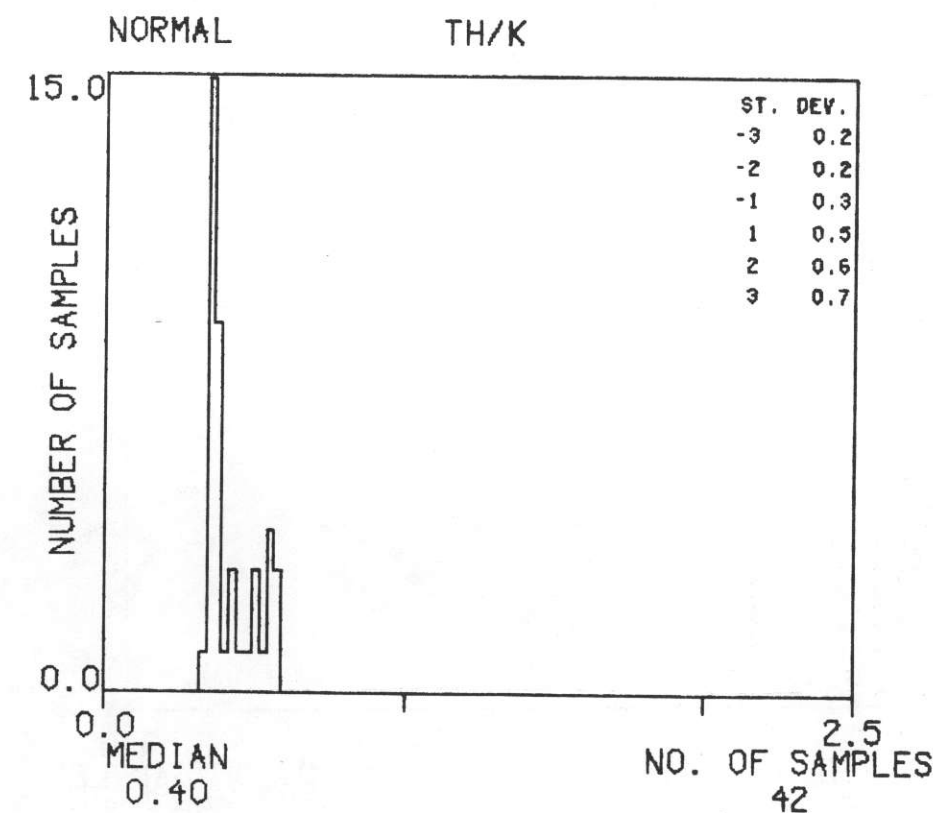
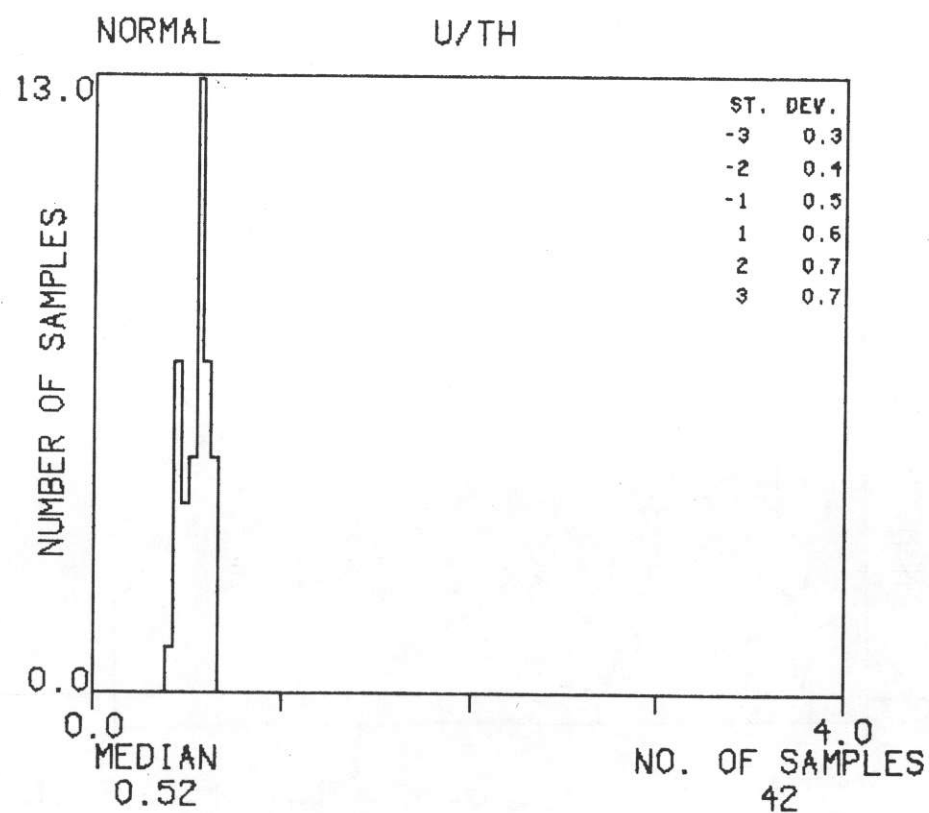
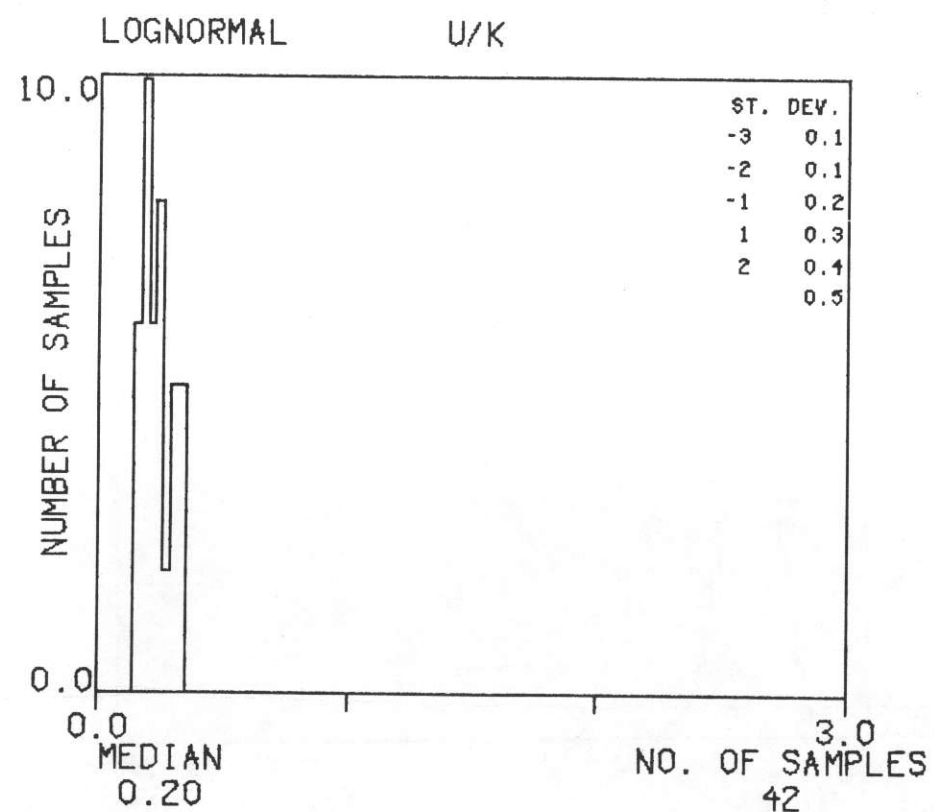
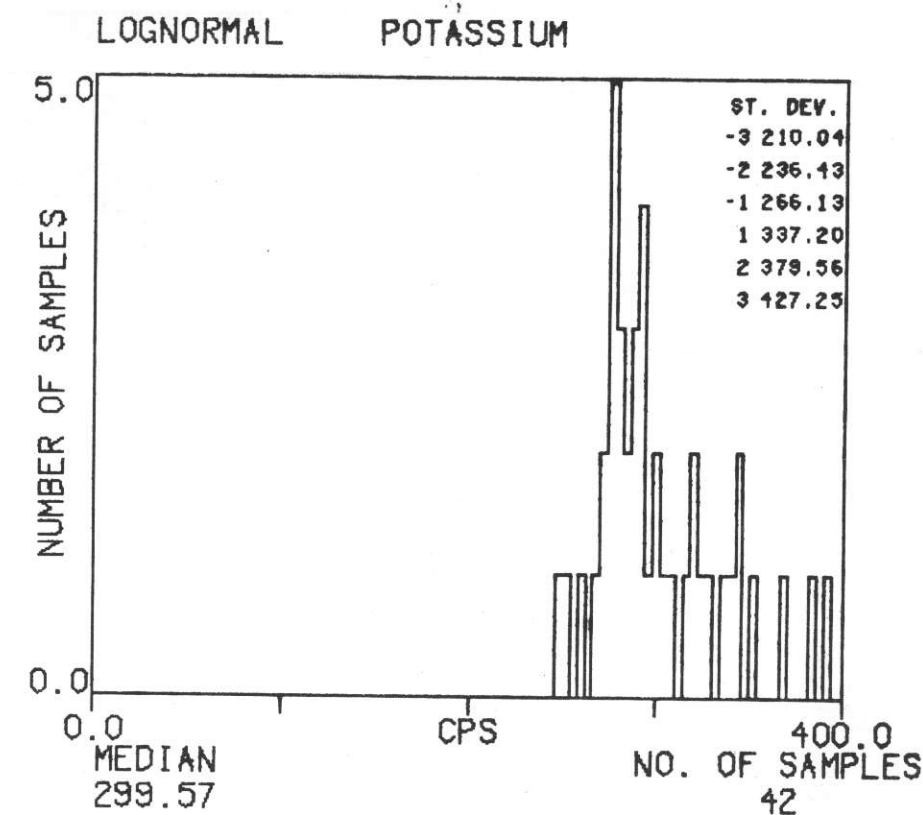
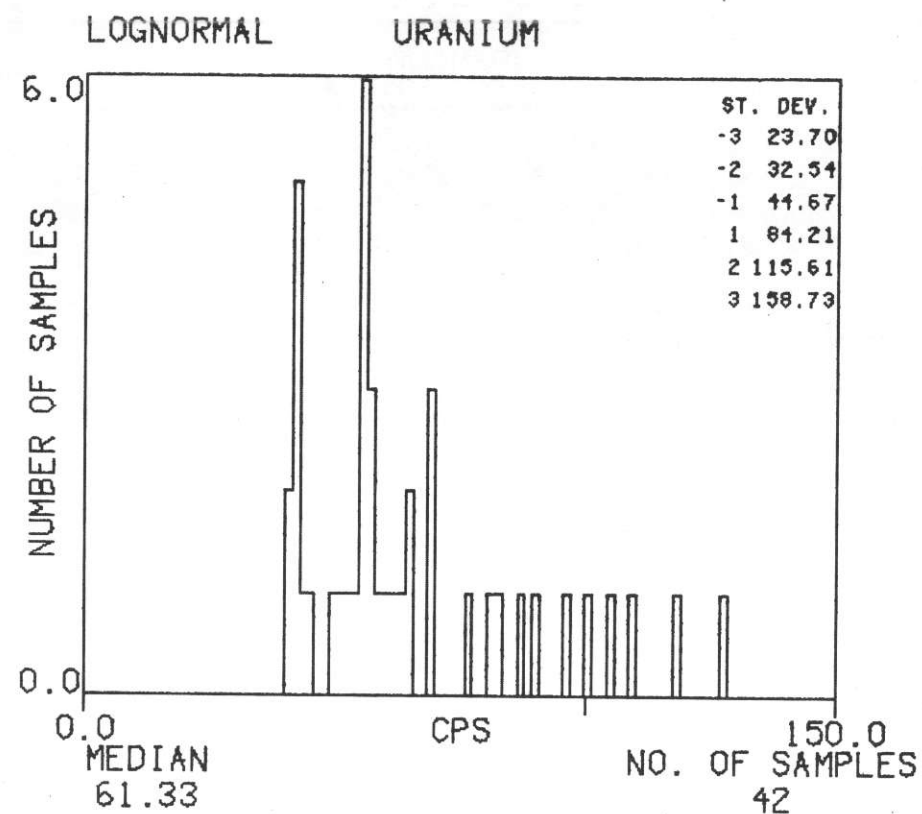
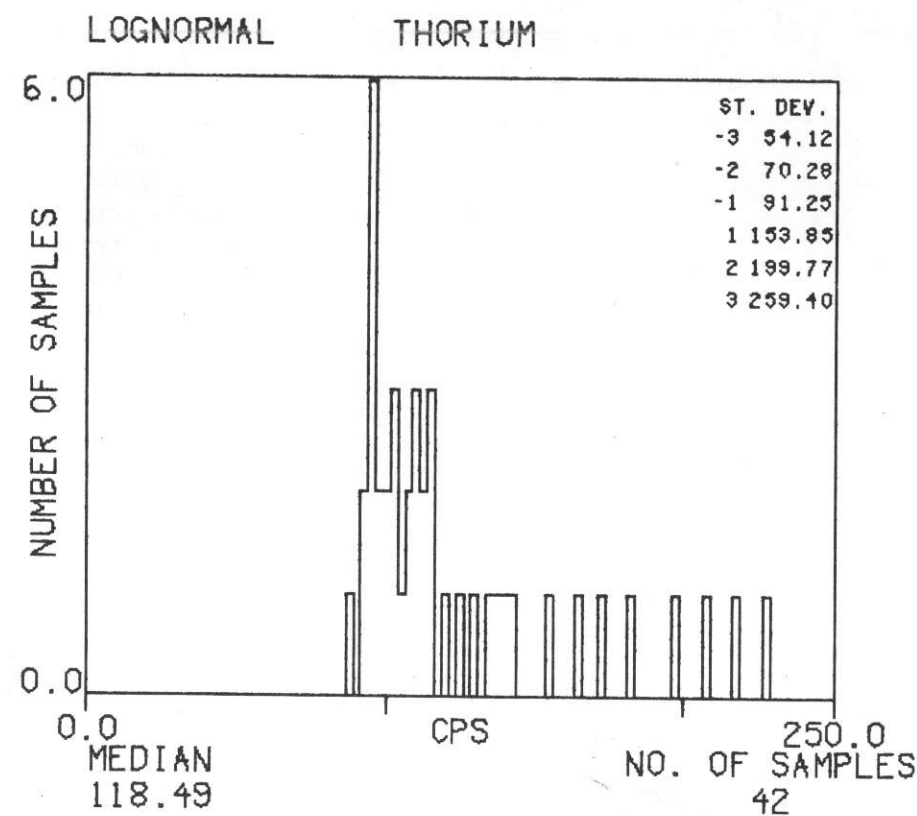
HISTOGRAMS : MZG-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



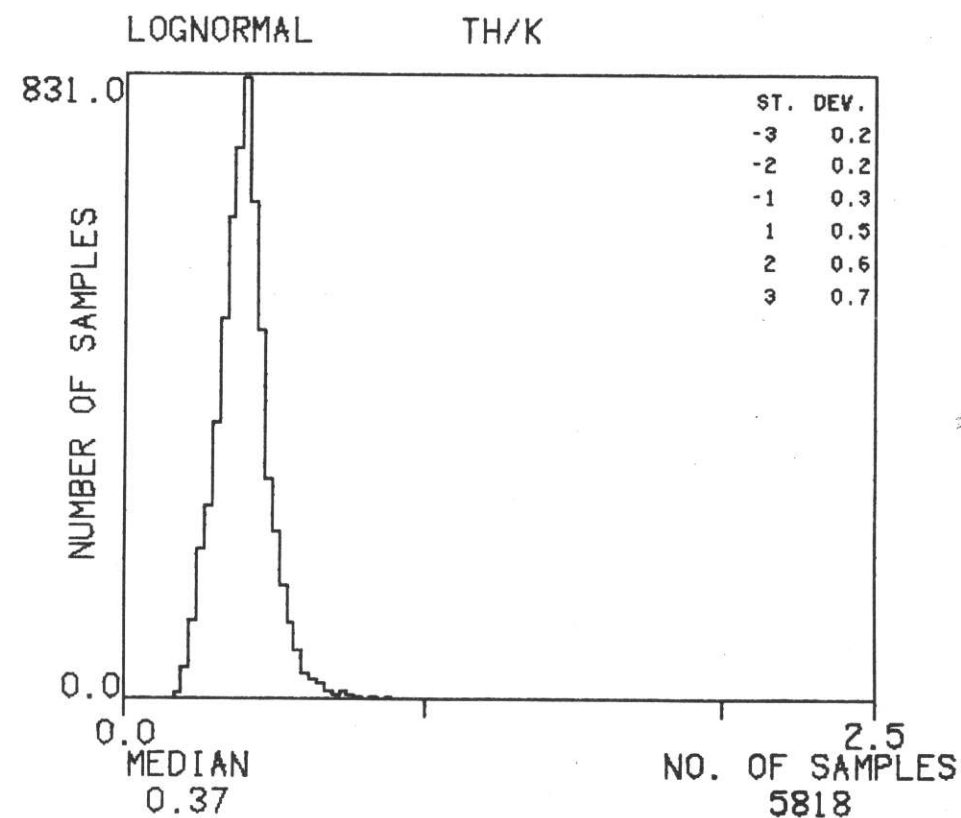
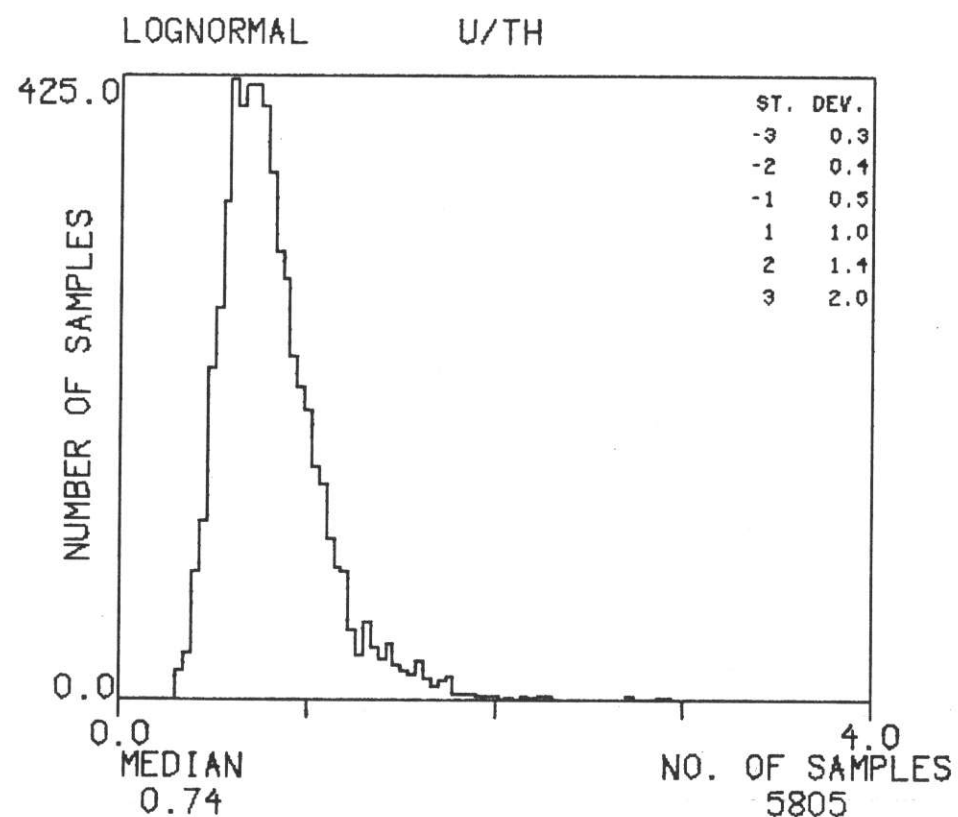
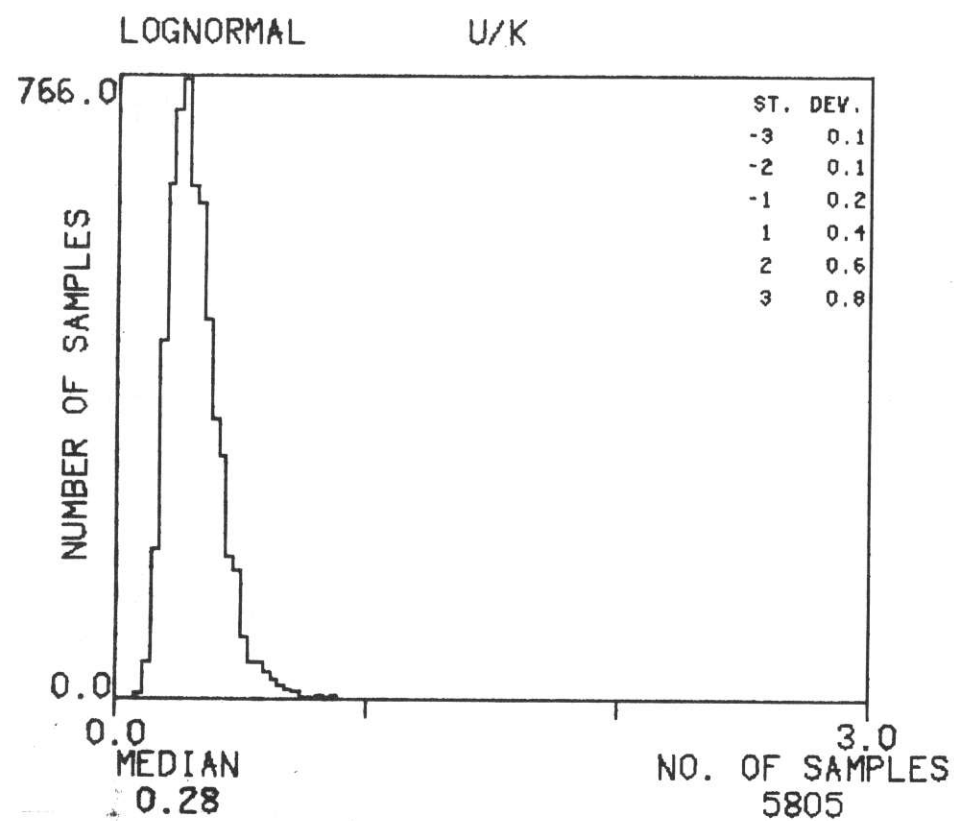
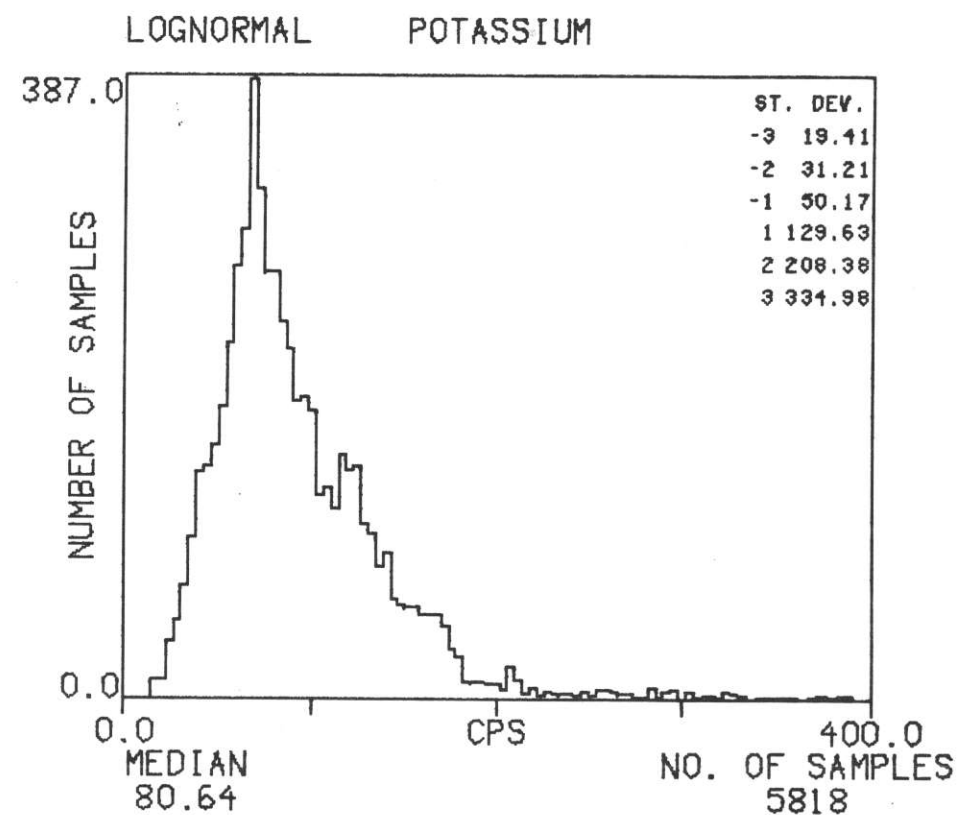
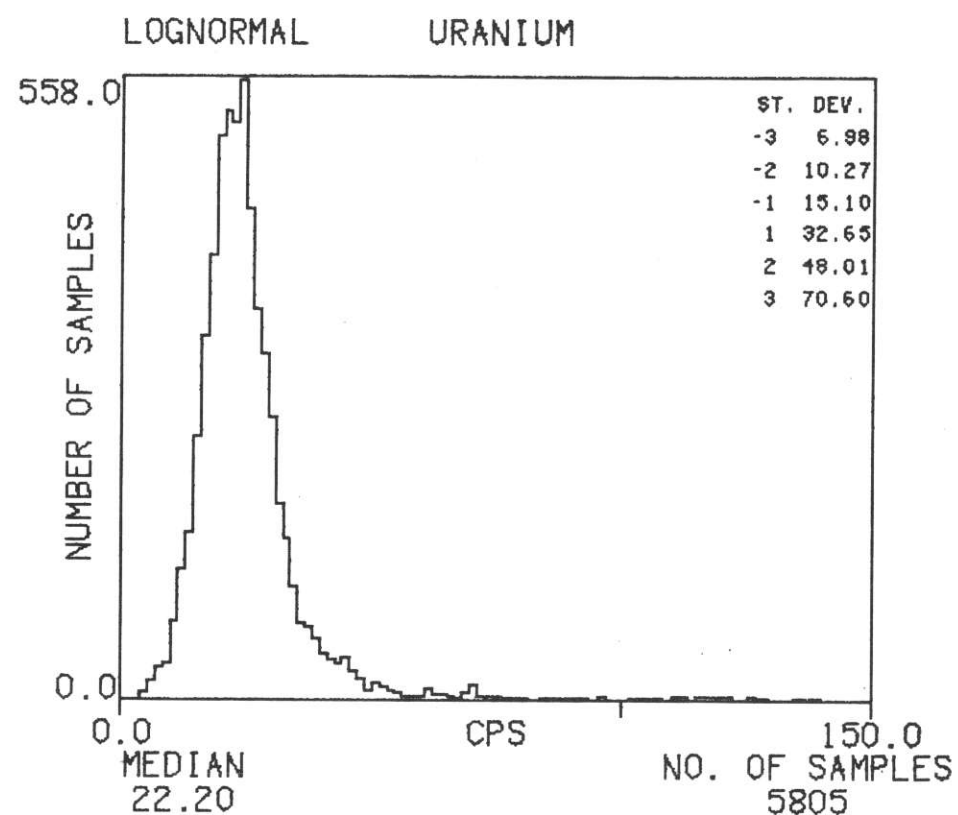
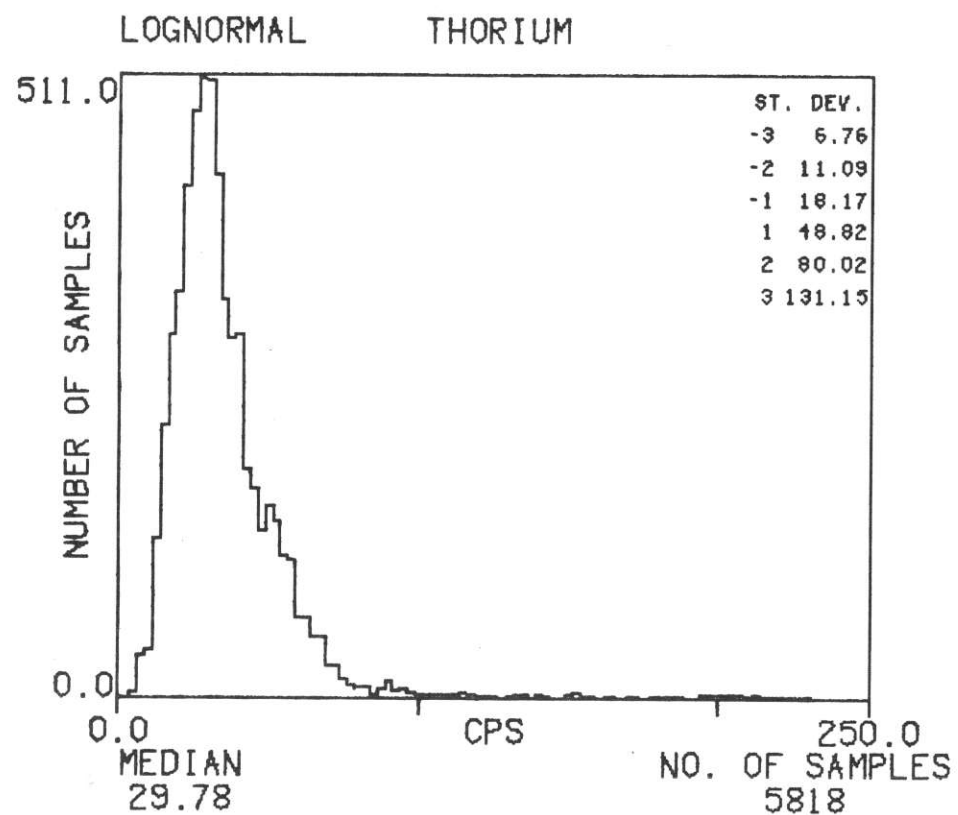
HISTOGRAMS : MZG-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



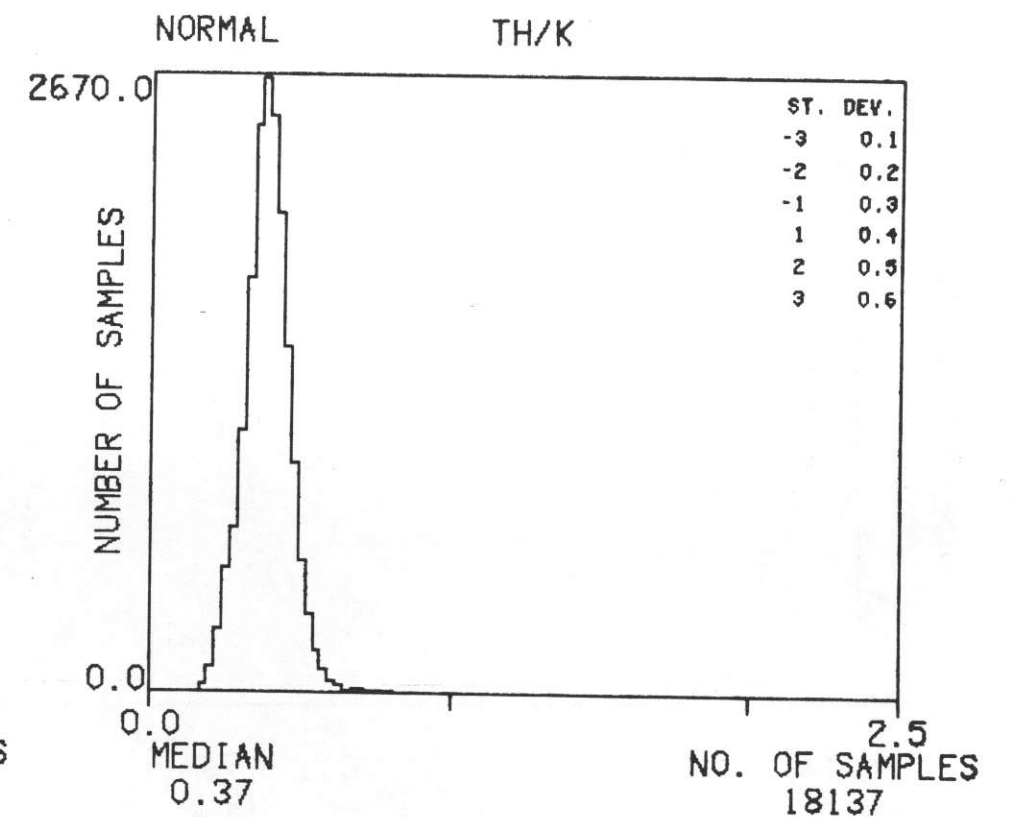
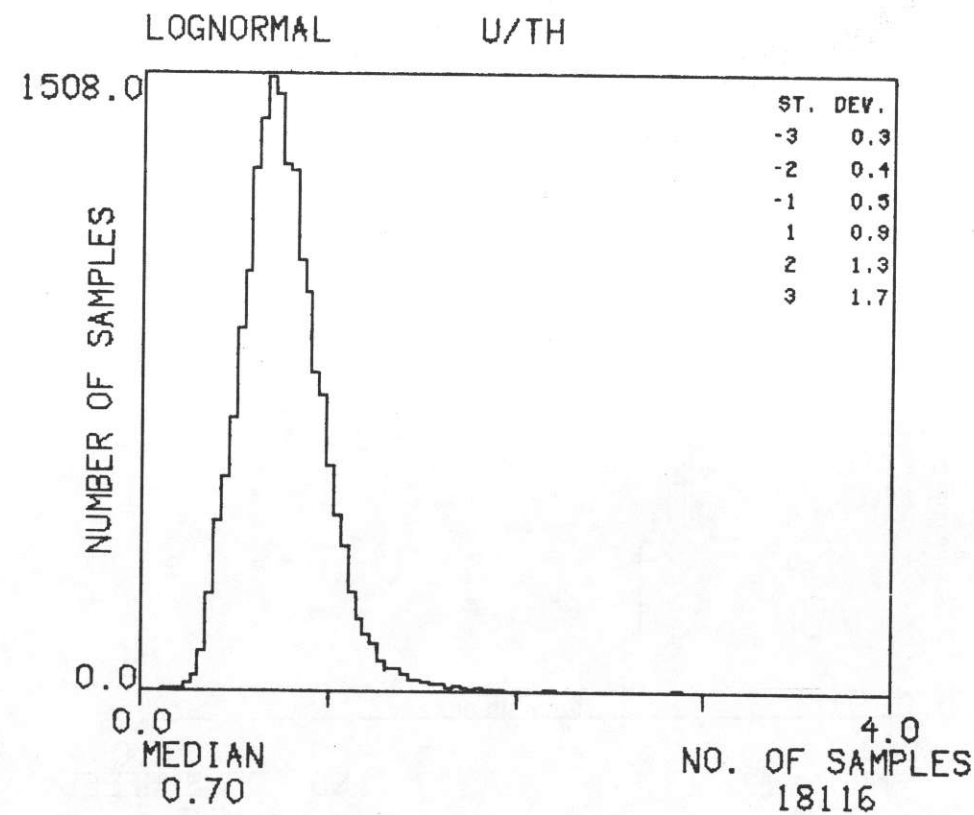
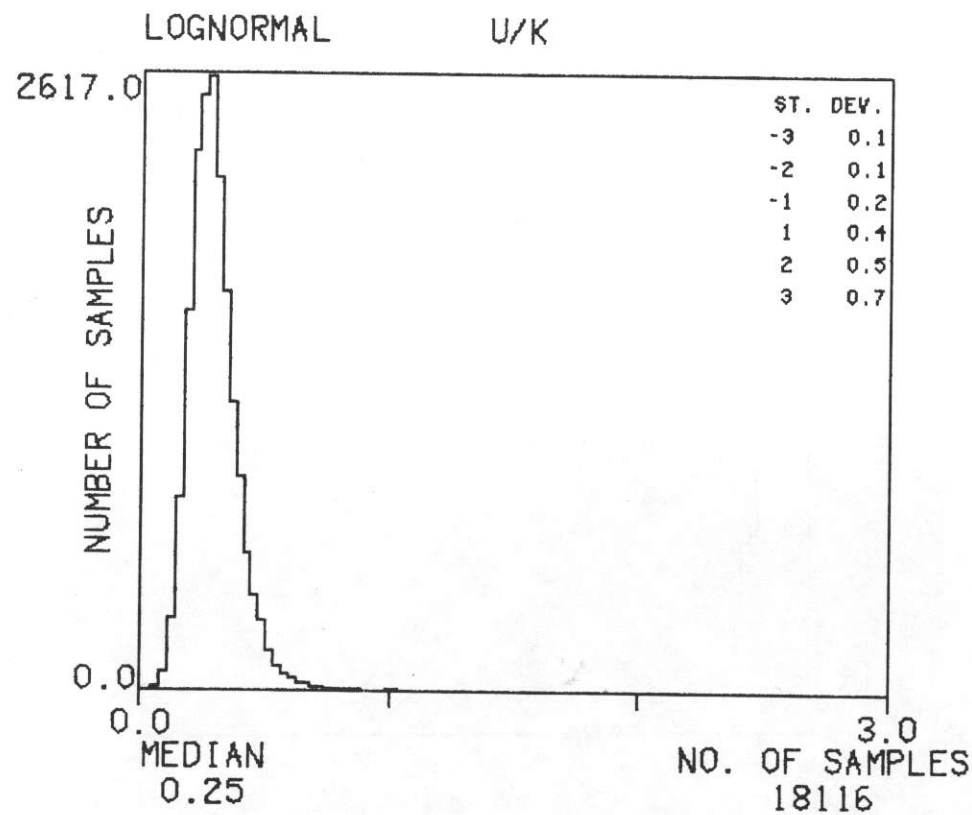
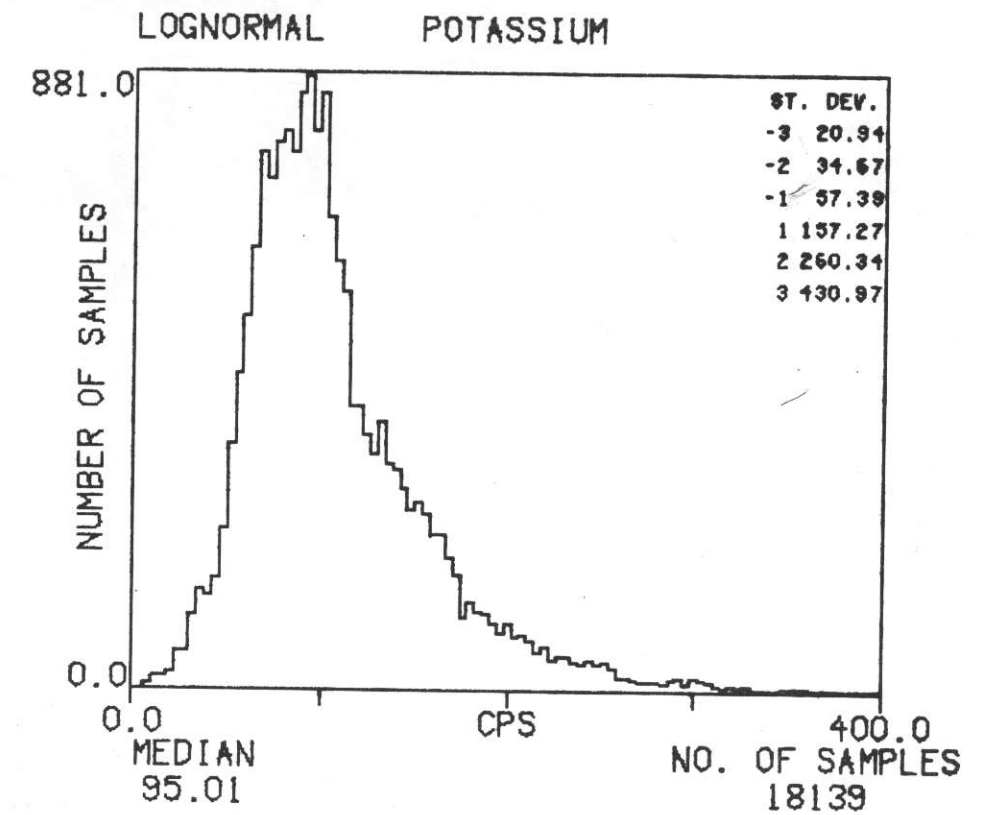
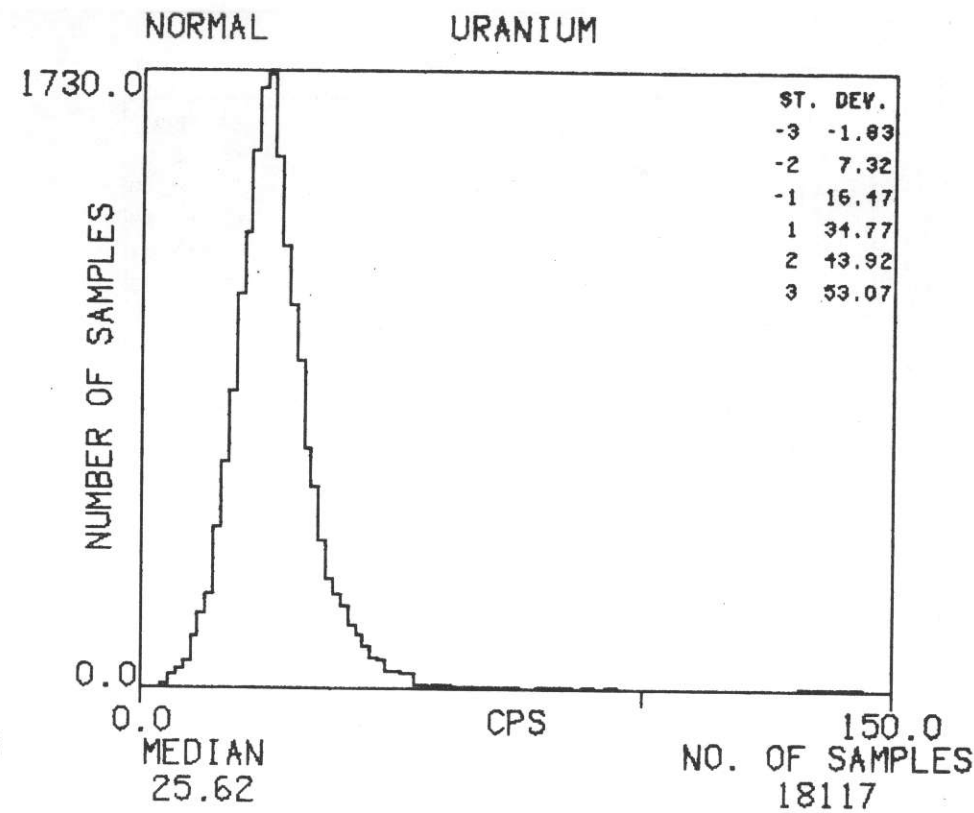
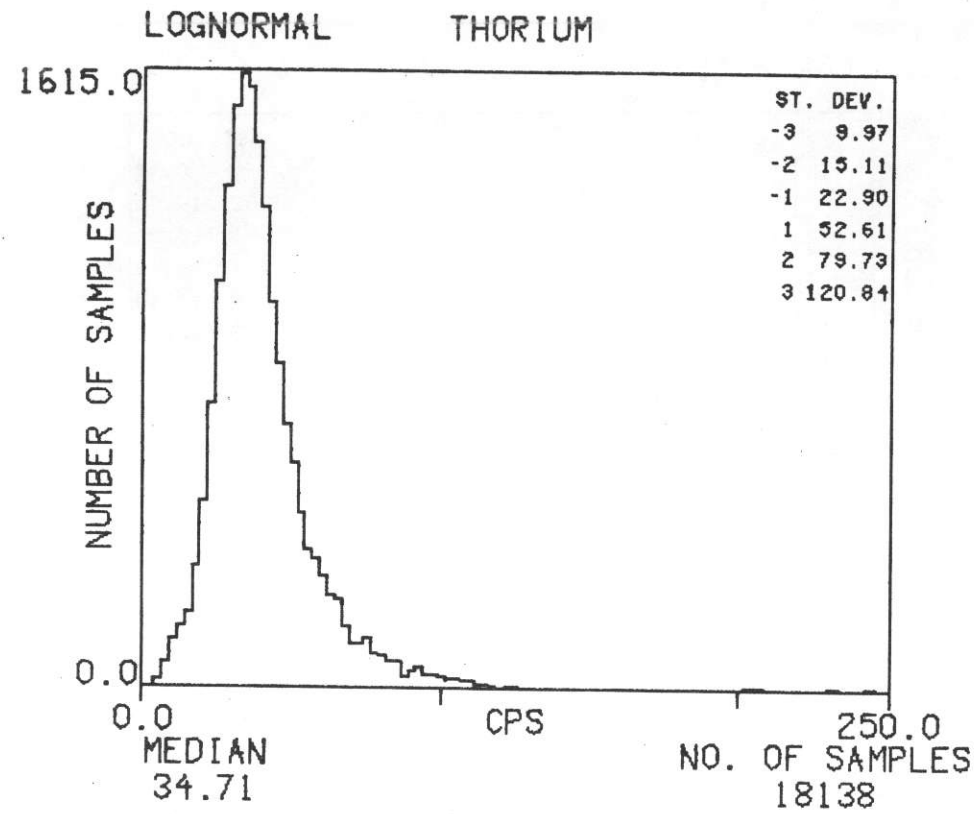
HISTOGRAMS : PZ

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



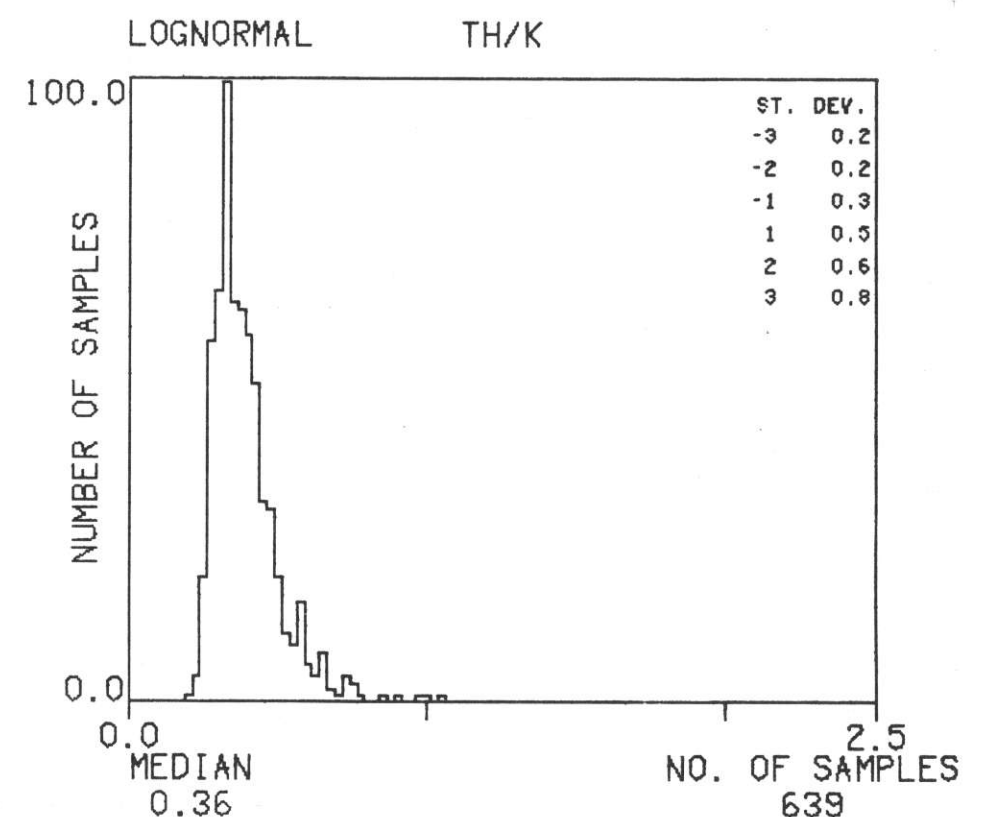
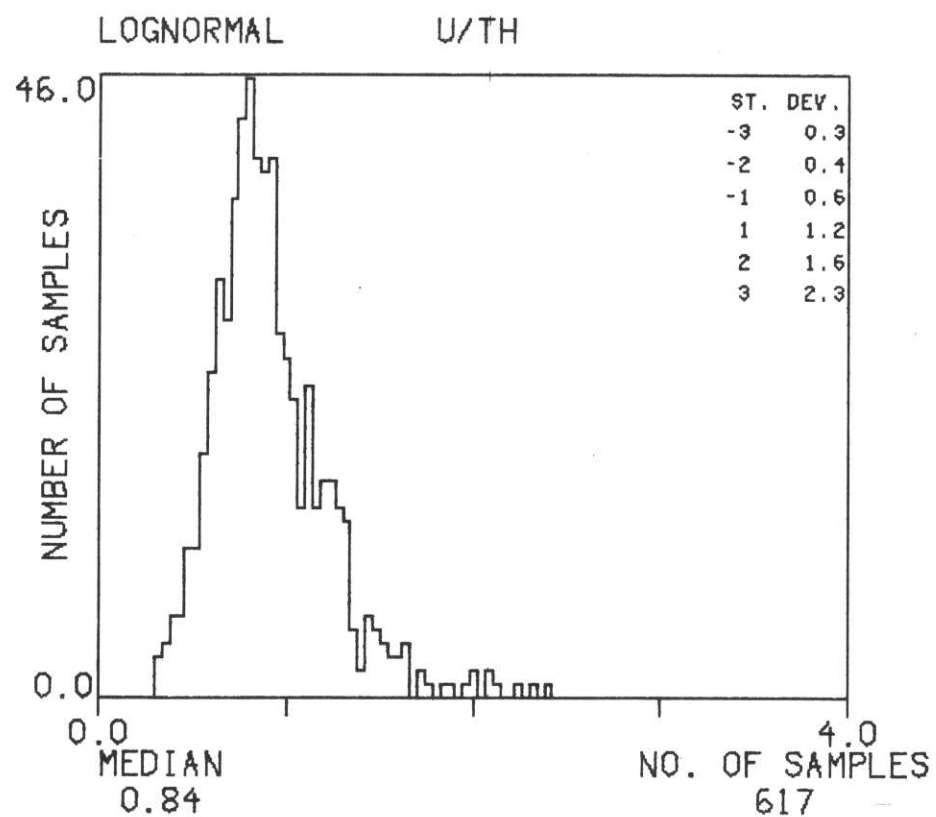
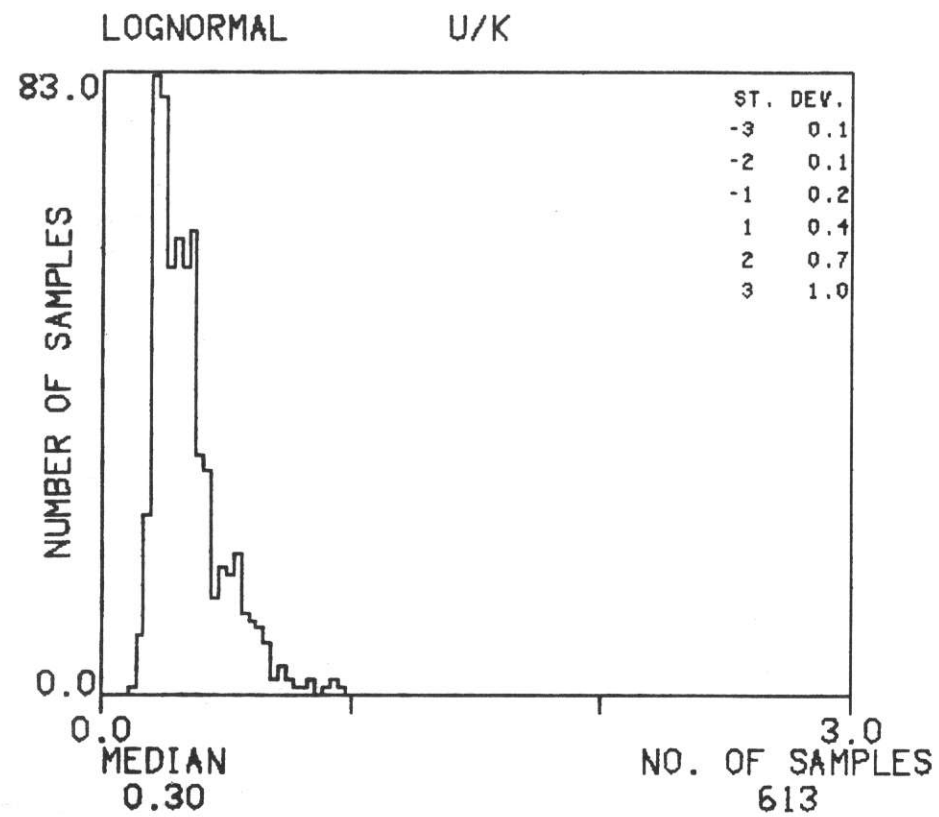
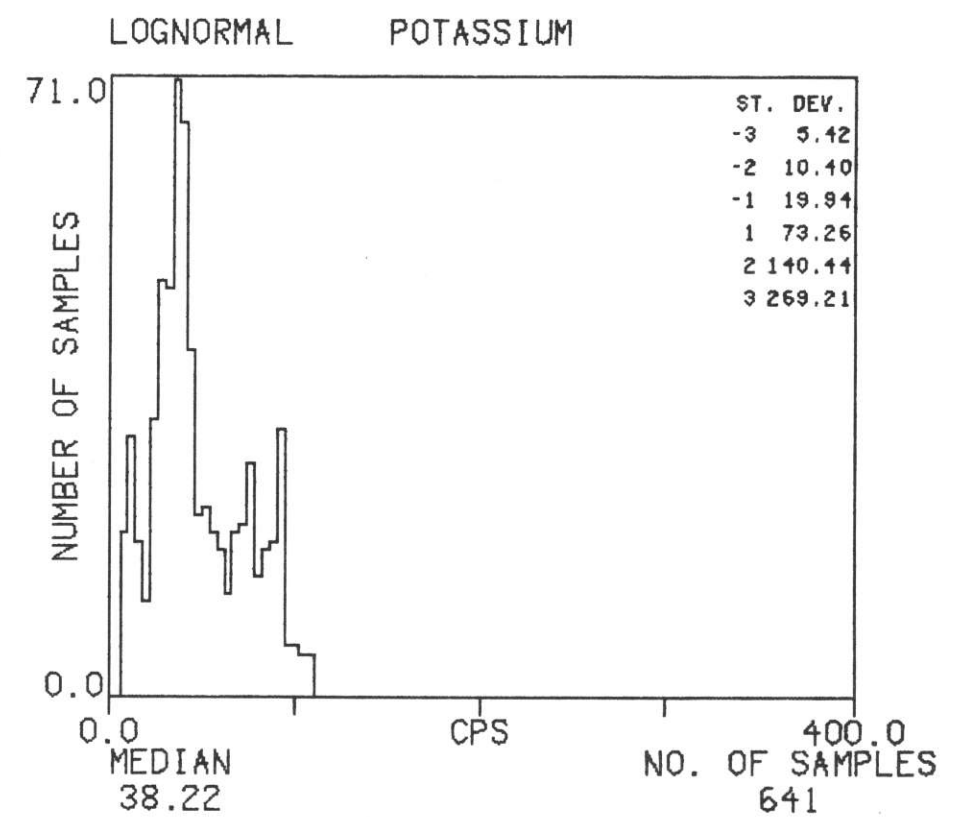
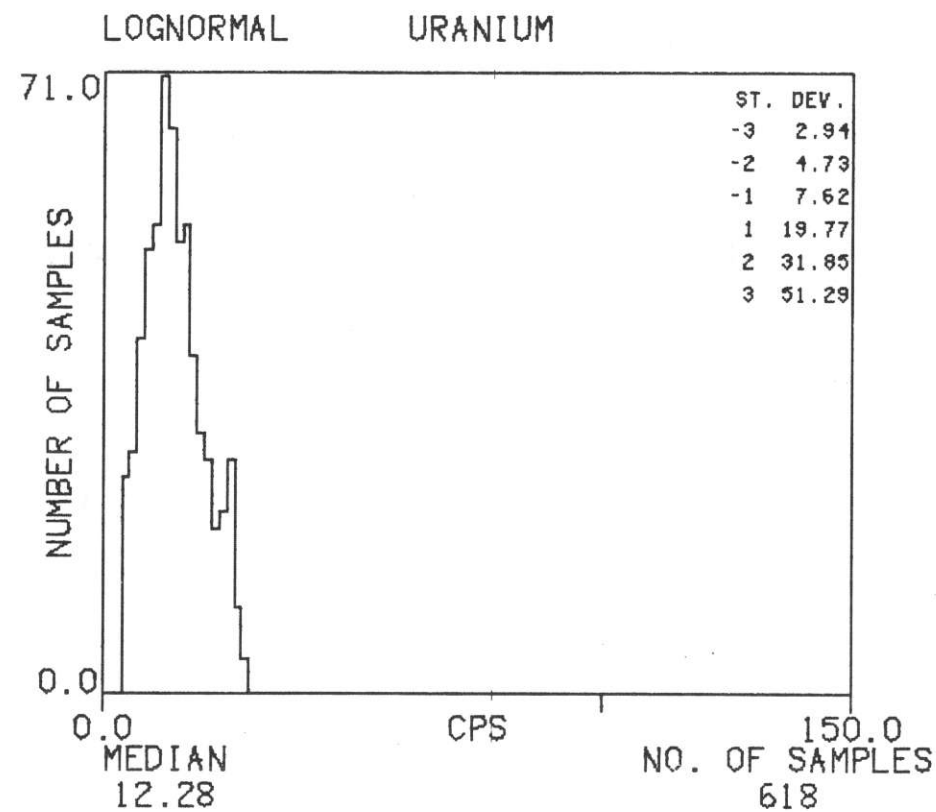
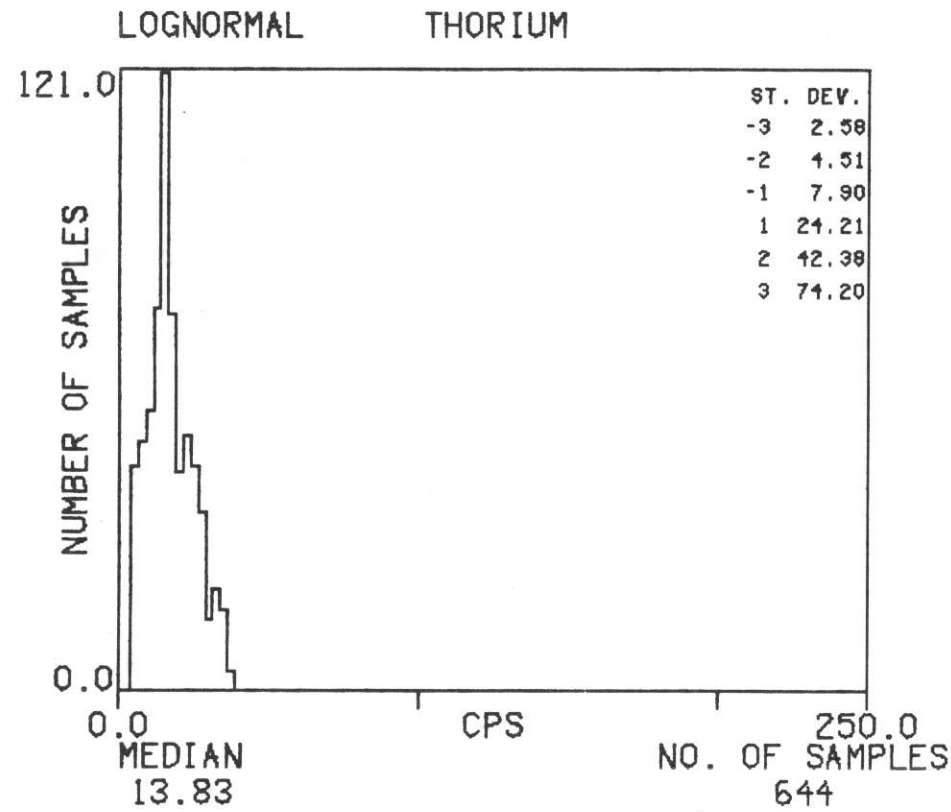
HISTOGRAMS : PZPC

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



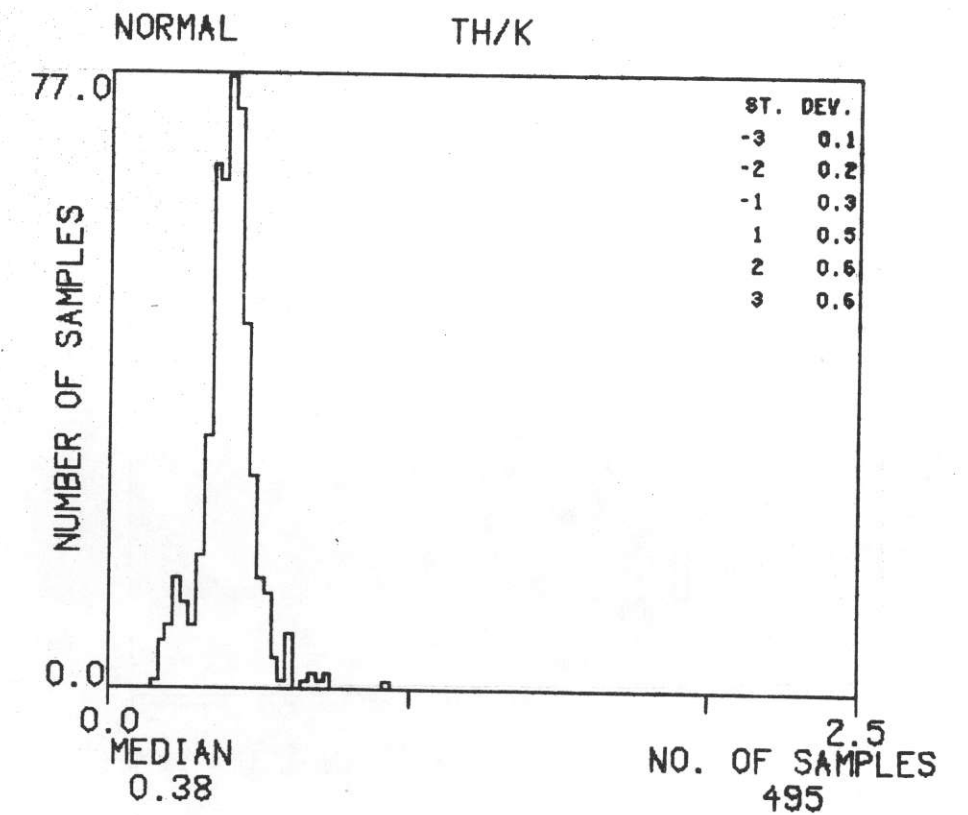
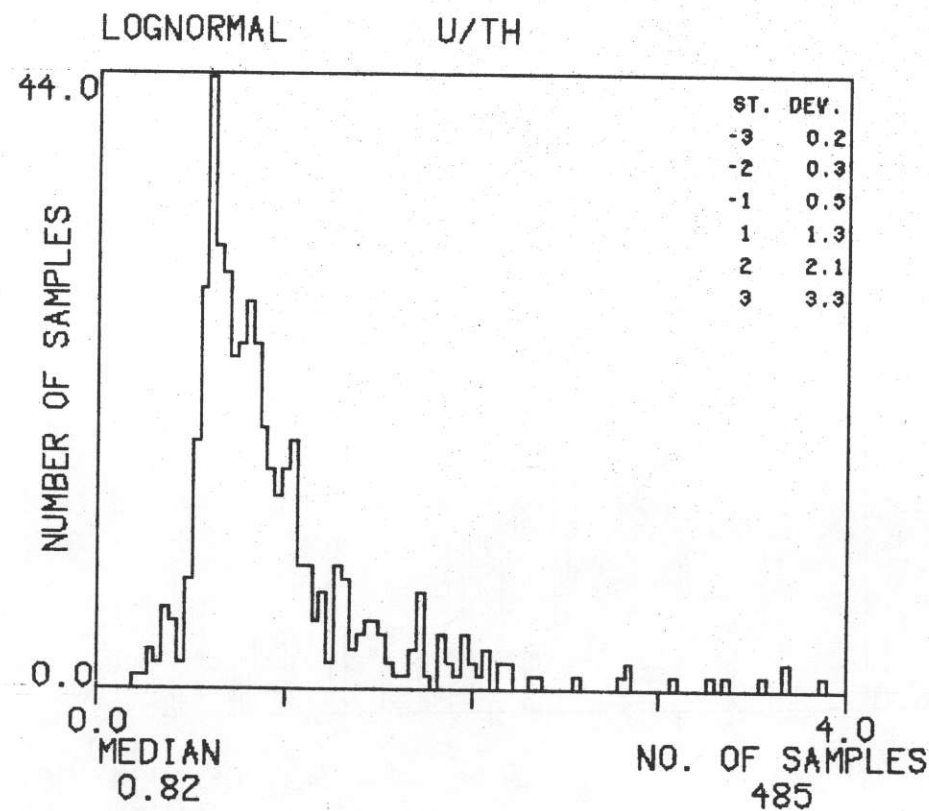
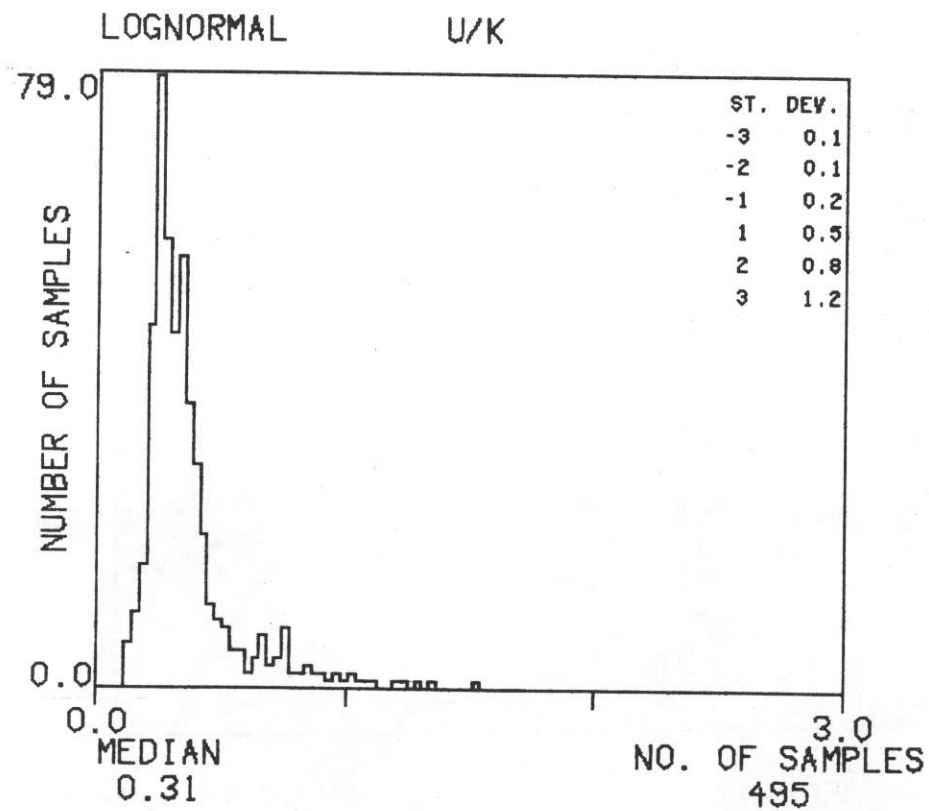
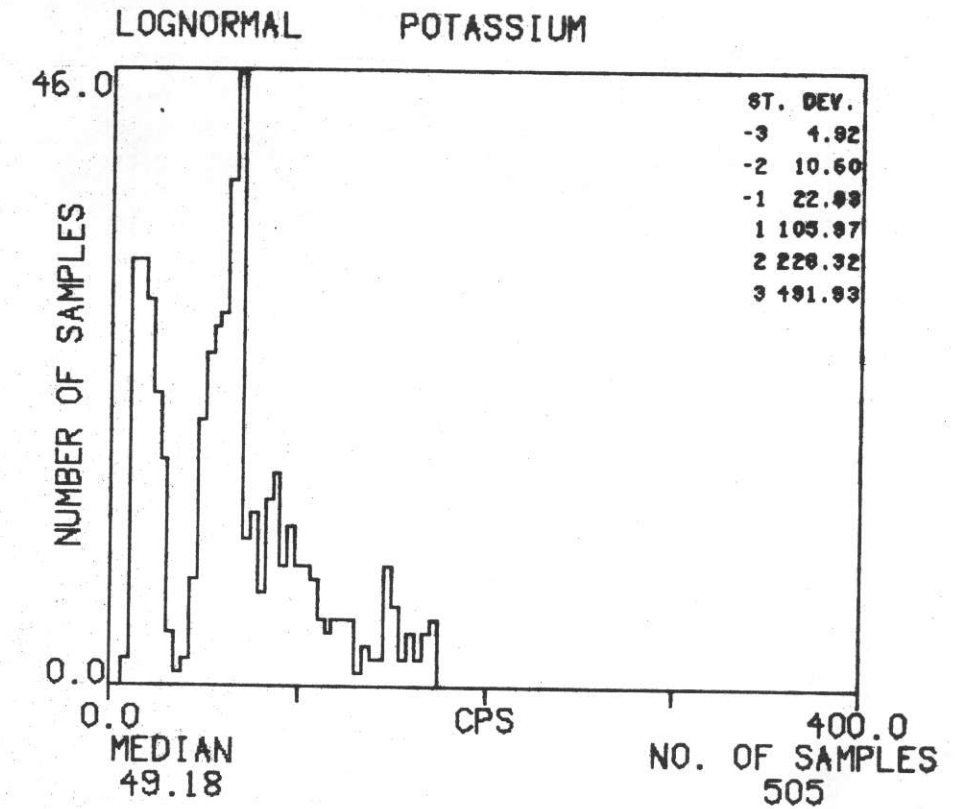
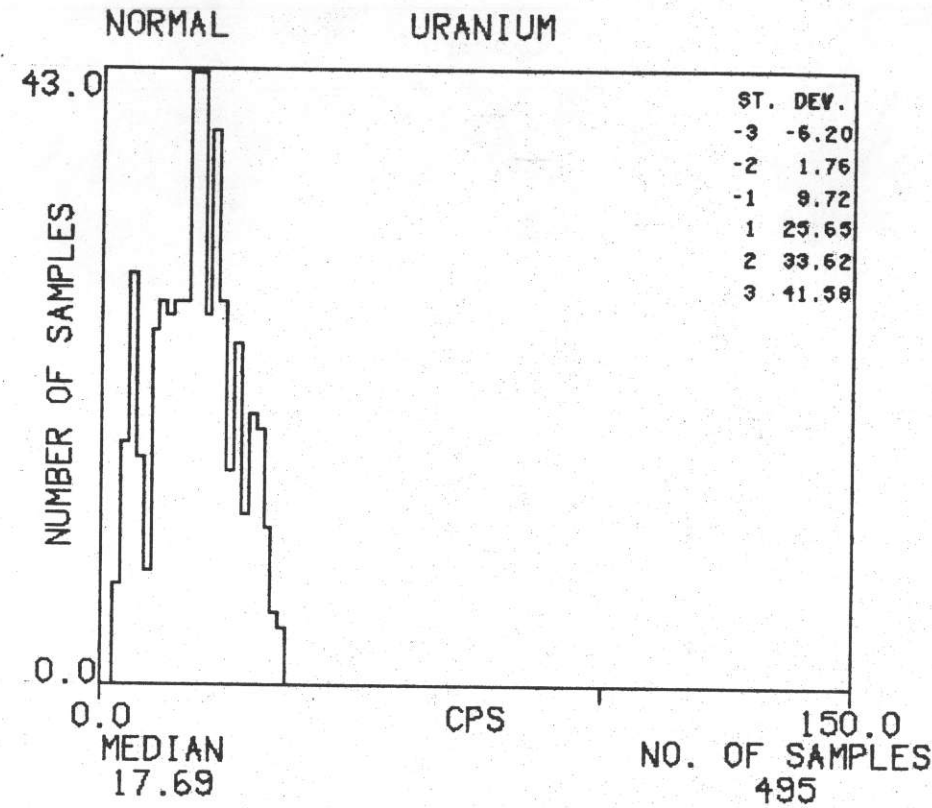
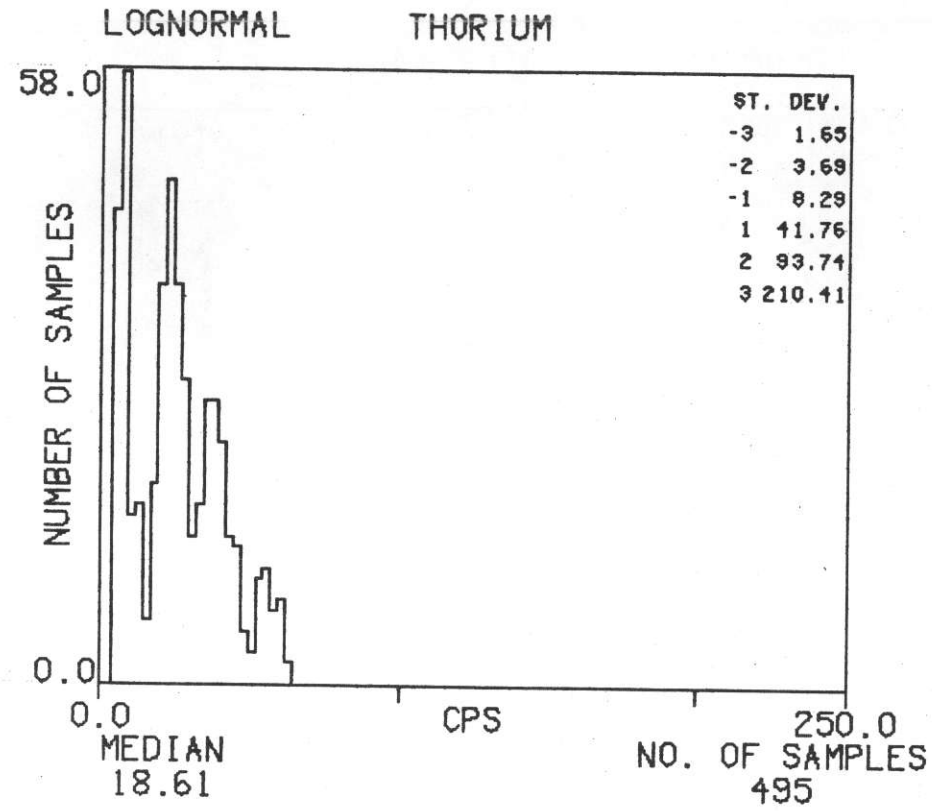
HISTOGRAMS : PZPC'

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



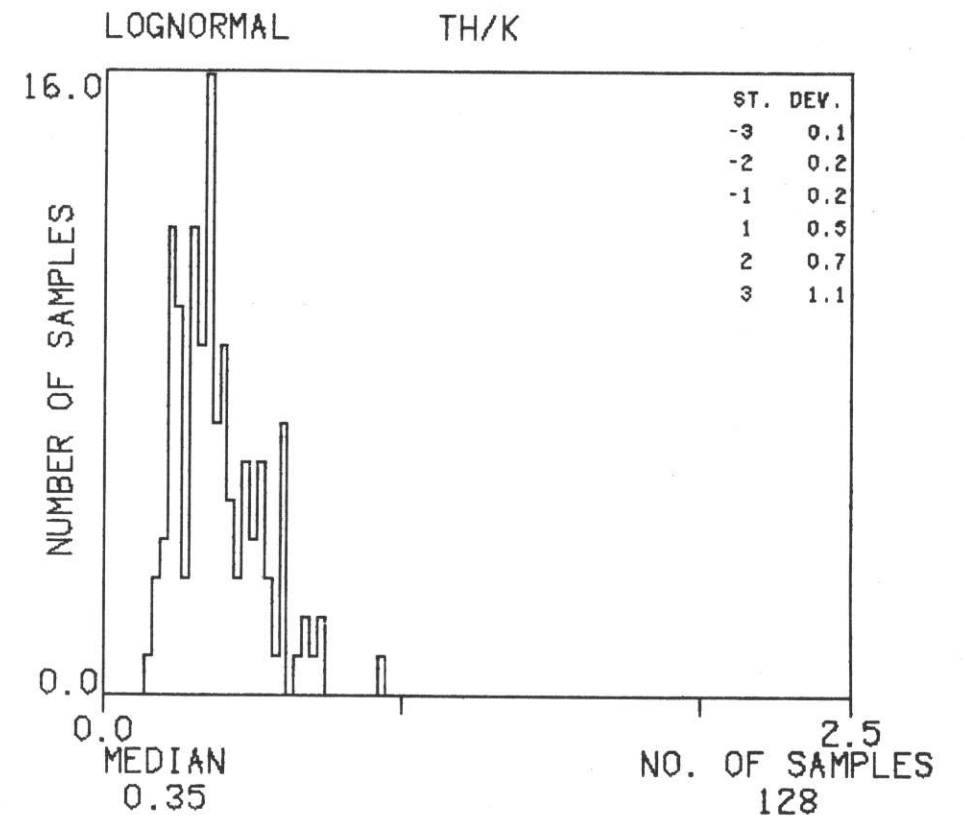
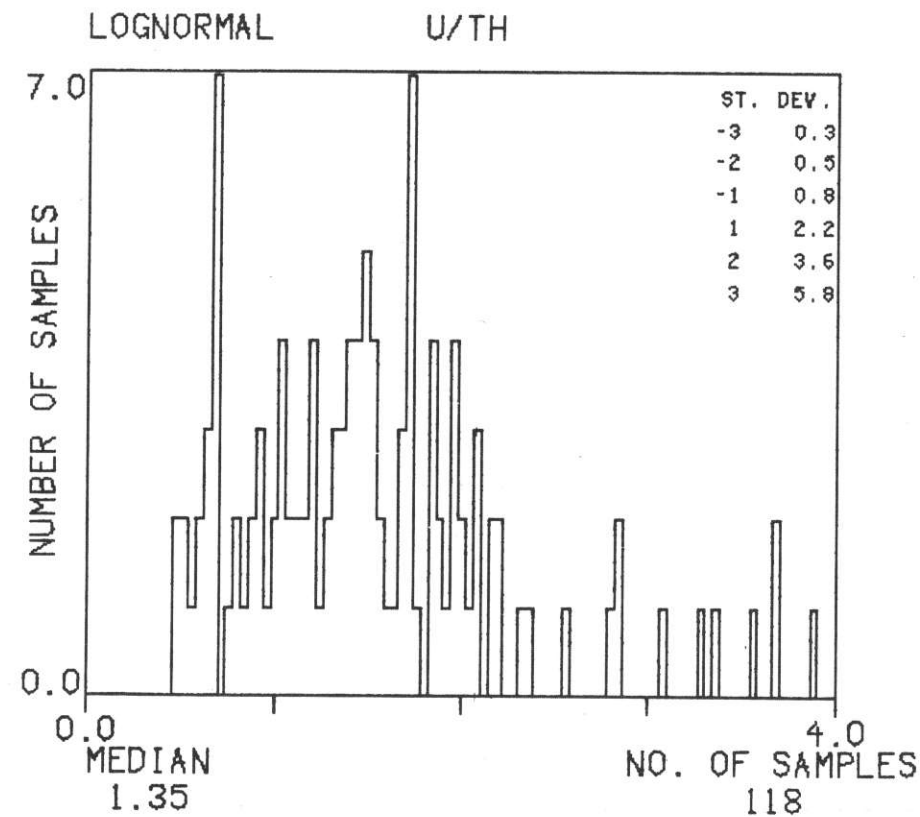
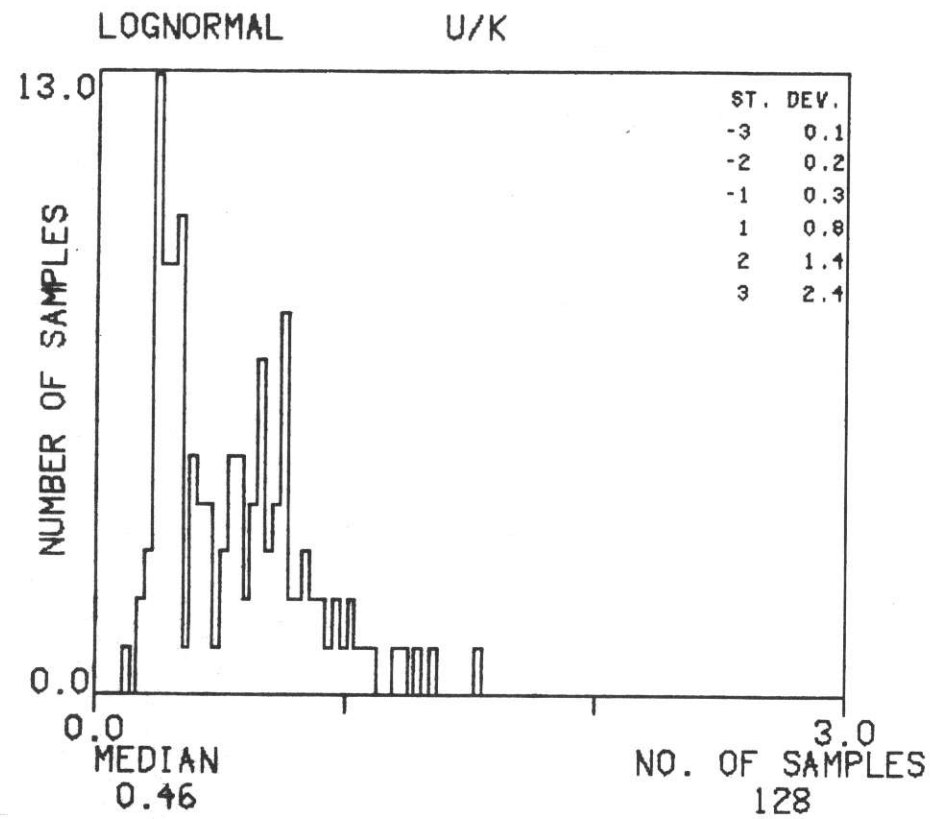
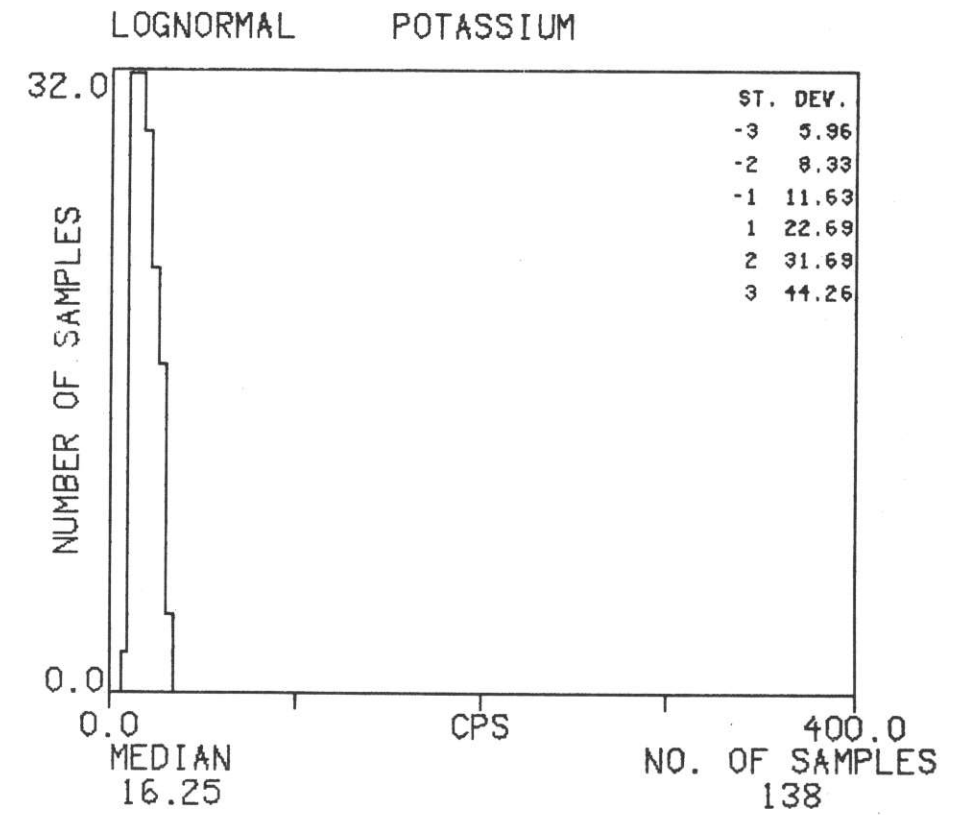
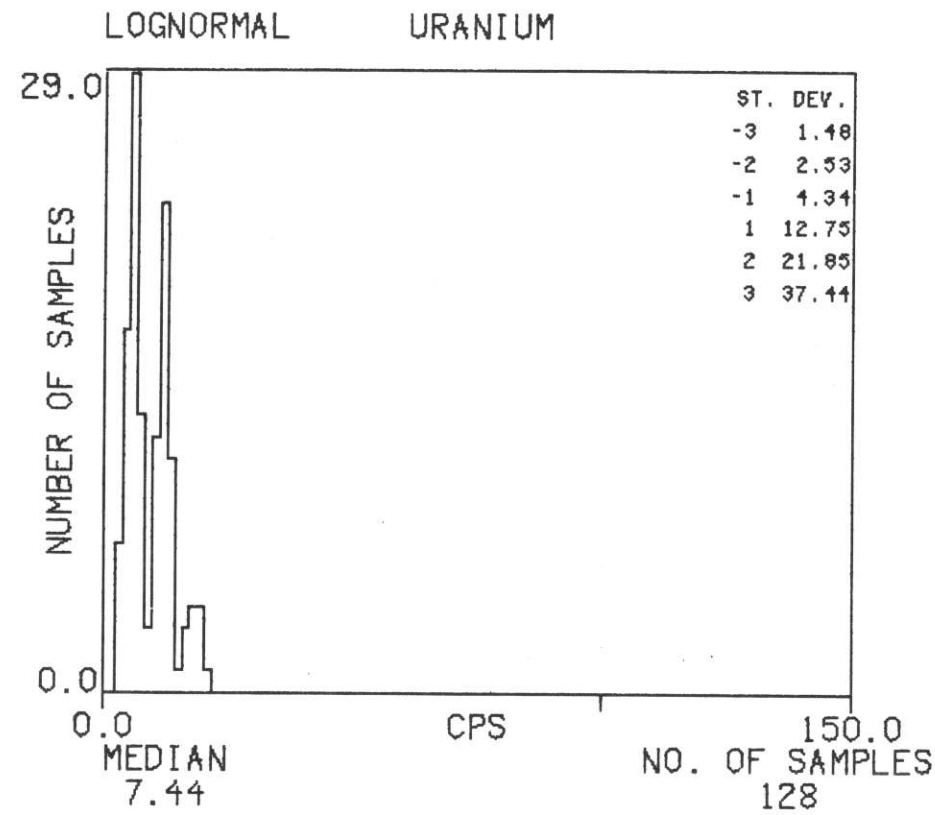
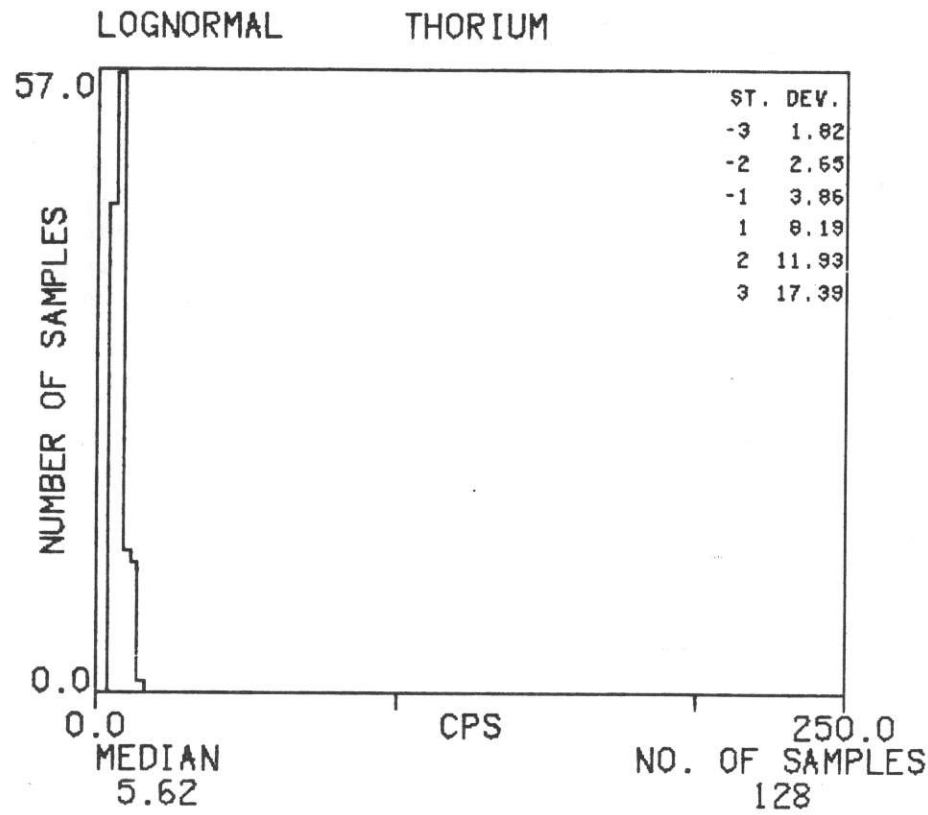
HISTOGRAMS : UM

TEXAS INSTRUMENTS INC. DELTA EAGLE-DILLINGHAM 1977



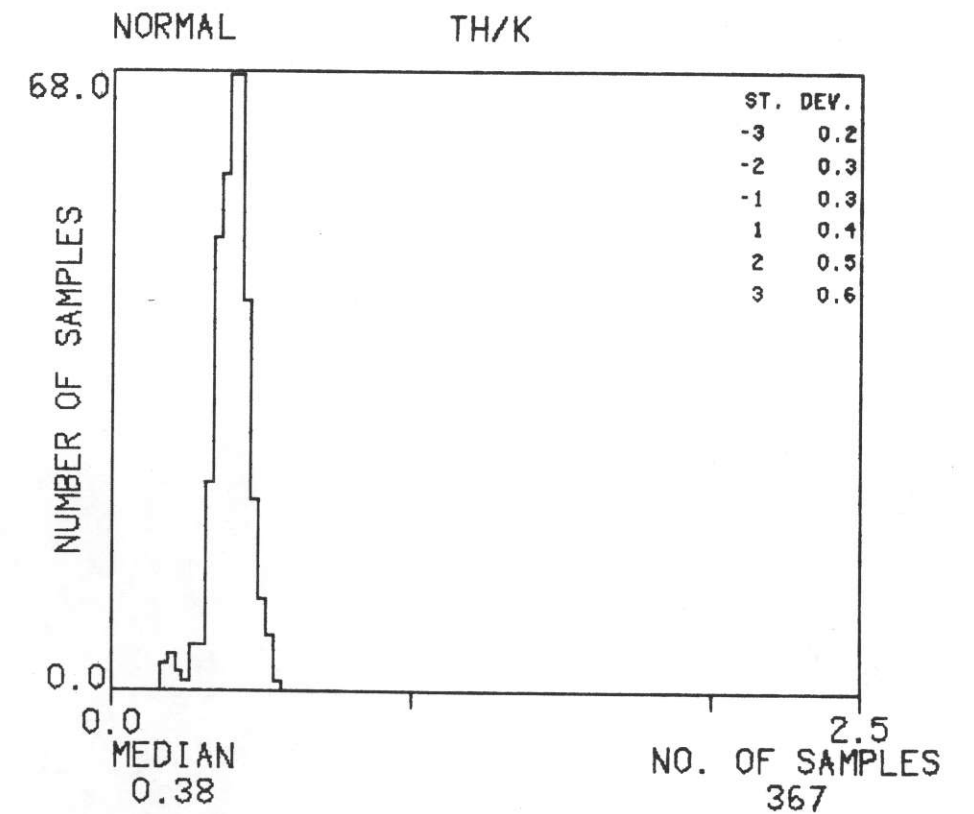
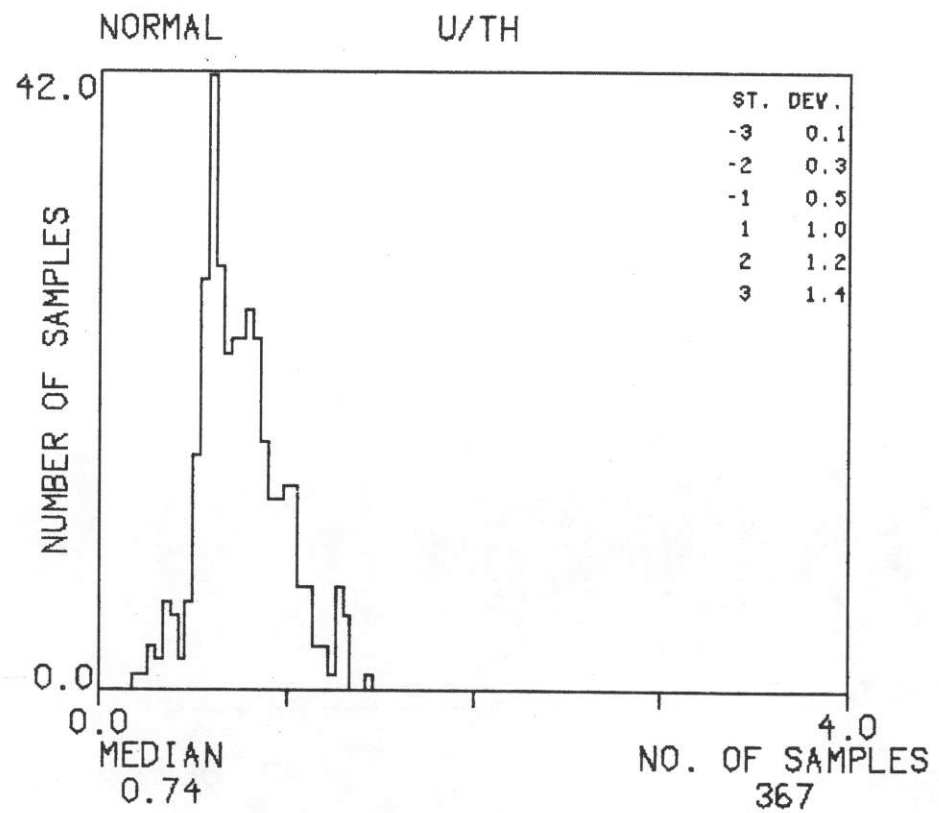
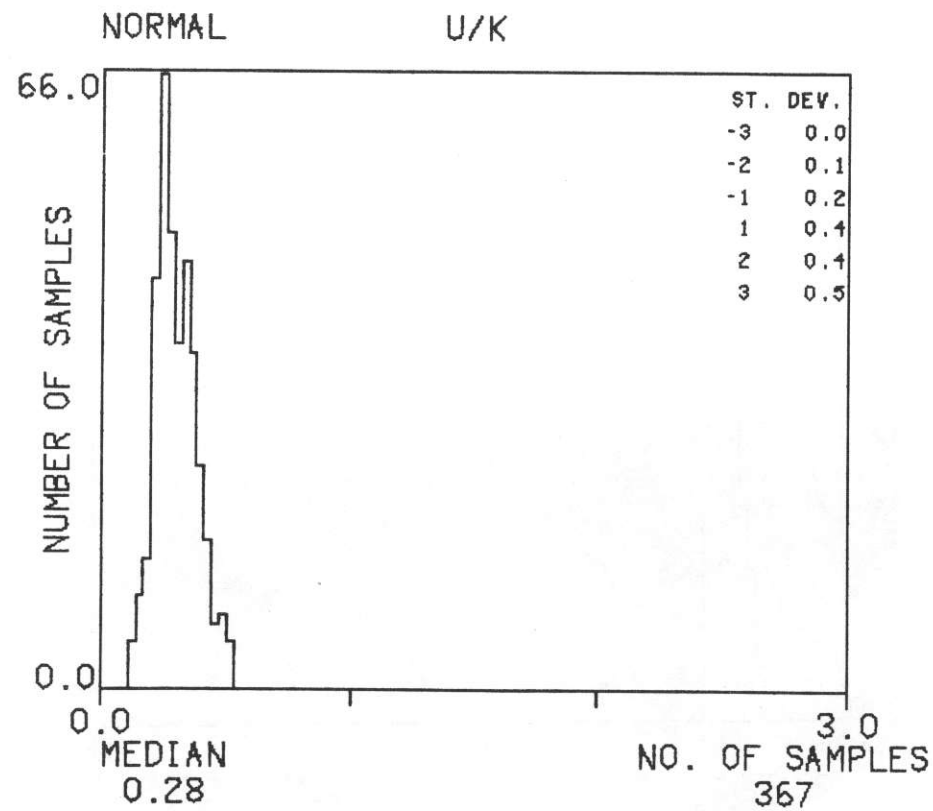
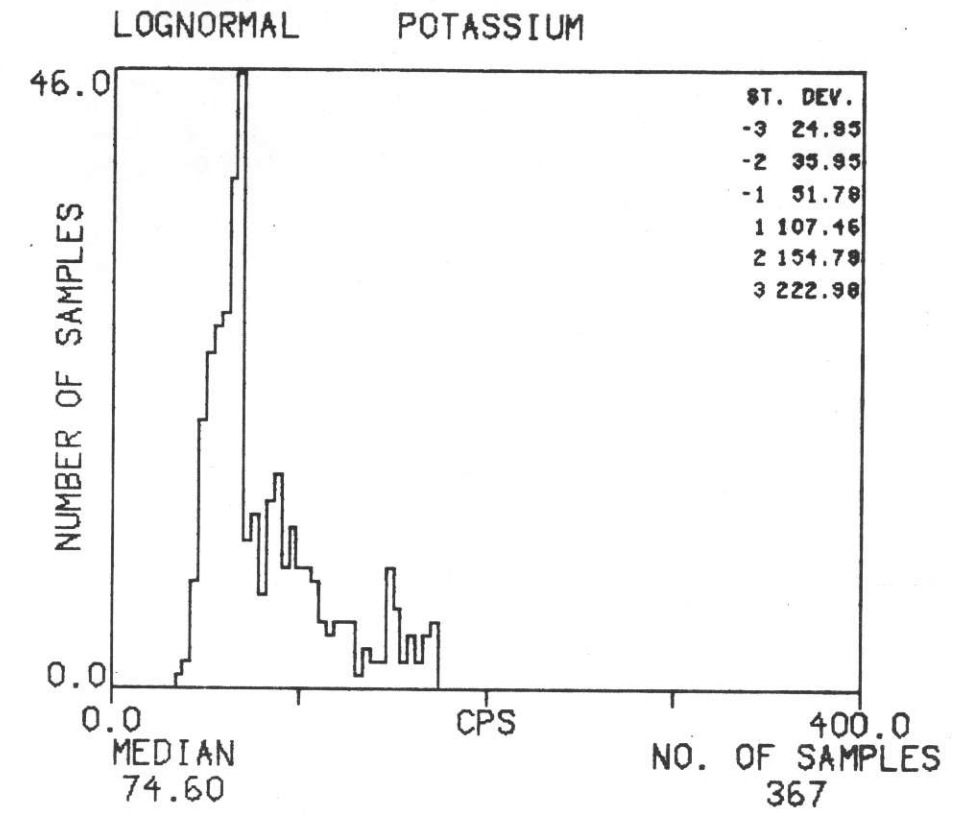
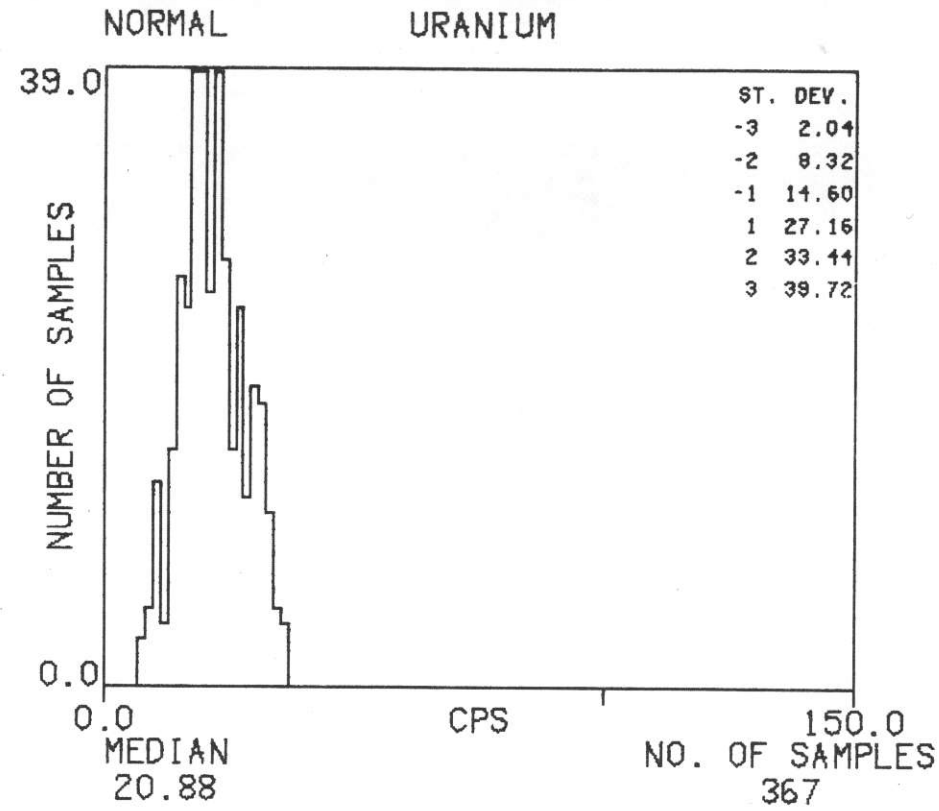
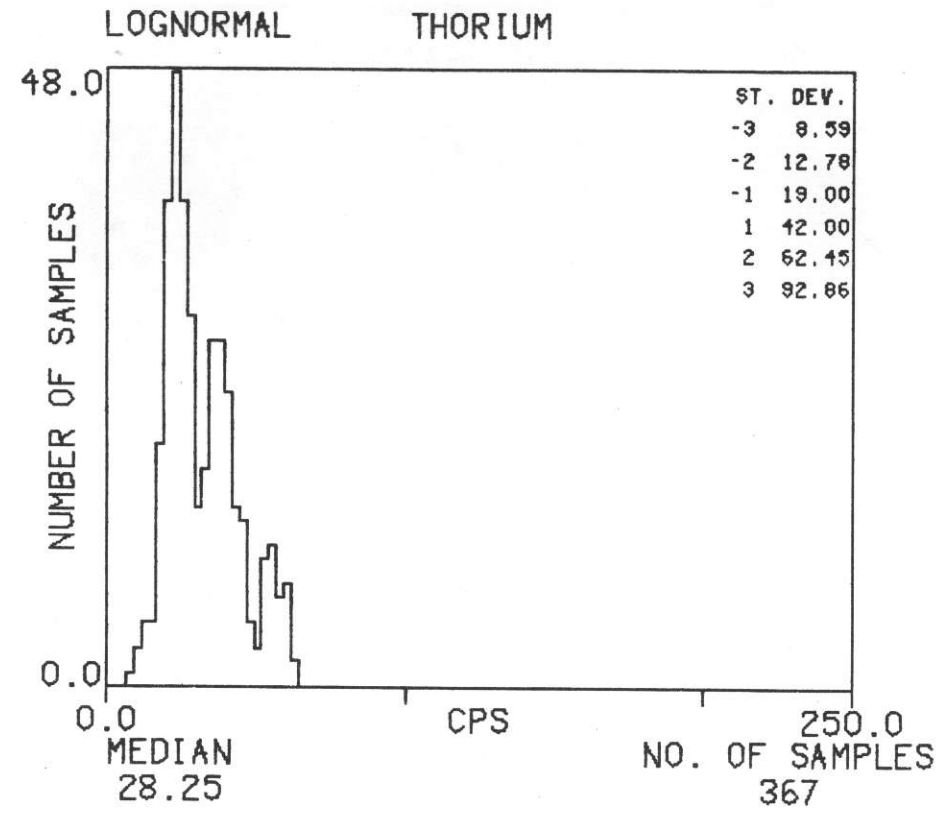
HISTOGRAMS : UM-1

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



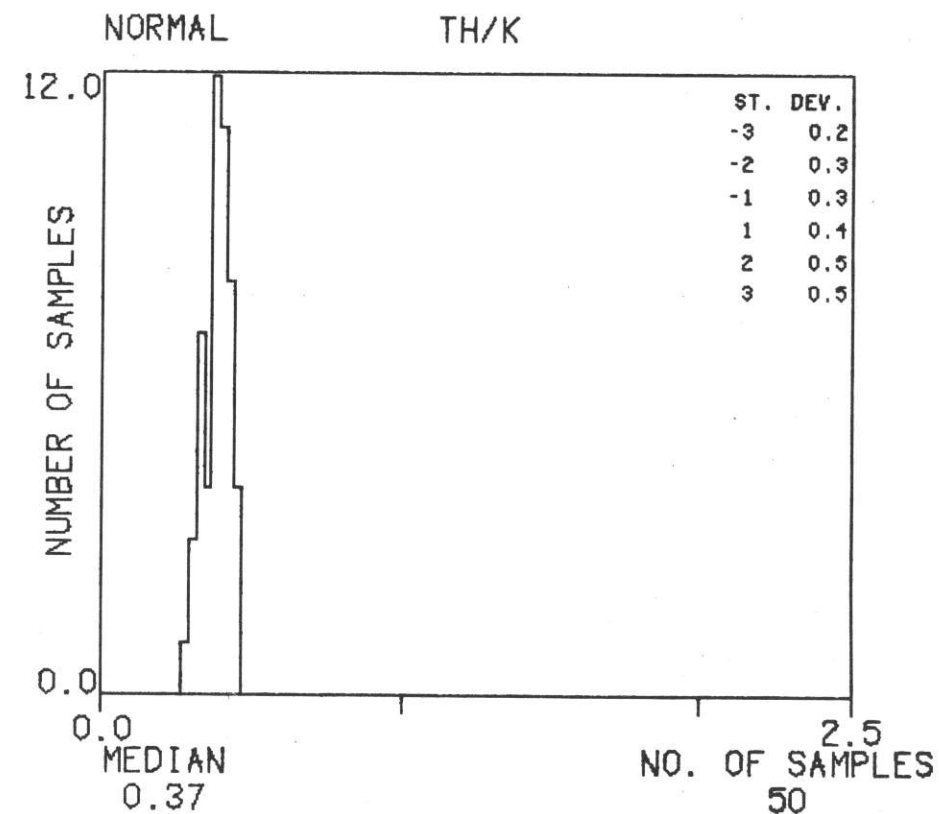
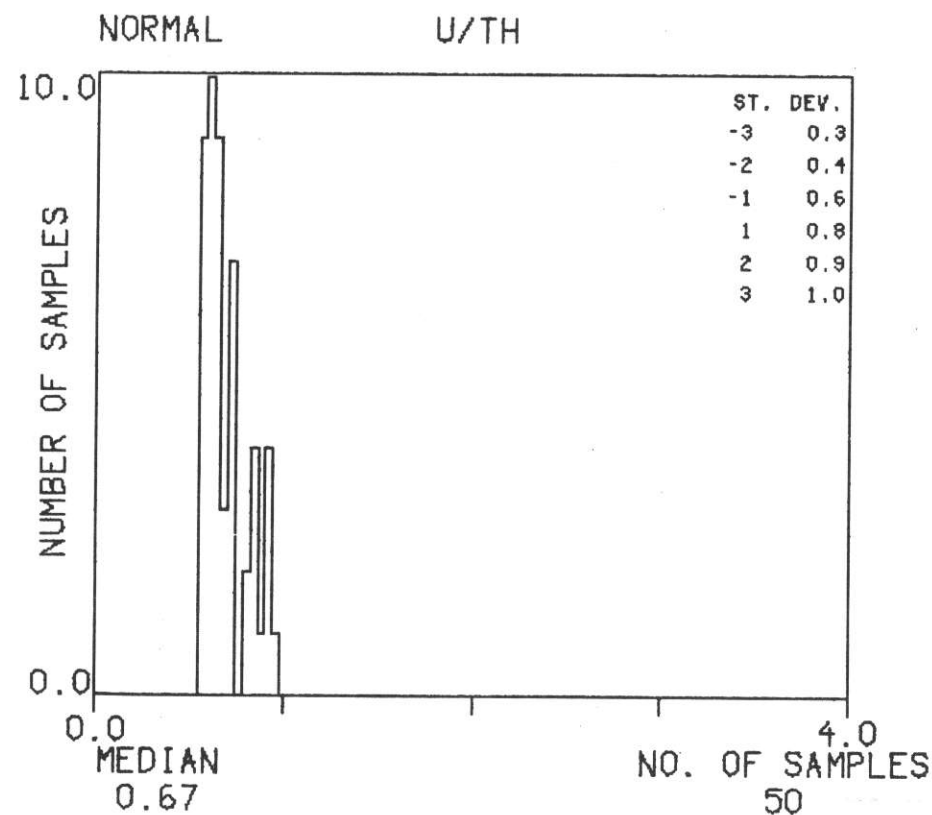
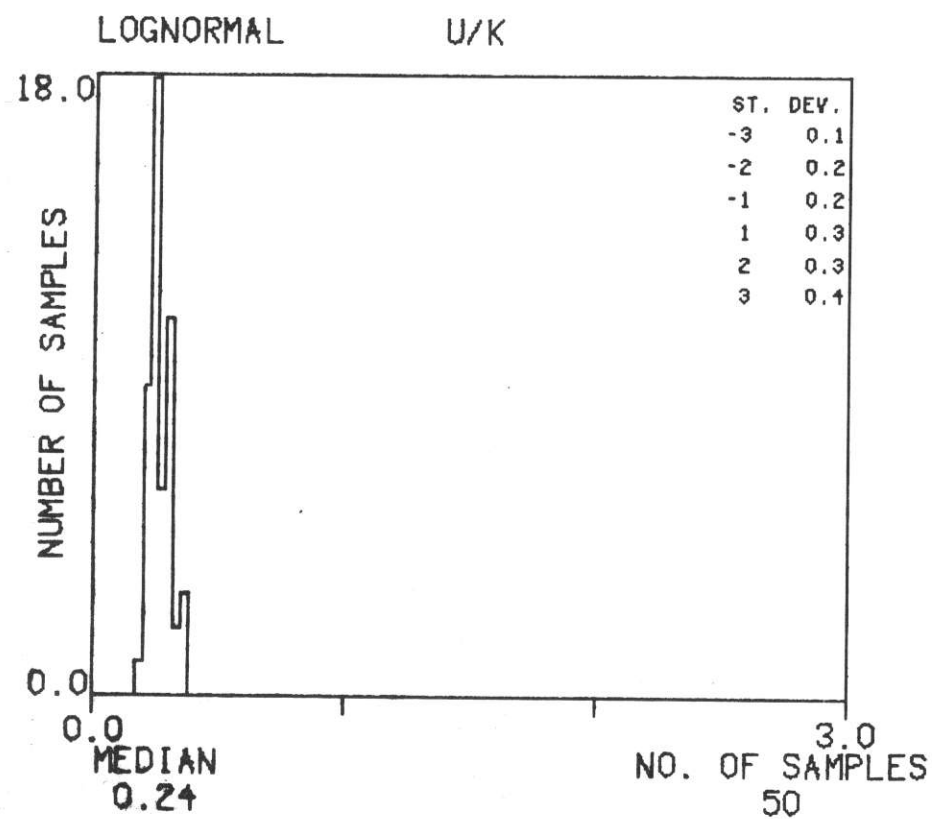
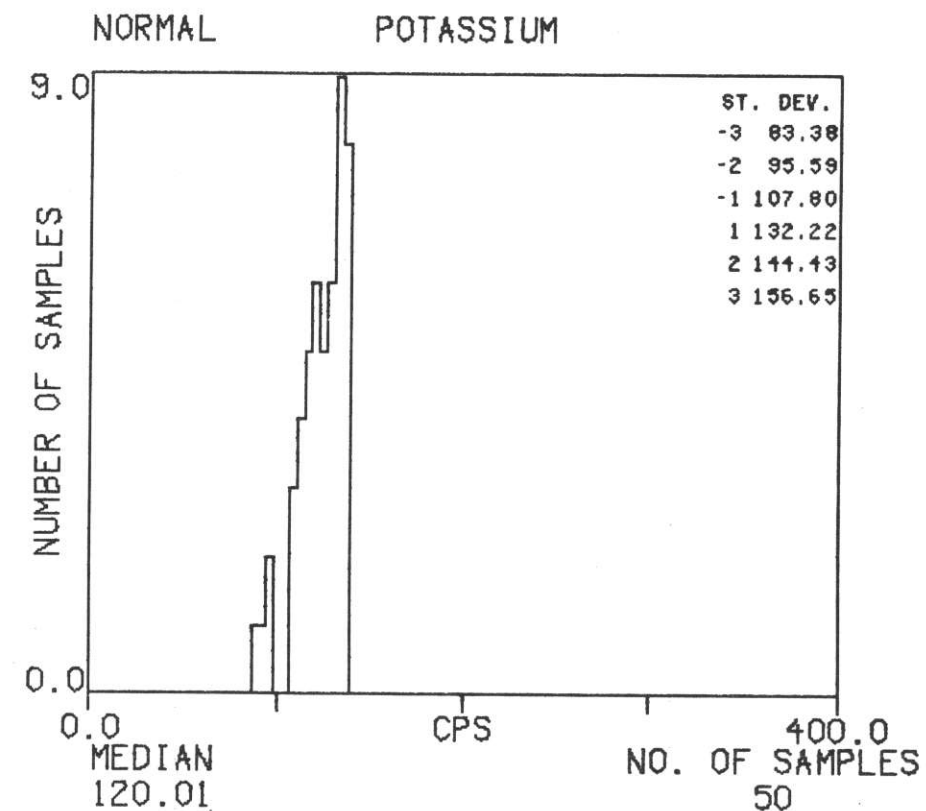
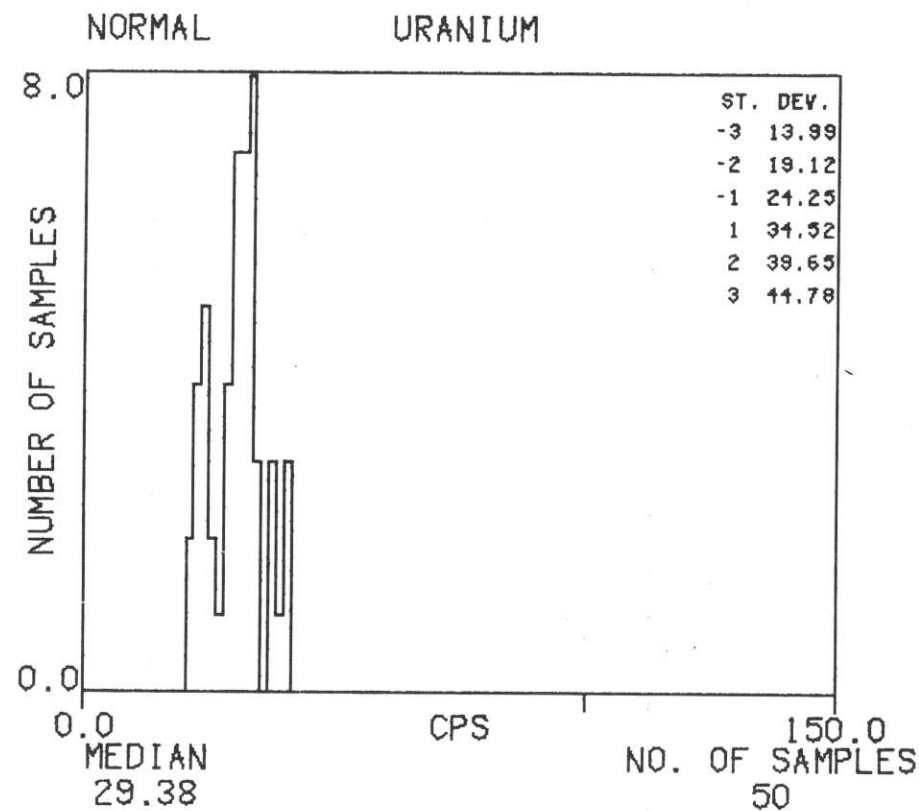
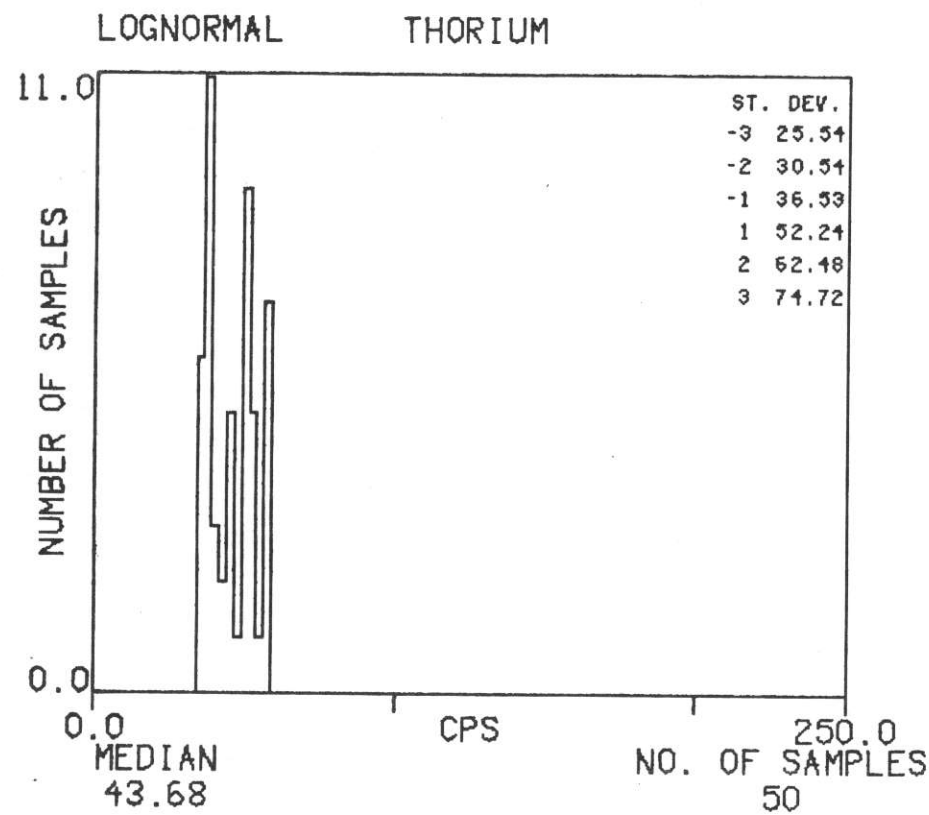
HISTOGRAMS : UM-2

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



HISTOGRAMS : PZPCG

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977



HISTOGRAMS : PZPCG'

TEXAS INSTRUMENTS INC. BIG DELTA EAGLE-DILLINGHAM 1977

