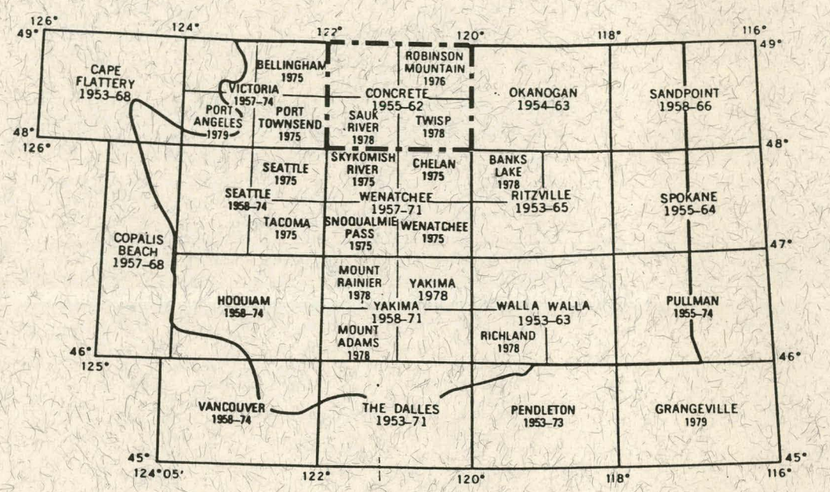
GJBX-136(81)

MASTER

Airborne Gamma-Ray Spectrometer and Magnetometer Survey

Concrete Quadrangle (Washington)

Final Report
Volume II
B



prepared by

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Prepared for the U. S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

under

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CONCRETE

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LOCATION MAP

Concrete

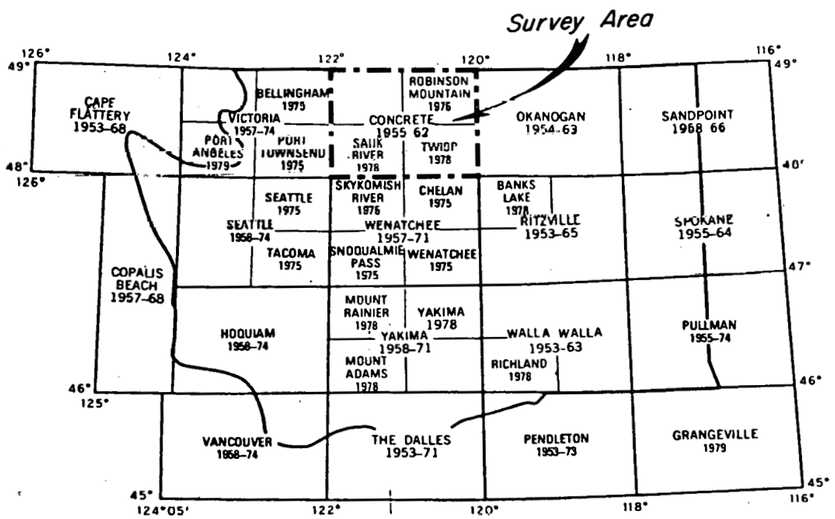


Figure 1

CONCRETE QUADRANGLE

GEOLOGY

The geologic map of the Concrete quadrangle, which provided the geologic background for the interpretation of the radiometric data, was prepared for Bendix Field Engineering Corporation by Salisbury and Dietz Inc. The explanation of the geologic legend, Appendix C, was taken from this map.

The Concrete quadrangle is in one physiographic province: the northern Cascade Mountains.

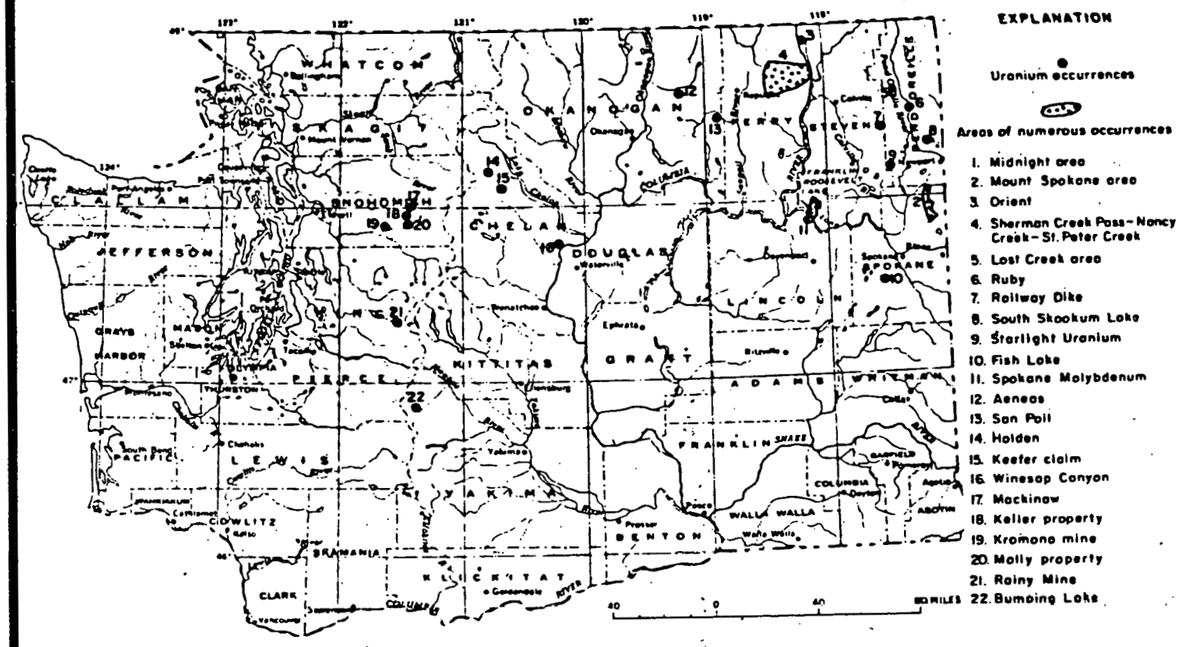
The northern Cascade Mountains consist of a core of granitic rocks and metamorphosed sedimentary and volcanic rocks. This core is flanked to the east and west by less metamorphosed rocks and by late Paleozoic, Mesozoic, and Tertiary sedimentary and volcanic rocks. Superimposed on the preexisting topography are recent volcanic rocks, which have come from volcanic vents such as Mount St. Helens, Mount Adams, Mount Rainier, Glacier Peak, and Mount Baker. There has been extensive glaciation and the present landforms are largely the result of the glaciation.

Intrusive rocks crop out in the Cascade Range and include Tertiary granitic rocks. Metamorphosed sedimentary and volcanic rocks occur throughout the quadrangle.

RADIOACTIVE MINERAL OCCURRENCES IN WASHINGTON

Huntting, 1956; and Weissenborn, 1966 documented the radioactive occurrences in Washington (Figure 2). They recorded two in the Concrete quadrangle: Holden and the Keefer claim. (Figure 2).

The following types of radioactive occurrence have been found in Washington (Huntting, 1956; Weissenborn, 1966):



Radioactive Occurrences in Washington

Figure 2

1) Secondary uranium minerals along the contact between Precambrian metamorphosed sedimentary rocks and porphyritic quartz-monzonite of Cretaceous age - Midnite mine, Stevens County.

2) Autunite filling fractures and open spaces in pegmatitic alaskite - Mount Spokane area, Spokane County; Lost Creek area, Pend Oreille County.

3) Secondary uranium minerals in interbedded tuffaceous sandstone, arkose, and carbonaceous shale - Midnite mine area, Stevens County.

4) Radioactivity in pegmatitic lenses in gneiss.

5) Strong radioactivity in soil and gravel around a radioactive spring - Bumping Lake, Yakima County.

The major uranium production from Washington state has been from the Midnite mine, Stevens County; and the Daybreak mine, Spokane County. Minor production has been reported from several other properties in the state (Weissenborn, 1966).

GEOPHYSICAL DATA INTERPRETATION

Radiometric Data

A total of twenty-five (25) uranium anomalies meet the minimum statistical requirements as defined in Volume I. These anomalies are listed in Table 1 and are shown on the Uranium Anomaly Interpretation Map, Figure 3.

Potassium (%K), equivalent Uranium (ppm eU), equivalent Thorium (ppm eT), eU/eT, eU/K, eT/K, and magnetic pseudo-contour maps are presented in Appendix E. Stacked Profiles showing geologic

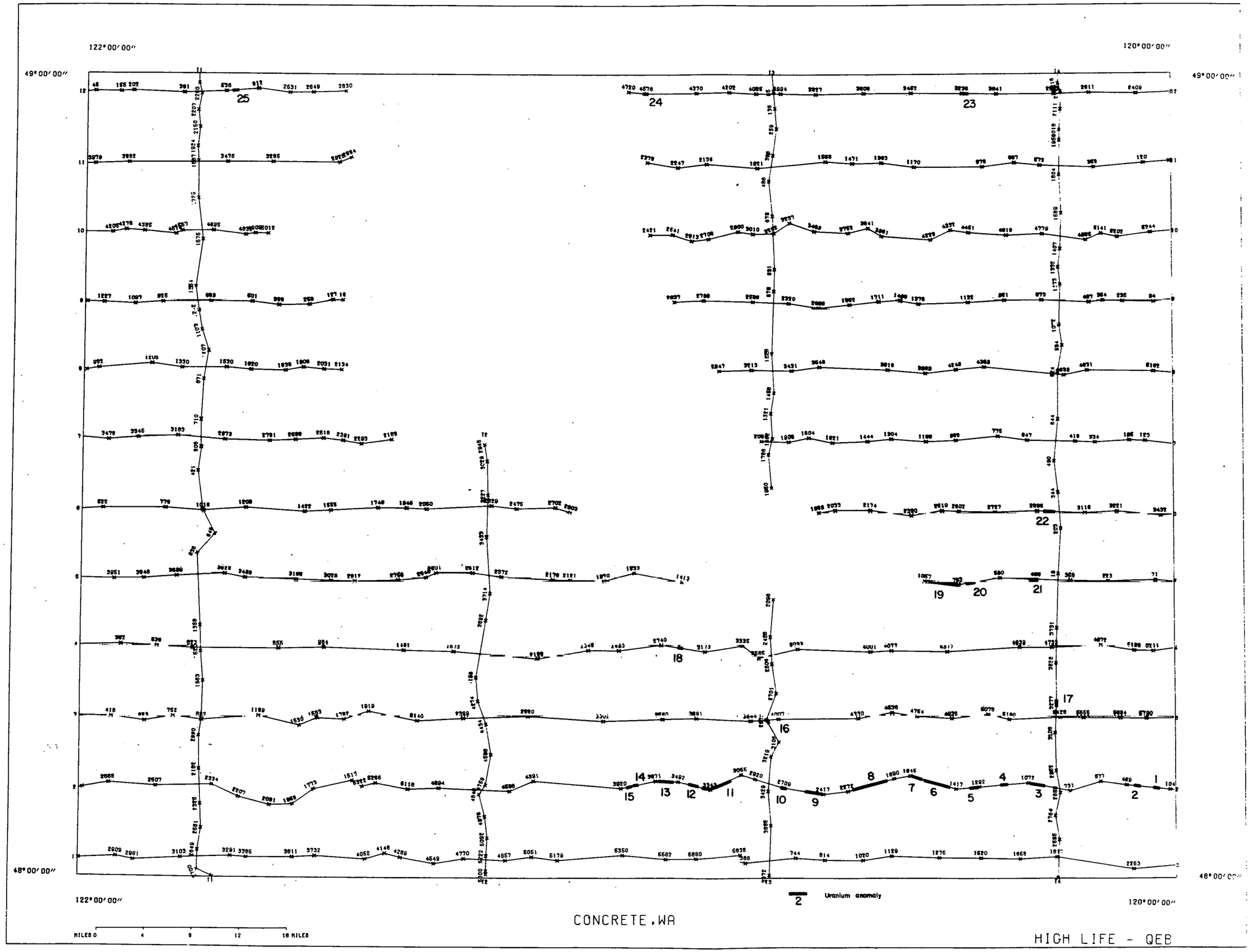

122°00′00″
120°00′00″
49°00′00″
48°00′00″
Uranium anomaly
CONCRETE, WA
HIGH LIFE - QEB
MILES 0 4 8 12 16 MILES

Figure 3

strips maps along each flight-line, together with sensor data, and ancillary data are presented in Appendix F. All maps and profiles were prepared on a scale of 1:250,000, but have been reduced to 1:500,000 for presentation in Volume II.

Geologic unit designations given in Table 1 are those given on the Geology Map, Appendix B, and in the Explanation of the Geologic Legend, Appendix C.

TABLE 1 - URANIUM ANOMALIES IN THE CONCRETE QUADRANGLE

ANOMALY #	LINE #	GEOLOGIC UNIT	TYPE	STANDARD DEVIATIONS FROM MEAN * URANIUM									
				-2	-1	0	1	2	3	4	5	6	7
1	2	pTgn	U	-	-	-	1	3	-	-	-	-	-
2	2	pTgn	U	-	-	-	5	1	-	-	-	-	-
3	2	Tgd	U	-	-	-	13	2	-	-	-	-	-
4	2	Tgd/Mzg	U	-	-	-	2	1	1	1	-	-	-
5	2	Tgd	U	-	-	-	1	4	-	-	-	-	-
6	2	Mzg	U	-	-	-	3	7	5	3	1	-	-
7	2	Mzg	U	-	-	-	-	3	3	-	1	-	-
8	2	pTsc/pTg/ pTqd	U	-	-	-	11	12	11	1	-	-	-
9	2	pTsc	U	-	-	-	10	5	1	1	-	-	-
10	2	Qu	U	-	-	-	4	2	-	-	-	-	-
11	2	pTgn/pTsc/ pTqd/Td	u	-	-	-	21	6	1	-	-	-	-
12	2	Qu	U	-	-	-	5	1	-	-	-	-	-
13	2	pTsc	U	-	-	-	13	2	-	-	-	-	-
14	2	pTg	U	-	-	-	3	-	1	-	-	-	-
15	2	pTg/Qu	U	-	-	-	1	1	1	-	-	-	-
16	TL3	Qu	U	-	-	-	6	1	-	-	-	-	-
17	TL4	KJn	U	-	-	-	-	2	1	-	-	-	-
18	4	Tcp/pTqd	U	-	-	-	1	2	1	-	-	-	-
19	5	Kqd/Mzg	U	-	-	-	23	7	-	-	-	-	-
20	5	Kvr	U	-	-	-	3	1	1	-	-	-	-

21	5	Kw	U	-	-	-	3	1	-	-	-	-	-
22	6	Kjnt	U	-	-	-	5	1	-	-	-	-	-
23	12	pTgd	U	-	-	-	2	1	-	-	-	-	-
24	12	Kl	U	-	-	-	1	-	1	-	-	-	-
25	12	Pmc	U	-	-	-	3	-	2	-	-	-	-

Anomalies #1 and #2 are over an area underlain by pre-Tertiary gneiss (pTgn).

Anomaly #3 is over an area underlain by Tertiary granodiorite (Tgd).

Anomaly #4 is over the contact area between Mesozoic granite (Mzg) and Tertiary granodiorite (Tgd).

Anomaly #5 is over an area underlain by Tertiary granodiorite (Tgd).

Anomalies #6 and #7 are over areas underlain by Mesozoic granite (Mzg).

Anomaly #8 is over an area underlain by pre-Tertiary schists (pTsc), granite (pTg), and quartz diorite (ptqd).

Anomaly #9 is over an area underlain by pre-Tertiary schists (pTsc).

Anomalies #10, #12, and #16 are over areas underlain by undifferentiated Recent alluvium (Qu).

Anomaly #11 is over an area underlain by pre-Tertiary gneiss (pTgn) and schist (pTsc), pre-Tertiary quartz diorite (pTqd), and Tertiary granite (Tg).

Anomaly #14 is over an area underlain by pre-Tertiary granite (pTg).

Anomaly #15 is over an area underlain by pre-Tertiary granite (pTg) and Recent undifferentiated alluvium (Qu).

Anomaly #17 is over an area underlain by rocks of the Newby Group, volcanic flows and sedimentary sandstones and black shales, of Jurassic to Cretaceous age (KJn).

Anomaly #18 is over an area underlain by pre-Tertiary quartz diorite (pTqd) and the Cloudy Pass pluton, predominantly granodiroite, of Tertiary age (Tcp).

Anomaly #19 is over an area underlain by Cretaceous quartz diorite (Kqd) and Mesozoic granite (Mzg).

Anomaly #20 is over an area underlain by the Virginia Ridge Formation, black shale, sandstone, and conglomerate, of Cretaceous age (Kvr).

Anomaly #21 is over an area underlain by the Winthrop Sandstone of Cretaceous age (Kw).

Anomaly #22 is over an area underlain by the Twisp Formation, black shale and volcanic lithic sandstone, of Jurassic to Cretaceous age (KJnt).

Anomaly #23 is over an area underlain by pre-Tertiary granodiorite (pTqd).

Anomaly #24 is over an area underlain by sedimentary rocks of lower Cretaceous age (Kl).

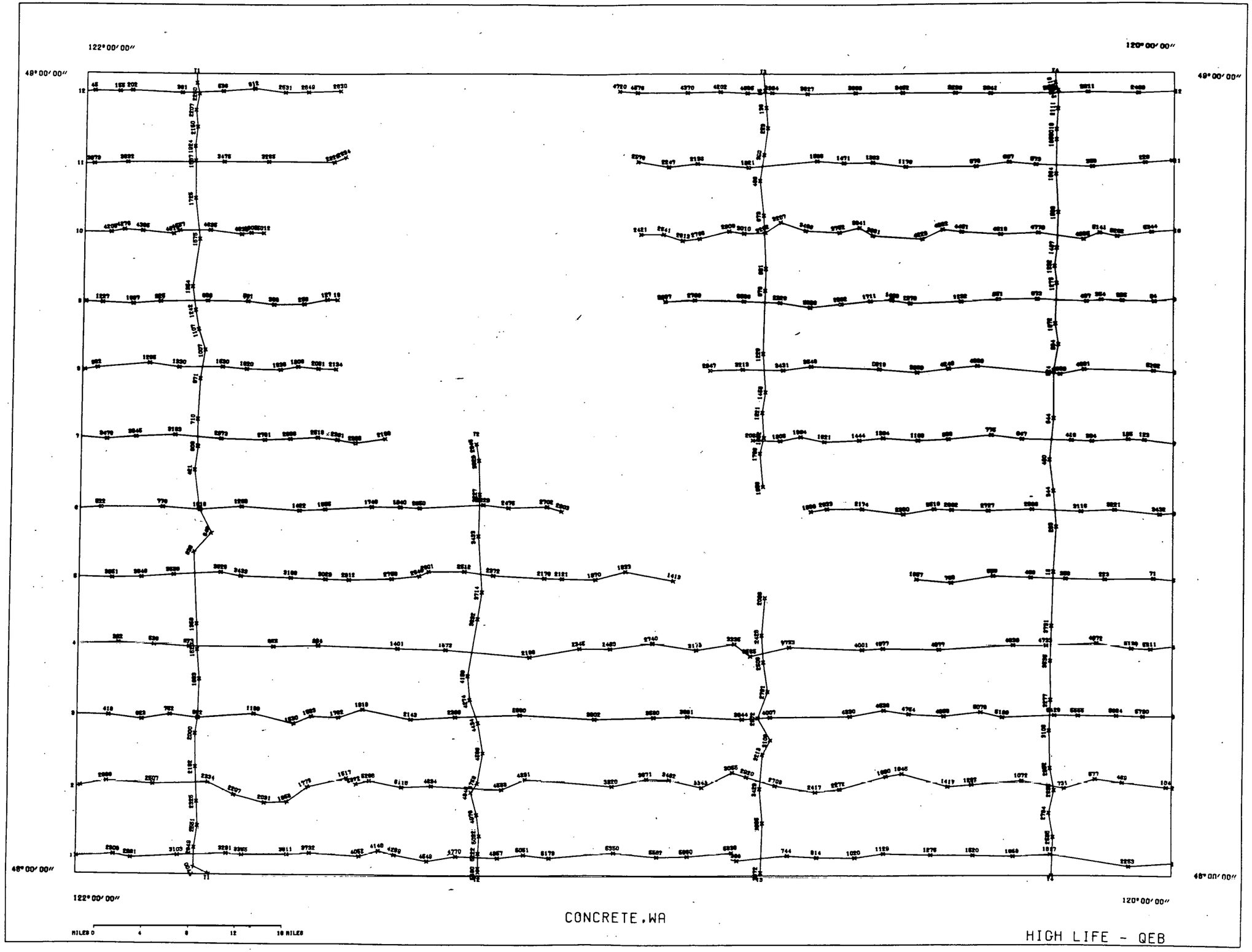
Anomaly #25 is over an area underlain by Carboniferous to Permian sedimentary rocks (Pmc).

REFERENCES

Huntting, M.T., (1956); Inventory of Washington Minerals, Part II: Metallic Minerals. Bulletin 37, Department of Natural Resources, State of Washington.

Weissenborn, A.E., (1966); Uranium IN Mineral and Water Resources of Washington. Prepared by the United States Geological Survey.

APPENDIX A - FLIGHT LINE MAP


122°00′00″
120°00′00″
49°00′00″
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CONCRETE, WA
MILES 0 4 8 12 16 MILES
HIGH LIFE - QEB

APPENDIX B - GEOLOGY MAP

CONCRETE, WASH., U.S.; B.C., CANADA

Compiled 1980

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

GEOLOGY OF THE CONCRETE QUADRANGLE

APPENDIX C - EXPLANATION OF GEOLOGIC LEGEND

KJr | Knbm | KJnt

KJn - Newby Group, undivided; volcanic flows, breccia, conglomerate, lithic sandstone and black shale

Knbm - Buck Mountain Formation; lithic sandstone, siltstone, black shale, conglomerate and basal metaandesite breccia flows and tuff

Unconformity

KJnt - Twisp Formation; black shale, and volcanic lithic sandstone

KJs

KJs - Lower Cretaceous - Upper Jurassic sedimentary and volcanic rocks; graywacke, argillite, and siltstone. Locally limestone, and basalt flows

pJs

pJs - Pre-Middle Jurassic sedimentary and volcanic rocks; graywacke, argillite, slate, and minor siltstone, arkose and conglomerate

JTR

JTR - Jurassic-Triassic marine rocks; includes conglomerate, siltstone, graywacke, and carbonaceous argillite

P

P - Permian rocks, undivided; sandstone, argillite, graywacke, quartzite, chert, greenstone, and limestone

PC | PCs

PC - Permian-Carboniferous sedimentary rocks, undivided; predominantly argillite, siltstone, and graywacke

PCs - Graywacke, argillite, slate, and minor volcanic rocks

Jv

Jv - Middle-Jurassic volcanic rocks; andesite, dacite, and minor basalt with interbedded slate and graywacke

PCv

PCv - Permian and Carboniferous volcanic rocks; predominantly andesite, basalt and diabase with interbedded chert

Mzg

Mzg - Mesozoic intrusive rocks, undivided; massive to gneissic granite, quartz monzonite, quartz diorite and trondhjemite

pKcg

pKcg - Custer Gneiss; biotite and hornblende gneisses and schists, amphibolite gneiss, calc-silicate rocks and quartz diorite

TRPs

TRPs - Shuksan Metamorphic suite; predominantly greenschist with phyllite, blueschist and graphite schist. Includes Darrington phyllite

pCg | pCm

pCg - Pre-Carboniferous intrusive rocks; meta-quartz diorite, and hypersthene diorite with amphibolite and gneiss locally

pCm - Pre-Carboniferous metahornblendite, amphibolite, gneiss, quartz diorite and trondhjemite

Jurassic

Triassic

Permian

Carboniferous

Contact

Dashed where approximately located

Anticline

Syncline

Folds

Arrowhead on axis shows direction of local plunge, dashed where approximately located; dotted where concealed

U

D

Fault

Dashed where approximately located, dotted where concealed or inferred. Parallel arrows show direction of strike slip, U on upthrown side, D on downthrown side

Thrust Fault

Sawteeth on upper plate

Shear Zone

KJn | Knbm / KJnt

KJn - Newby Group, undivided; volcanic flows, breccia, conglomerate, lithic sandstone and black shale

Knbm - Buck Mountain Formation; lithic sandstone, siltstone, black shale, conglomerate and basal metaandesite breccia flows and tuff

Unconformity

KJnt - Twisp Formation; black shale, and volcanic lithic sandstone

KJs

KJs - Lower Cretaceous - Upper Jurassic sedimentary and volcanic rocks; graywacke, argillite, and siltstone Locally limestone, and basalt flows

pJs

pJs - Pre-Middle Jurassic sedimentary and volcanic rocks; graywacke, argillite, slate, and minor siltstone, arkose and conglomerate

JTR

JTR - Jurassic - Triassic marine rocks; includes conglomerate, siltstone, graywacke, and carbonaceous argillite

PM

PM - Permian rocks, undivided; sandstone, argillite, graywacke, quartzite, chert, greenstone, and limestone

PMC / PMCs

PMC - Permian - Carboniferous sedimentary rocks, undivided; predominantly argillite, siltstone, and graywacke

PMCs - Graywacke, argillite, slate, and minor volcanic rocks

Jv

Jv - Middle - Jurassic volcanic rocks; andesite, dacite, and minor basalt with interbedded slate and graywacke

PMCv

PMCv - Permian and Carboniferous volcanic rocks; predominantly andesite, basalt and diabase with interbedded chert

Mzg

Mzg - Mesozoic intrusive rocks, undivided; massive to gneissic granite, quartz monzonite, quartz diorite and trondhjemite

pKcg

pKcg - Custer Gneiss; biotite and hornblende gneisses and schists, amphibolite gneiss, calc-silicate rocks and quartz diorite

TRPs

TRPs - Shuksan Metamorphic suite; predominantly greenschist with phyllite, blueschist and graphite schist. Includes Darrington phyllite

pCg / pCm

pCg - Pre-Carboniferous intrusive rocks; meta-quartz diorite, and hypersthene diorite with amphibolite and gneiss locally

pCm - Pre-Carboniferous metahornblendite, amphibolite, gneiss, quartz diorite and trondhjemite

Jurassic

Triassic

Permian

Carboniferous

Contact

Dashed where approximately located

Anticline — Syncline

Folds

Arrowhead on axis shows direction of local plunge, dashed where approximately located, dotted where concealed

U D

Fault

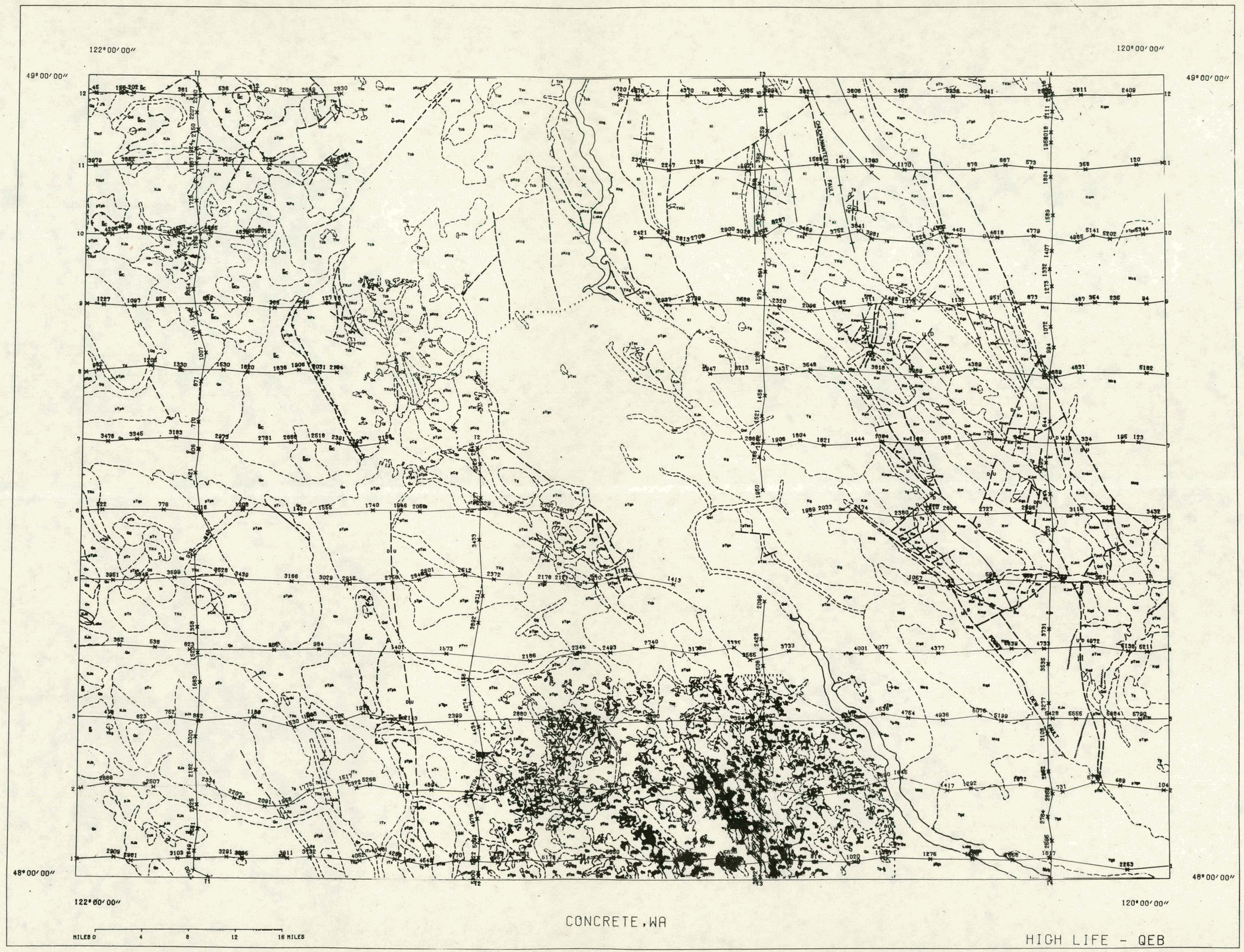
Dashed where approximately located, dotted where concealed or inferred. Parallel arrows show direction of strike slip, U on upthrown side, D on downthrown side

Thrust Fault

Sawteeth on upper plate

Shear Zone

APPENDIX D - FLIGHT LINE/GEOLOGY MAP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49°00′00″
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CONCRETE, WA
MILES 0 4 8 12 16 MILES
HIGH LIFE - QEB

APPENDIX E - PSEUDO-CONTOUR MAPS

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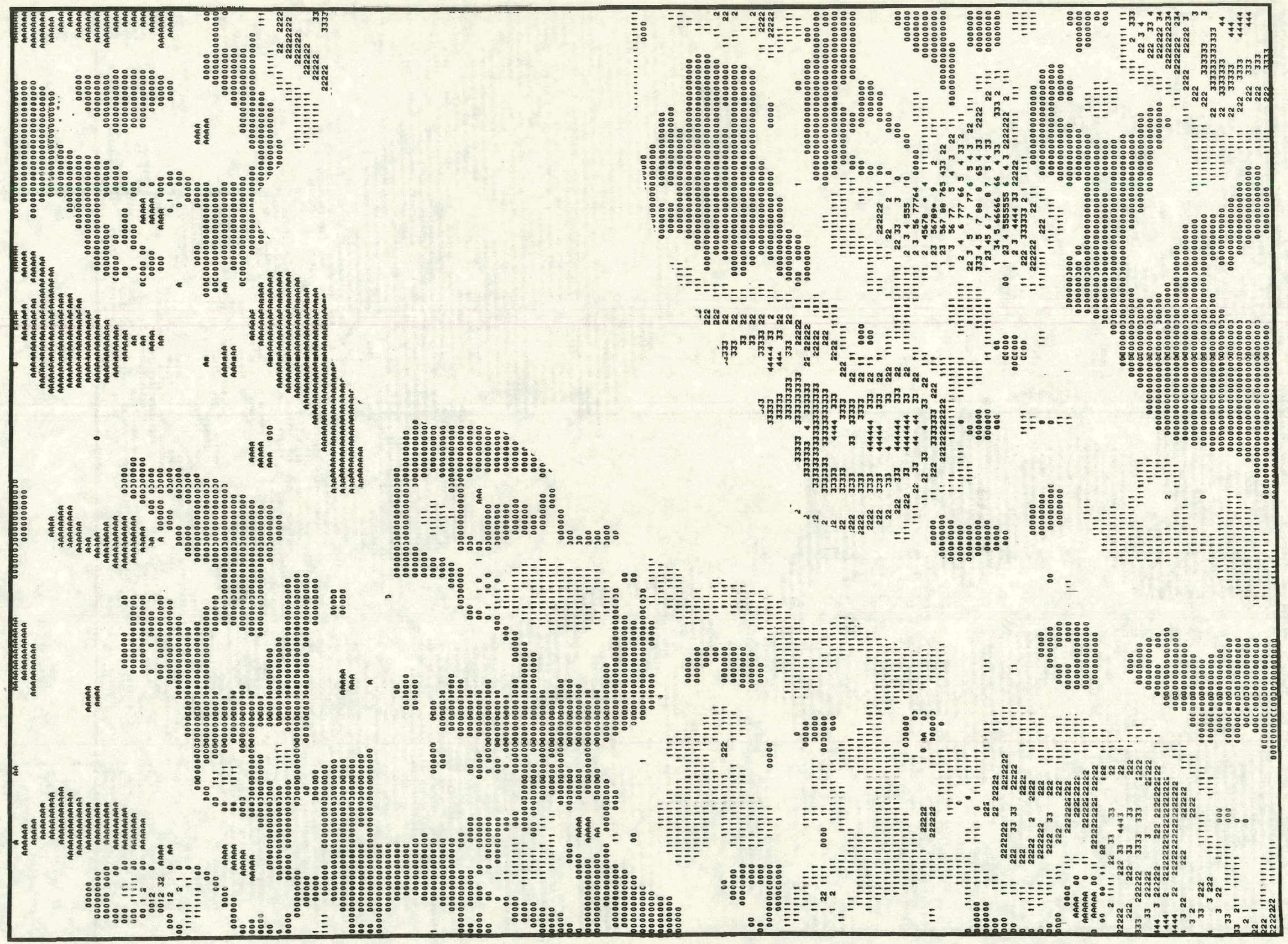

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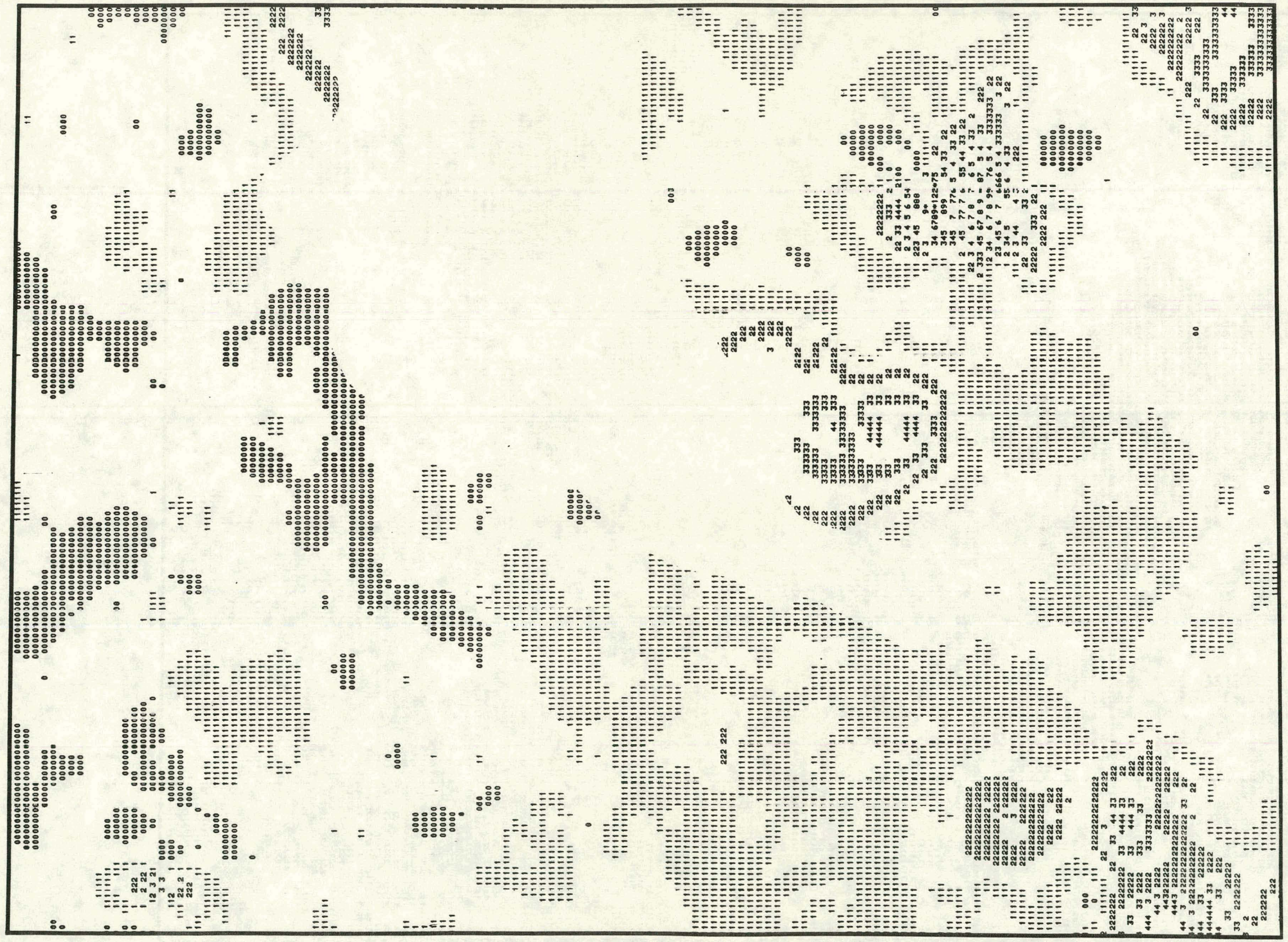
CONCRETE

CONCRETE



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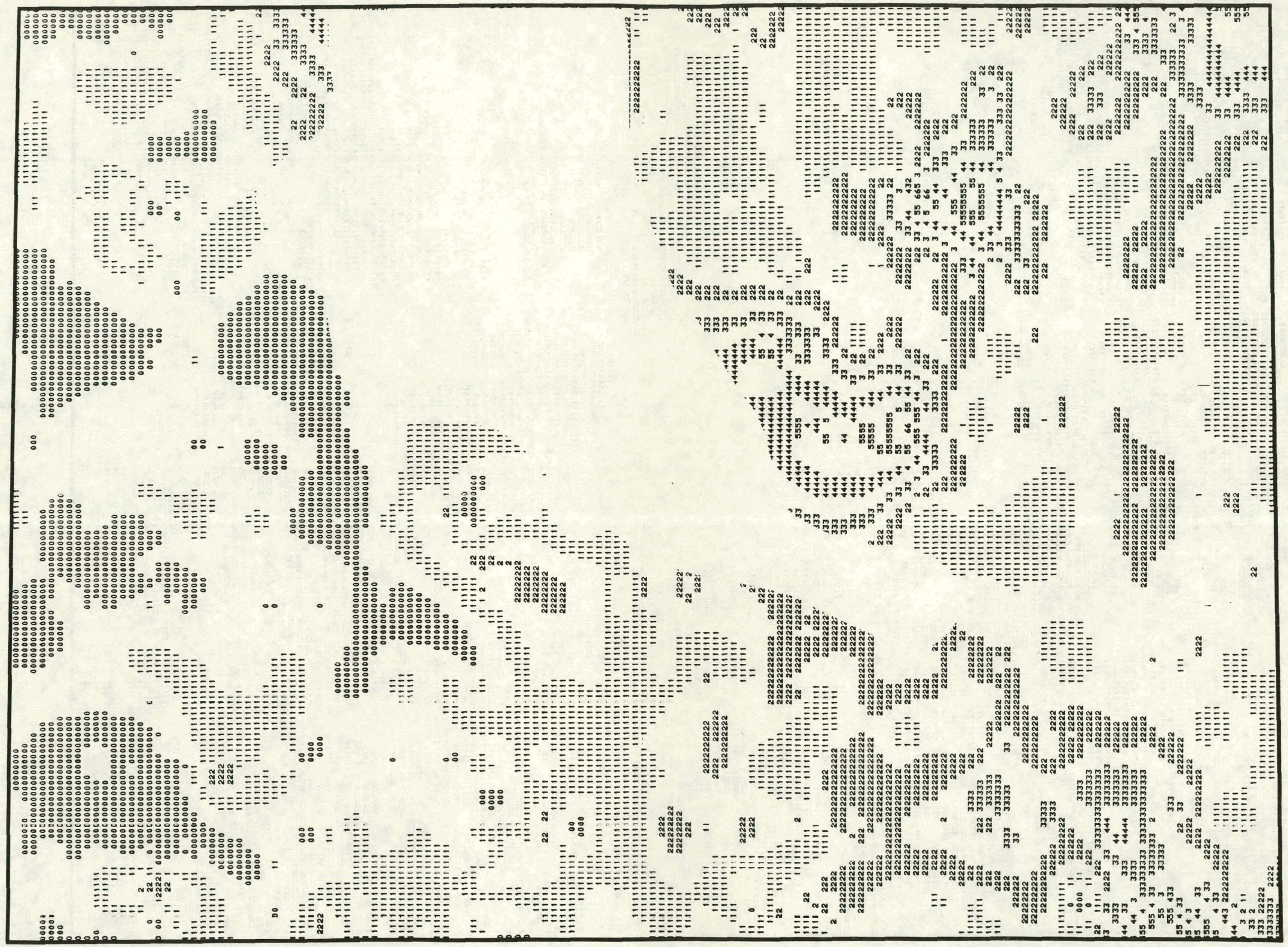

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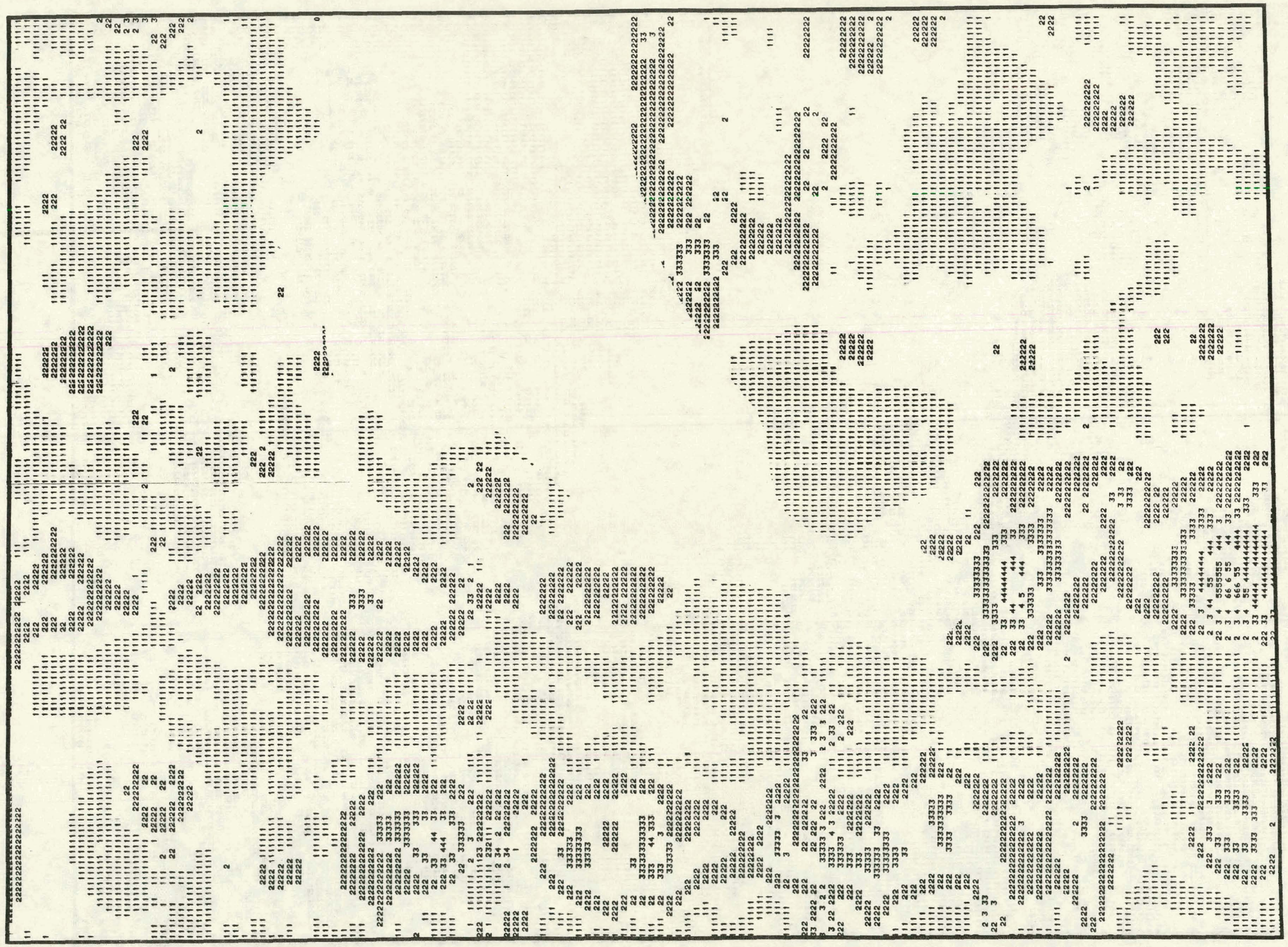

eU/eTH

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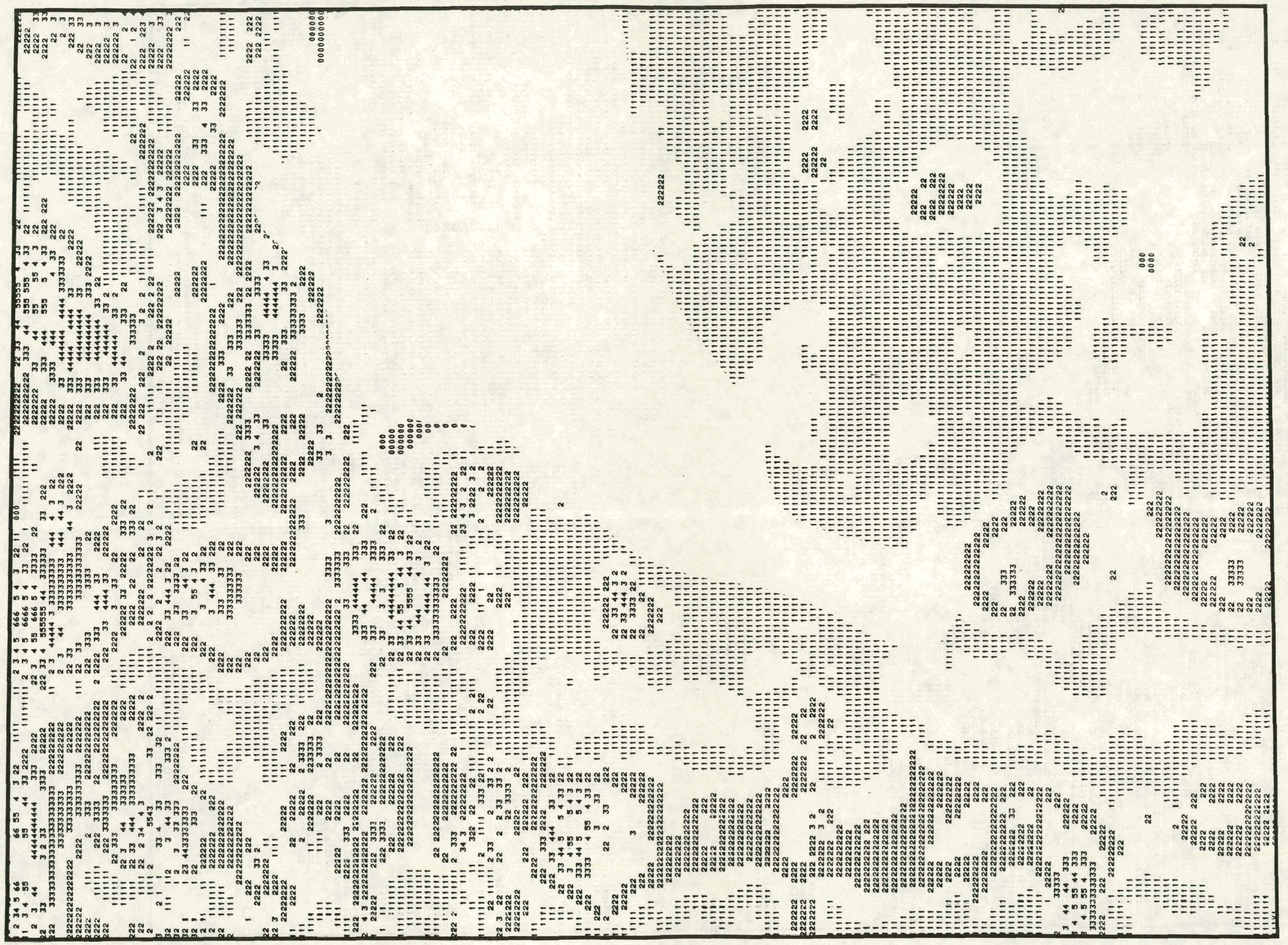

eU/K_{40}

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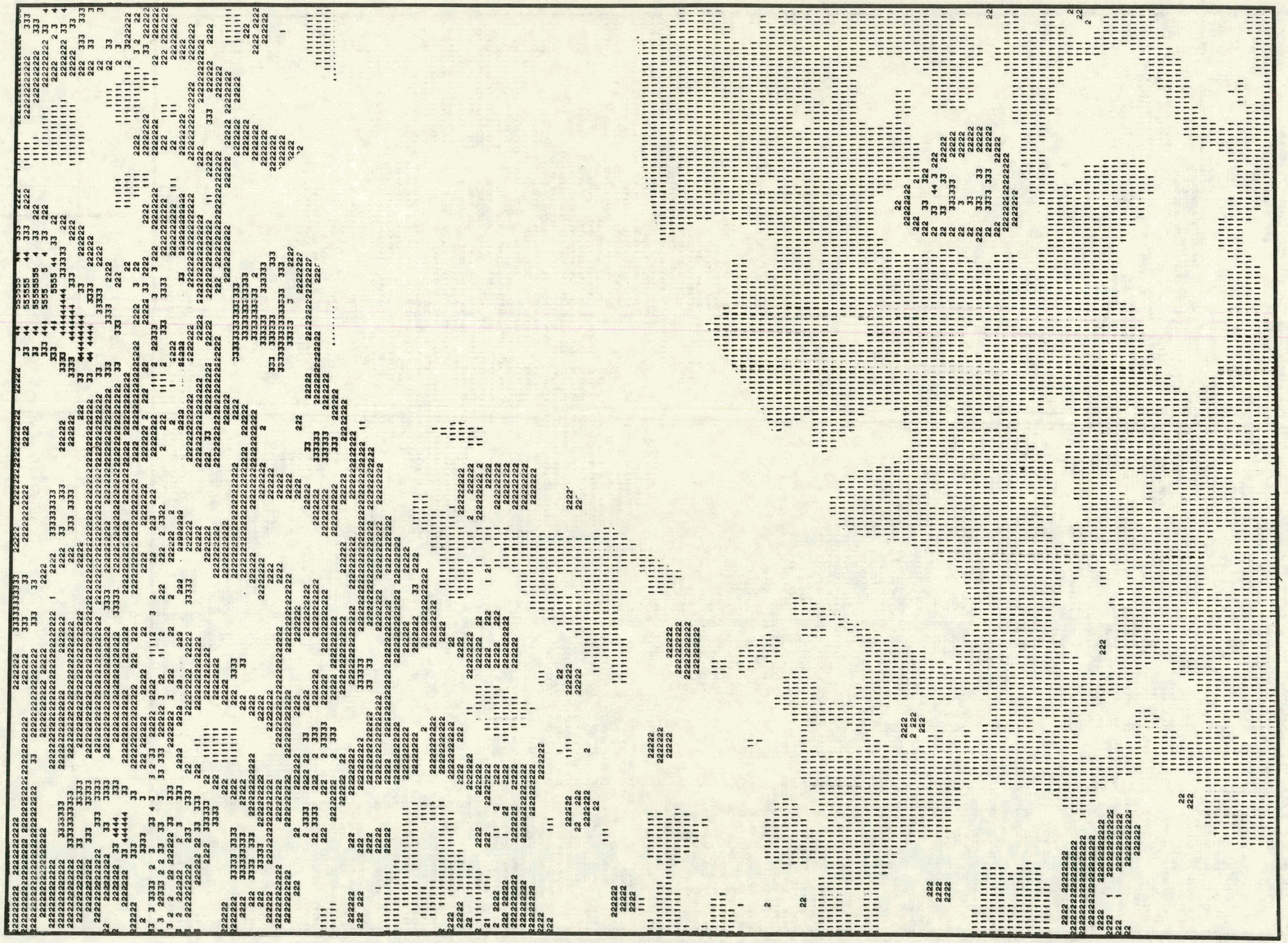

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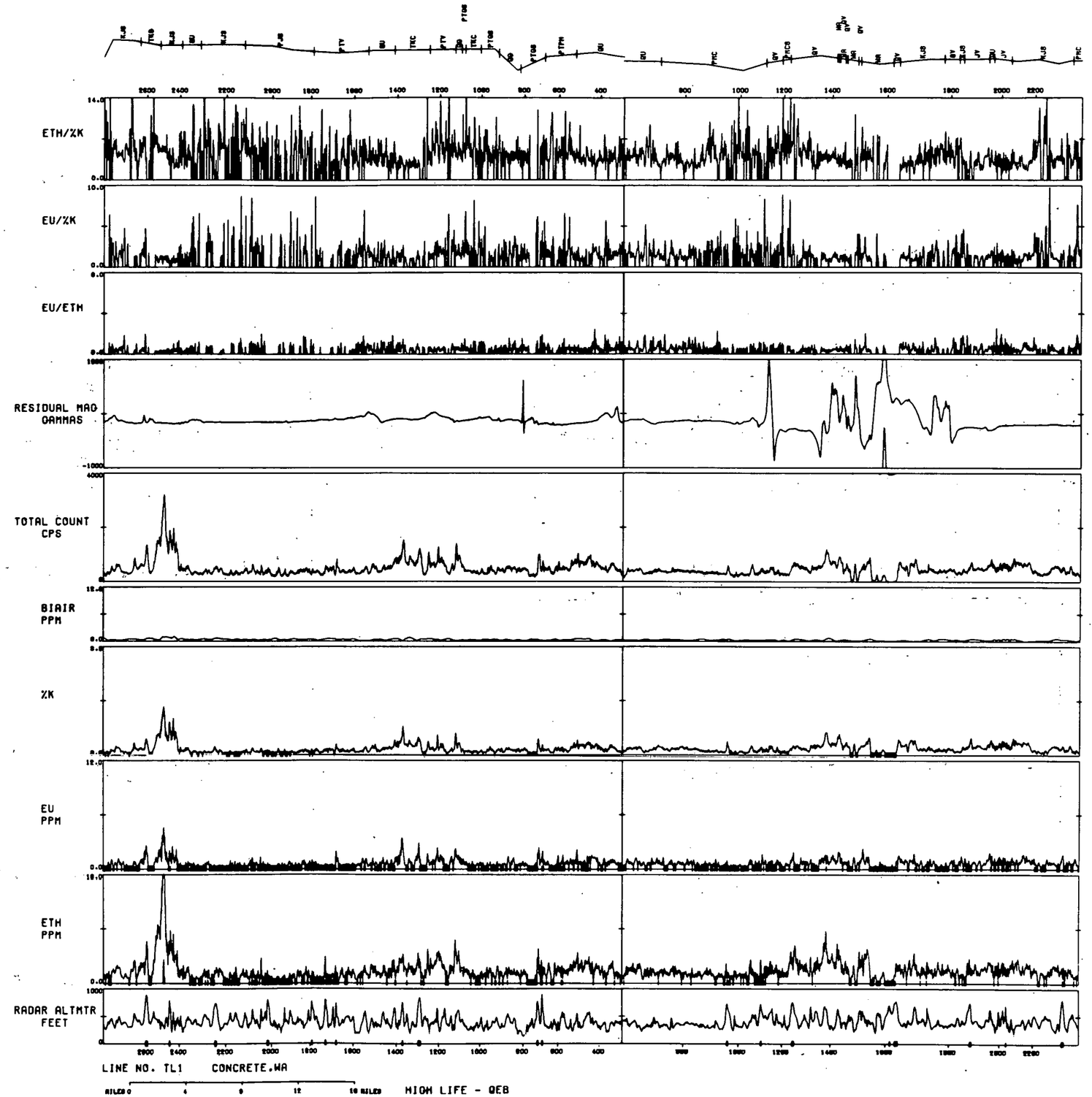
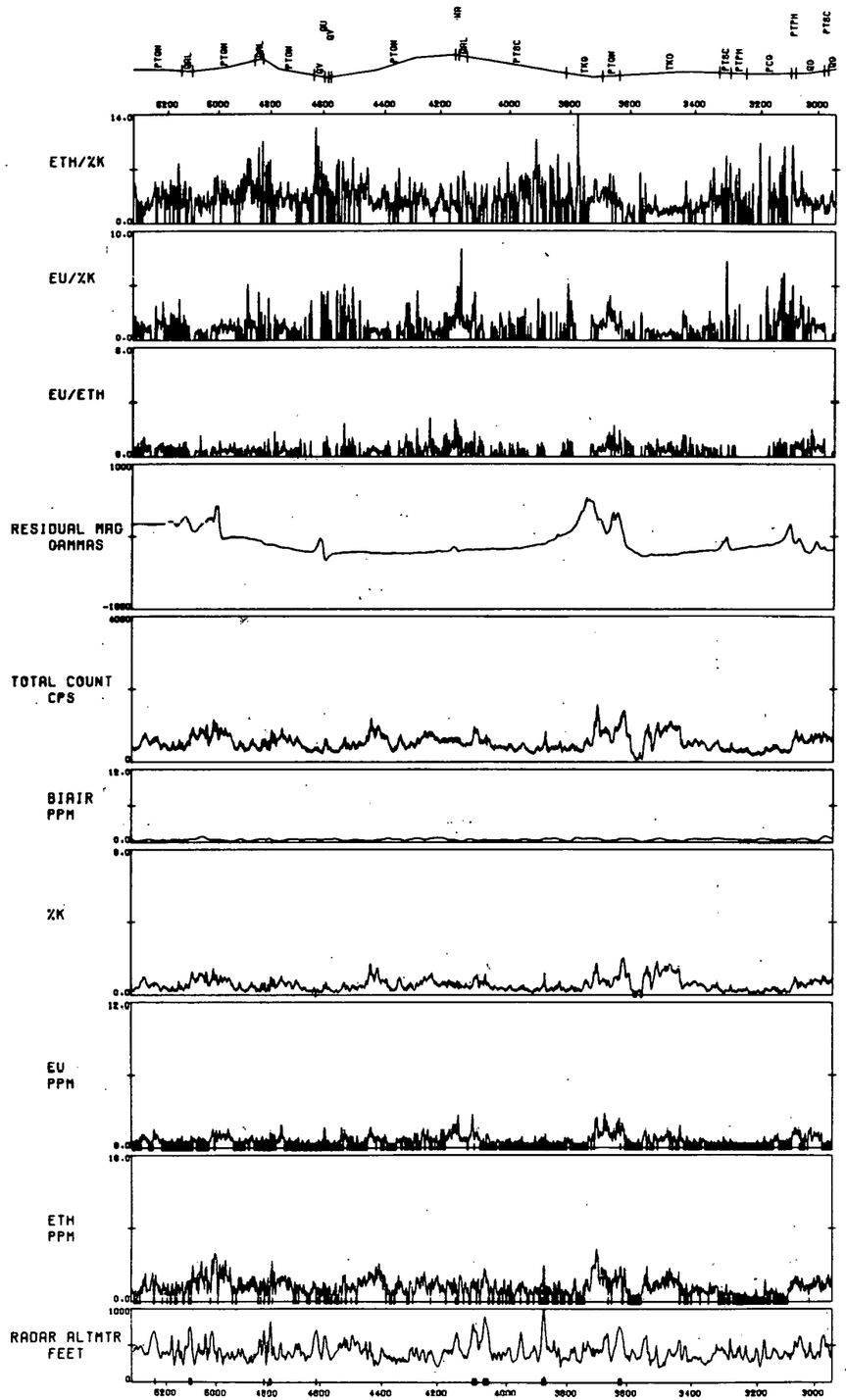

ETH/%K
EU/%K
EU/ETH
RESIDUAL MAG GAMMAS
TOTAL COUNT CPS
BIAIR PPM
%K
EU PPM
ETH PPM
RADAR ALTMTR FEET
LINE NO. TL1 CONCRETE.WA
MIOM LIFE - QEB


ETH/%K
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LINE NO. TL2 CONCRETE.WA
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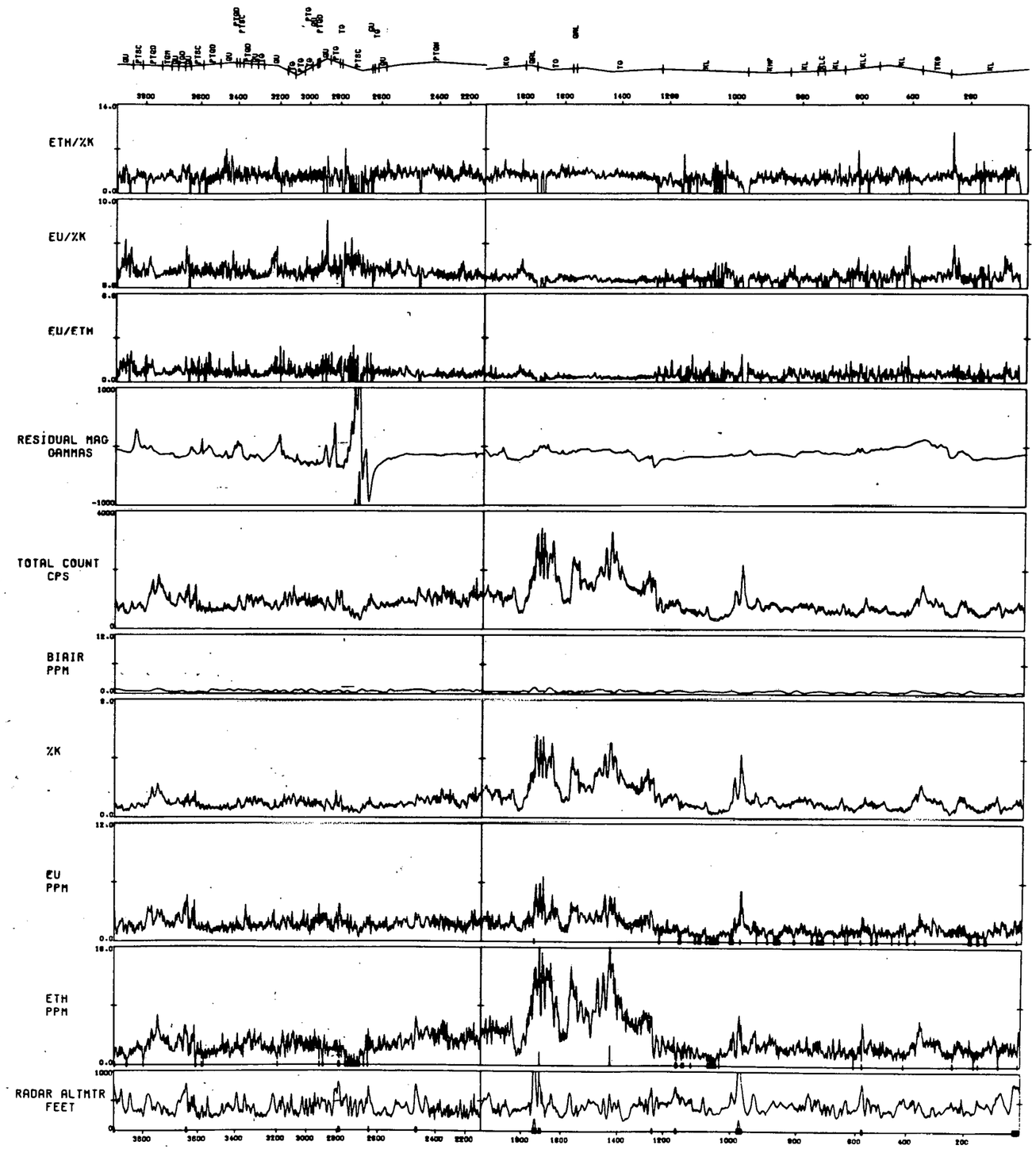
HIGH LIFE - QEB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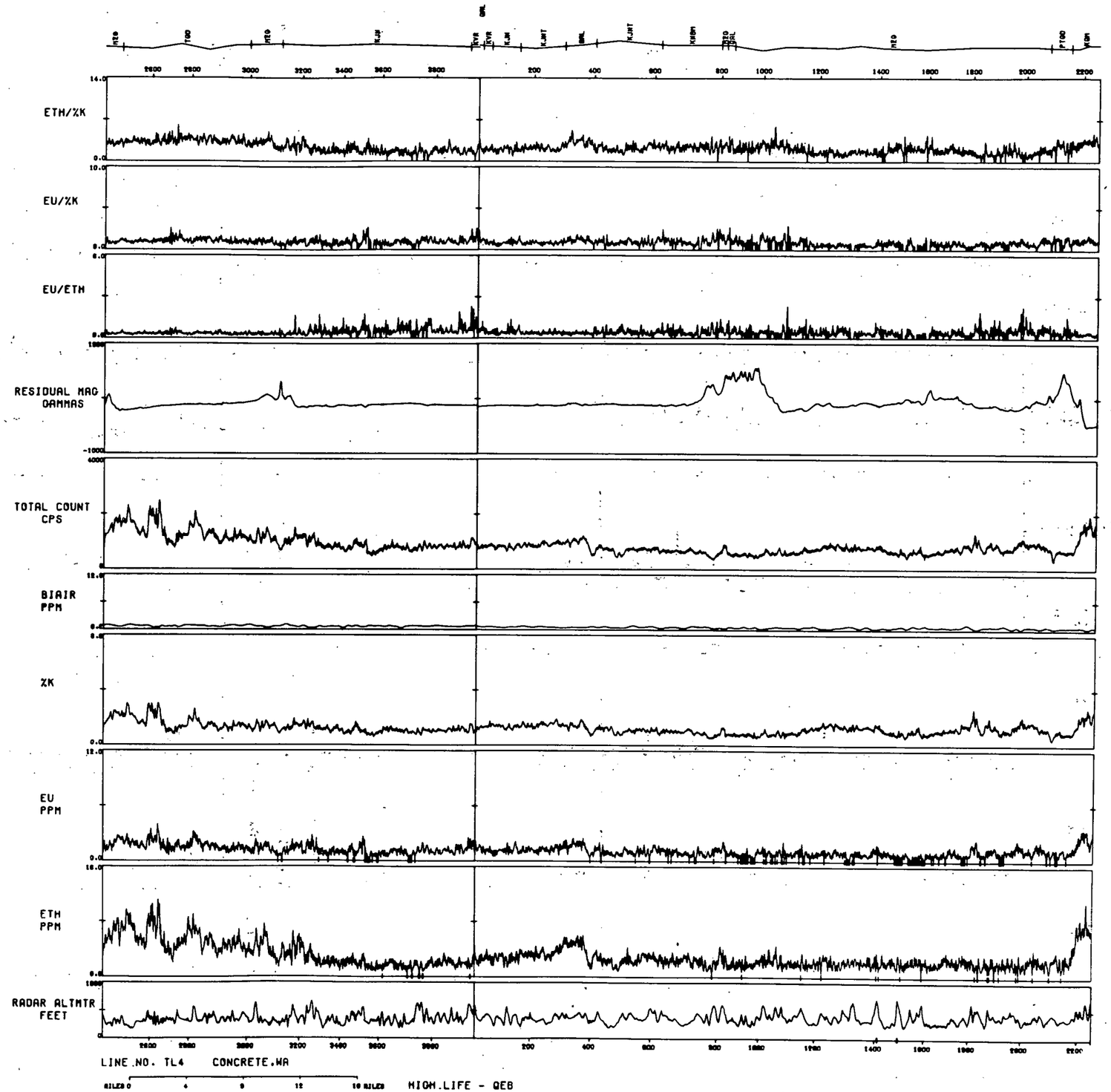
HIGH LIFE - QEB


ETH/%K
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RESIDUAL MAG
GAMMAS
TOTAL COUNT
CPS
BIAIR
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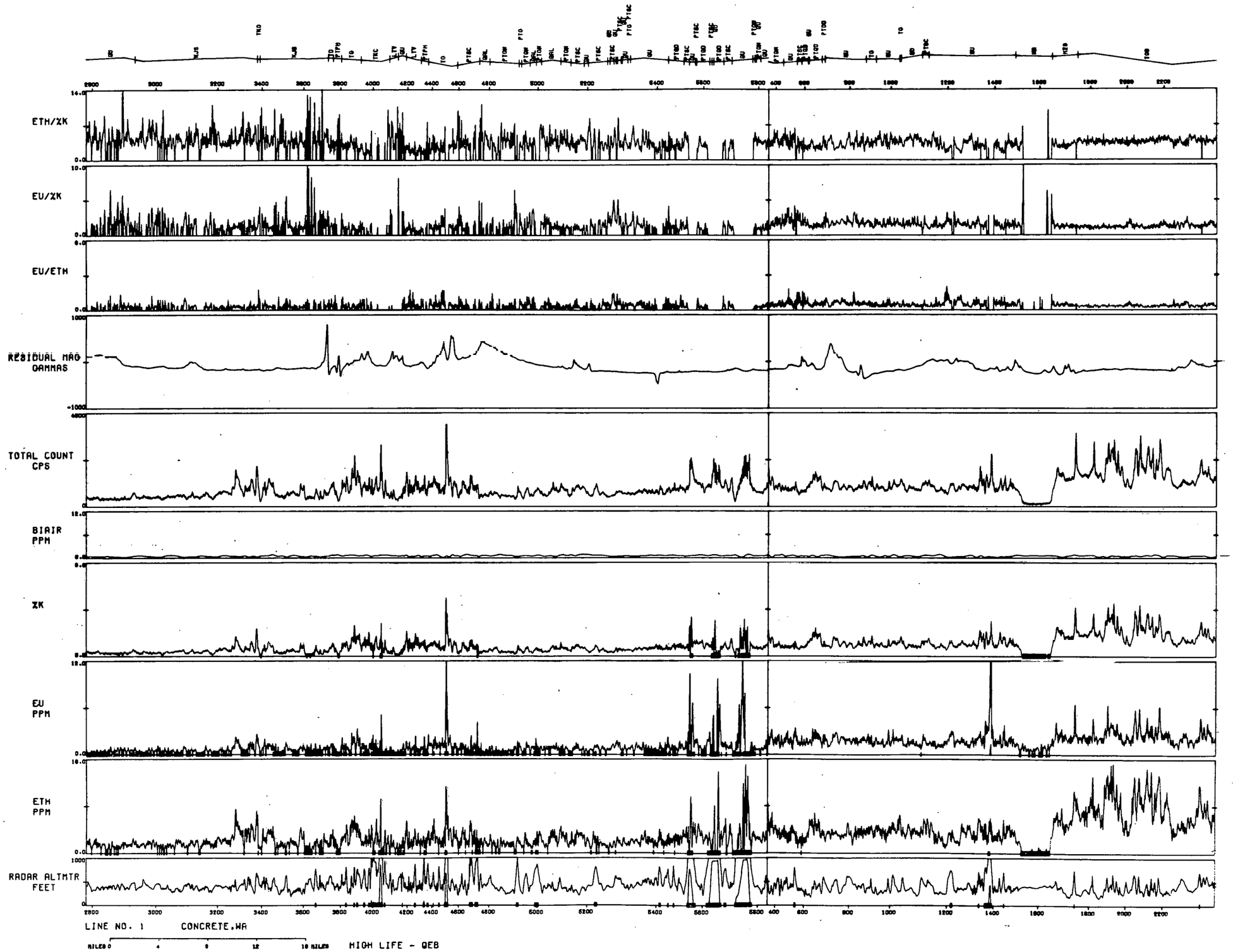
CONCRETE.WA
MIGH.LIFE - QEB


ETH/%K
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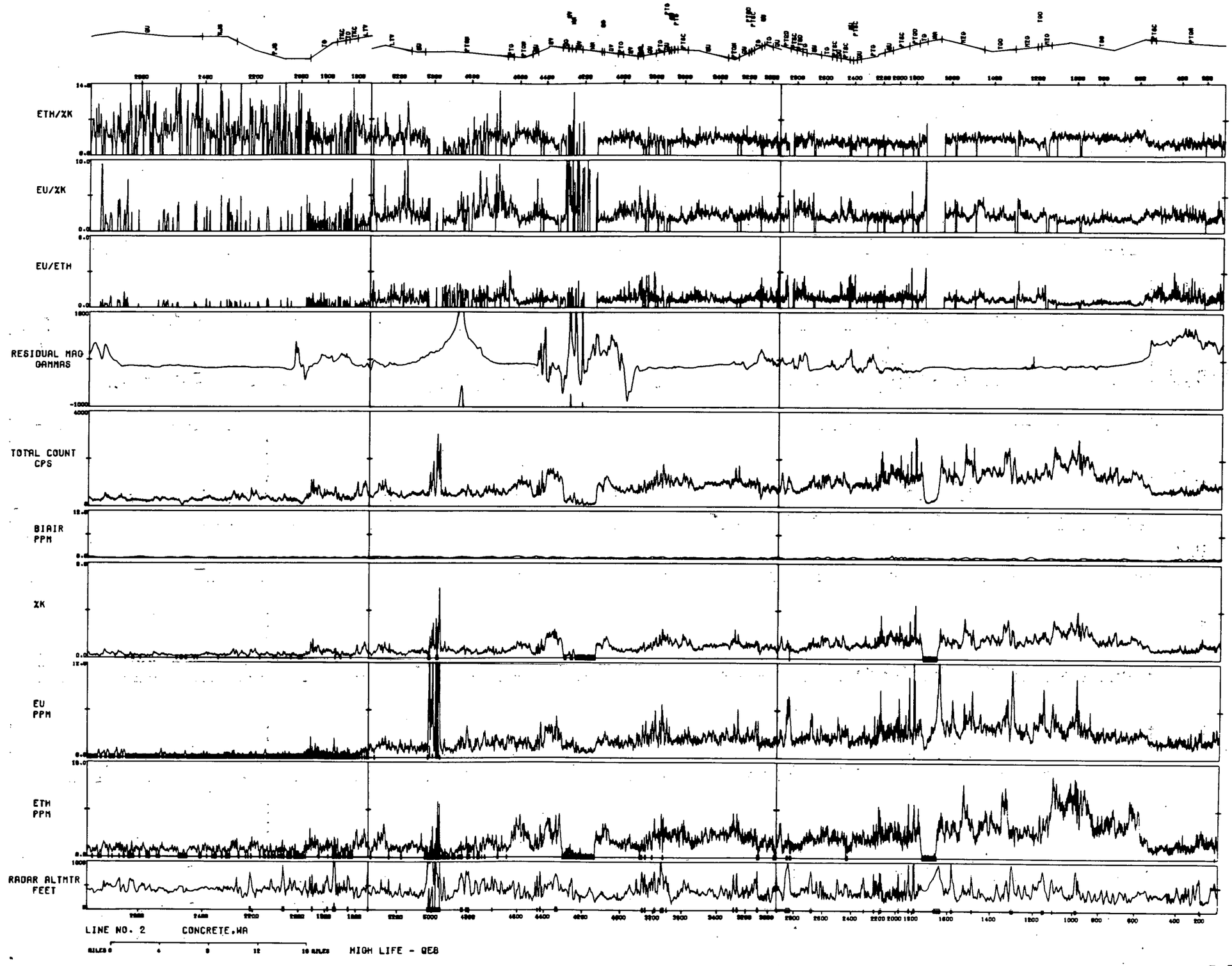
16 MILES
HIGH LIFE - QEB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EU/%K
EU/ETH
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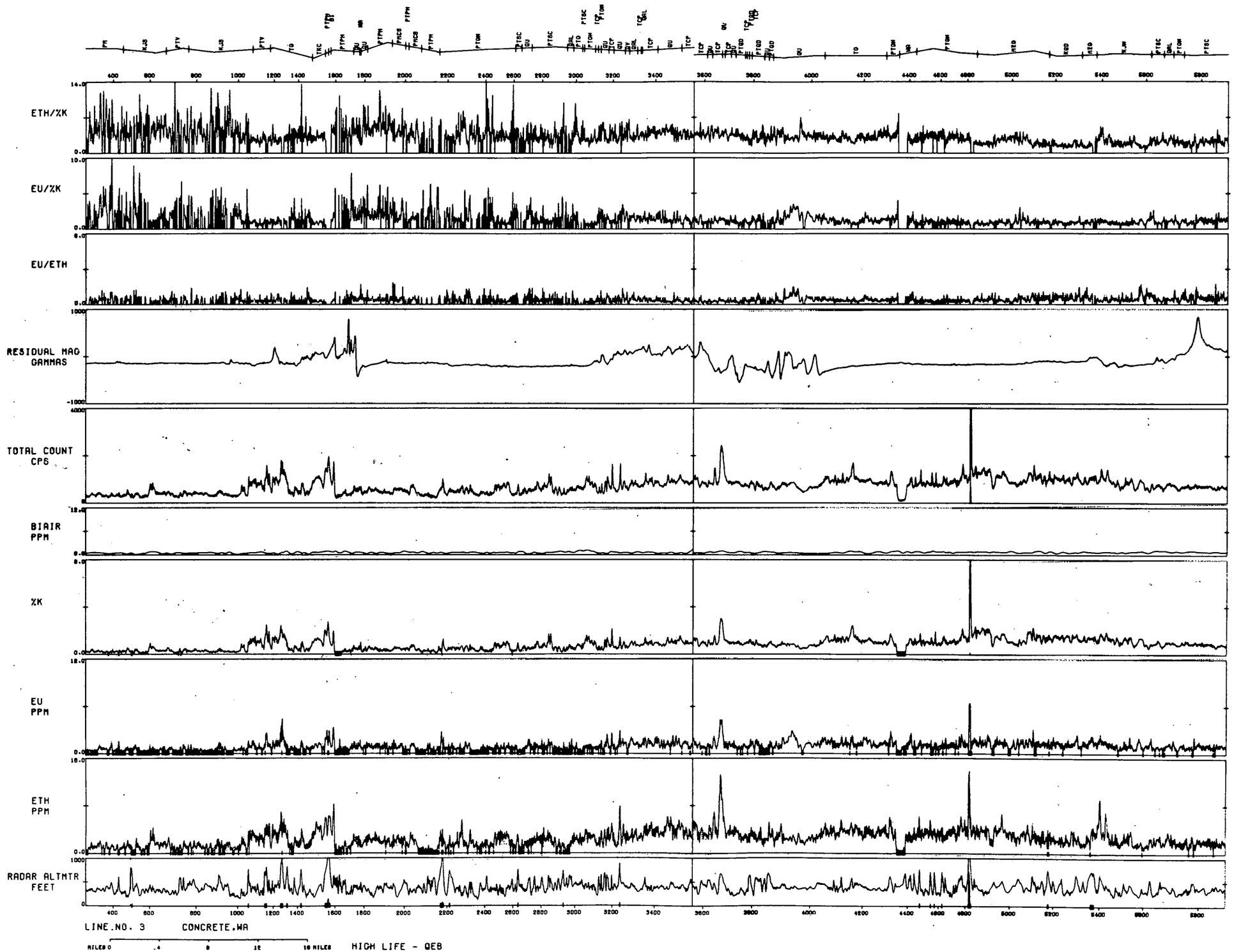
GAMMAS
TOTAL COUNT
CPS
BIAIR
PPM
%K
EU
PPM
ETH
PPM
RADAR ALTMTR
FEET
LINE NO. 2
CONCRETE.WA
MIGH LIFE - QEB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BIAIR PPM
%K
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LINE.NO. 3
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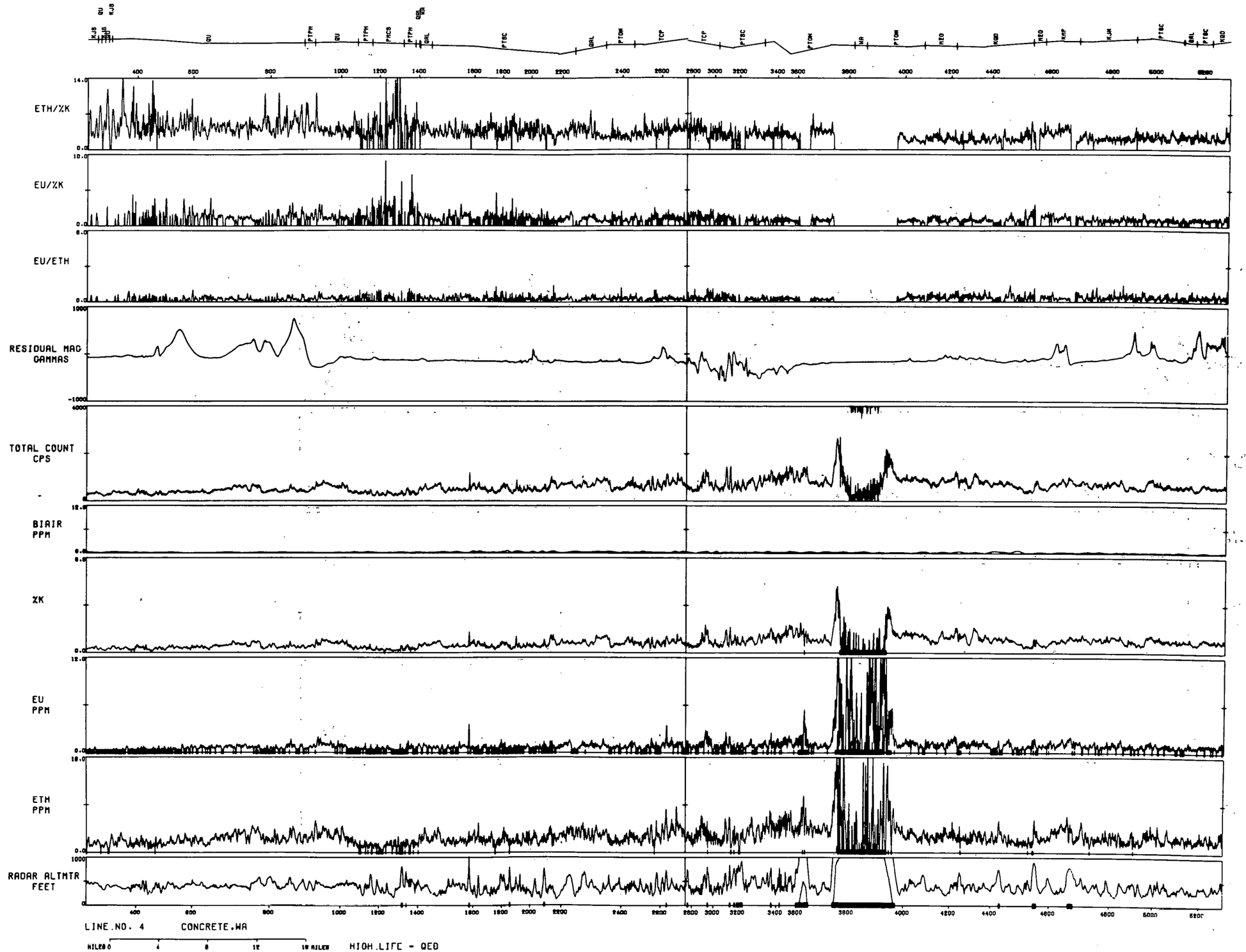
HIGH LIFE - QEB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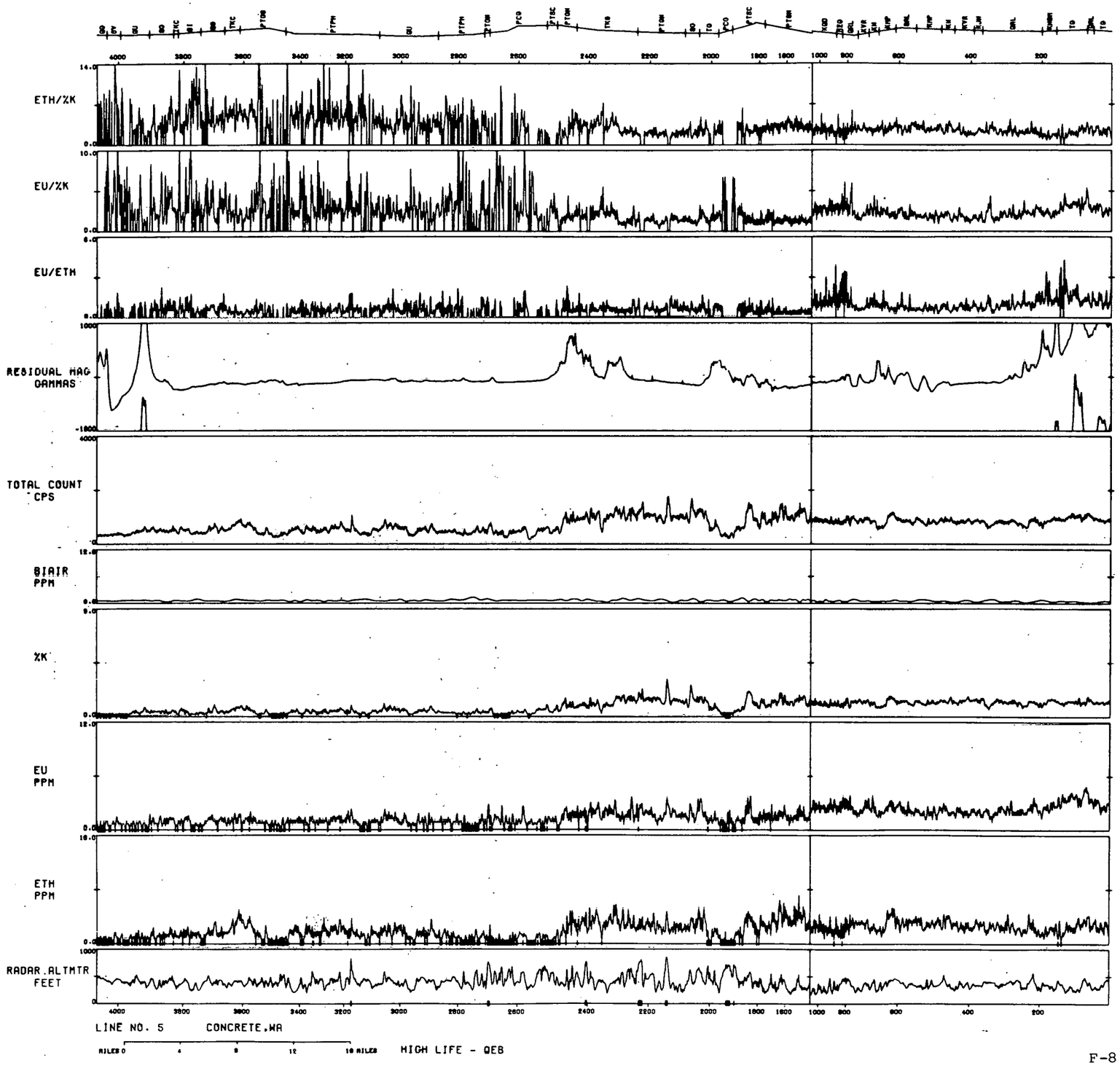
LINE.NO. 4
CONCRETE.WA
MILES 0 4 8 12 16 MILES
HIGH.LIFE - QED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LINE NO. 5
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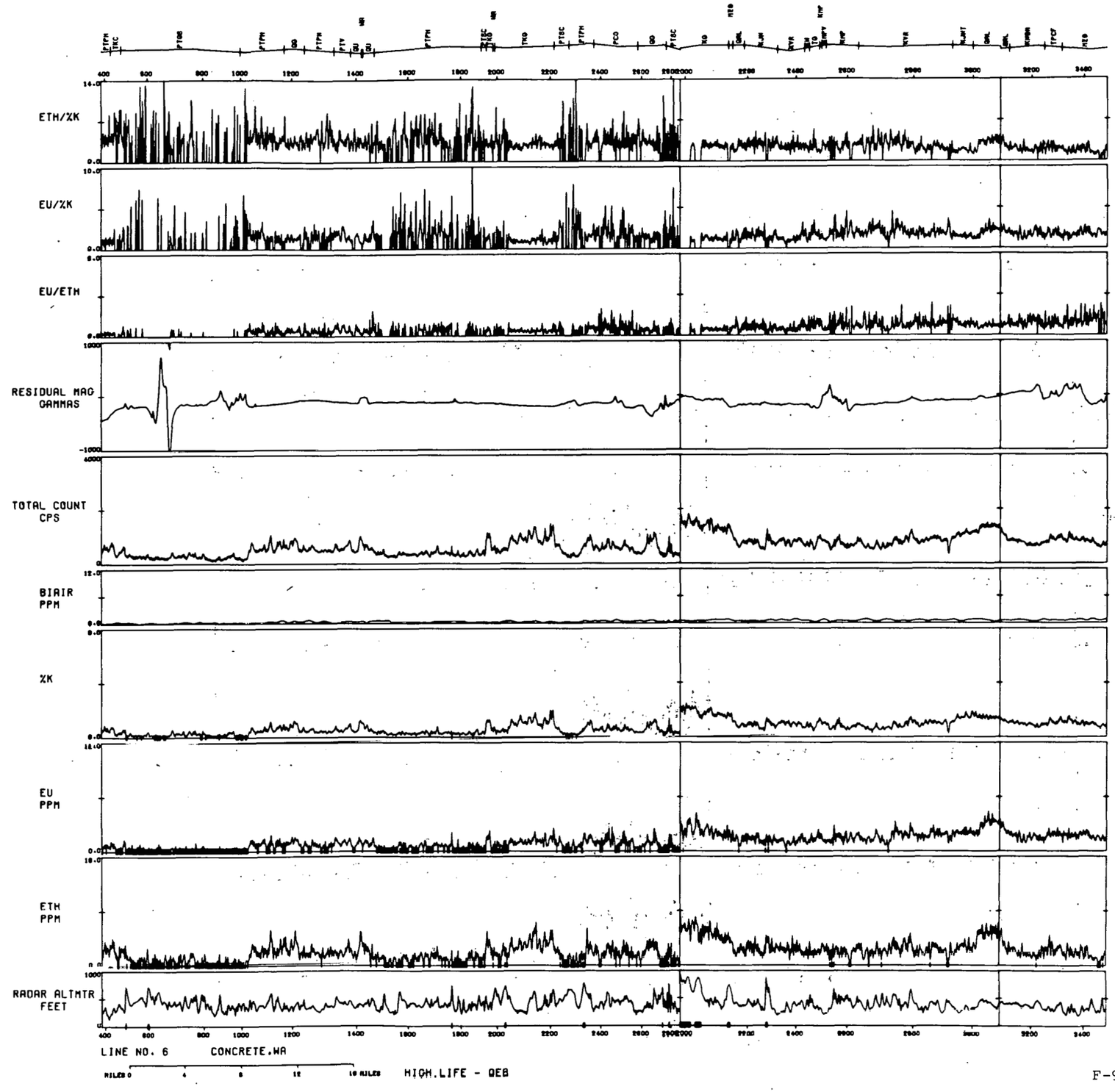
4
8
12
16 MILES
HIGH LIFE - QEB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TOTAL COUNT CPS
BIAIR PPM
%K
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LINE NO. 6
CONCRETE.WA
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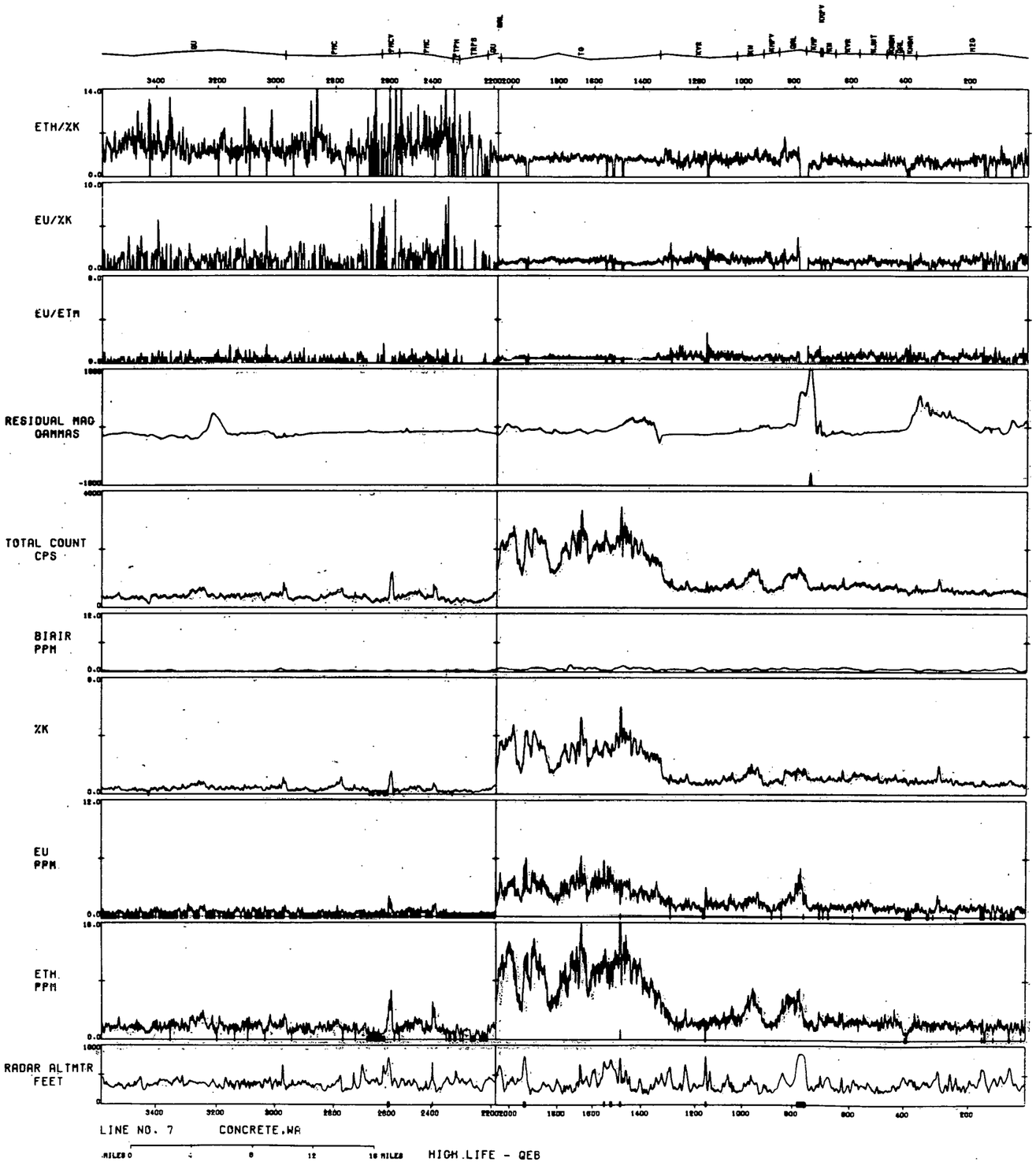
4
8
12
16 MILES
HIGH.LIFE - QEB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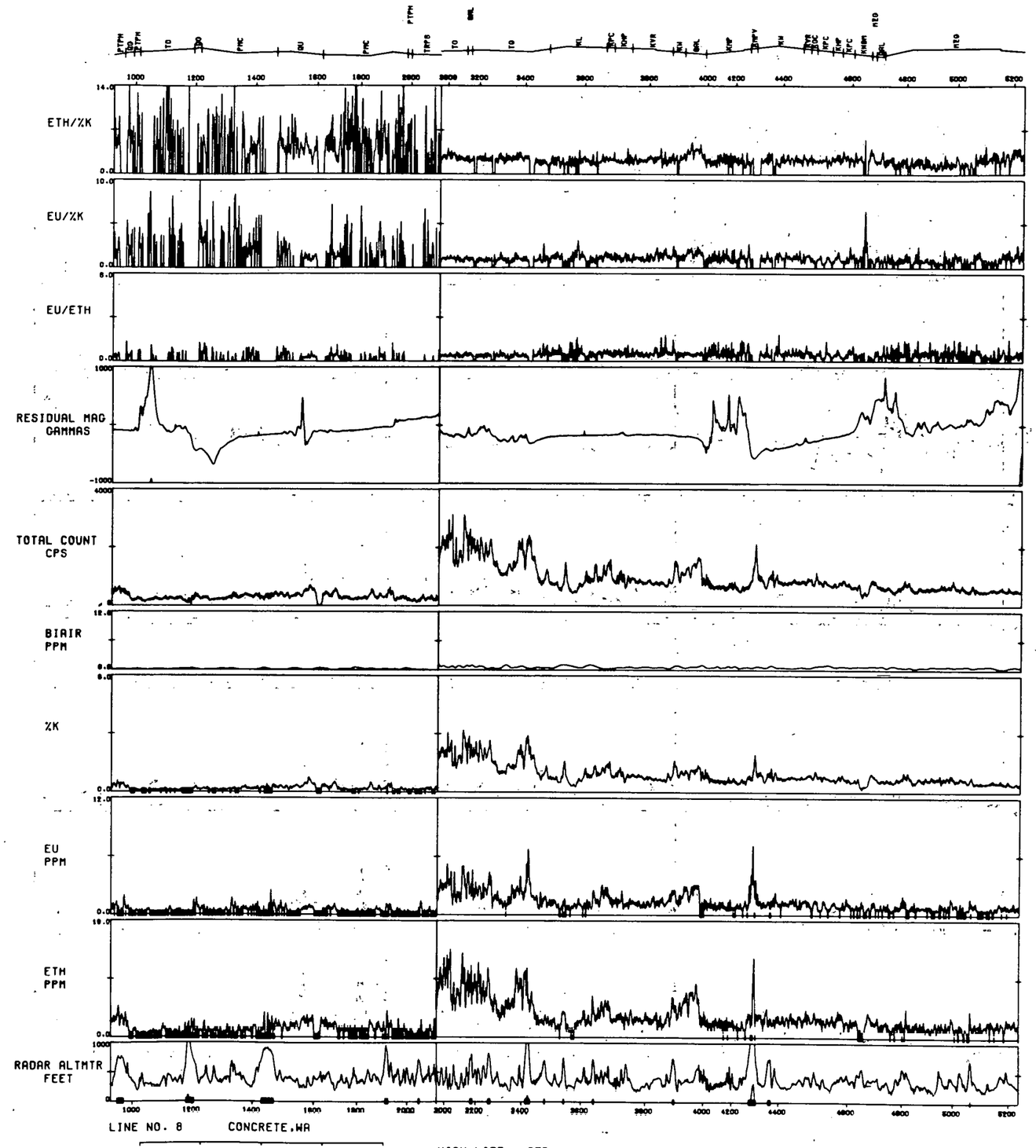
FEET
LINE NO. 7
CONCRETE.WR
HIGH LIFE - QEB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CPS
BIAIR
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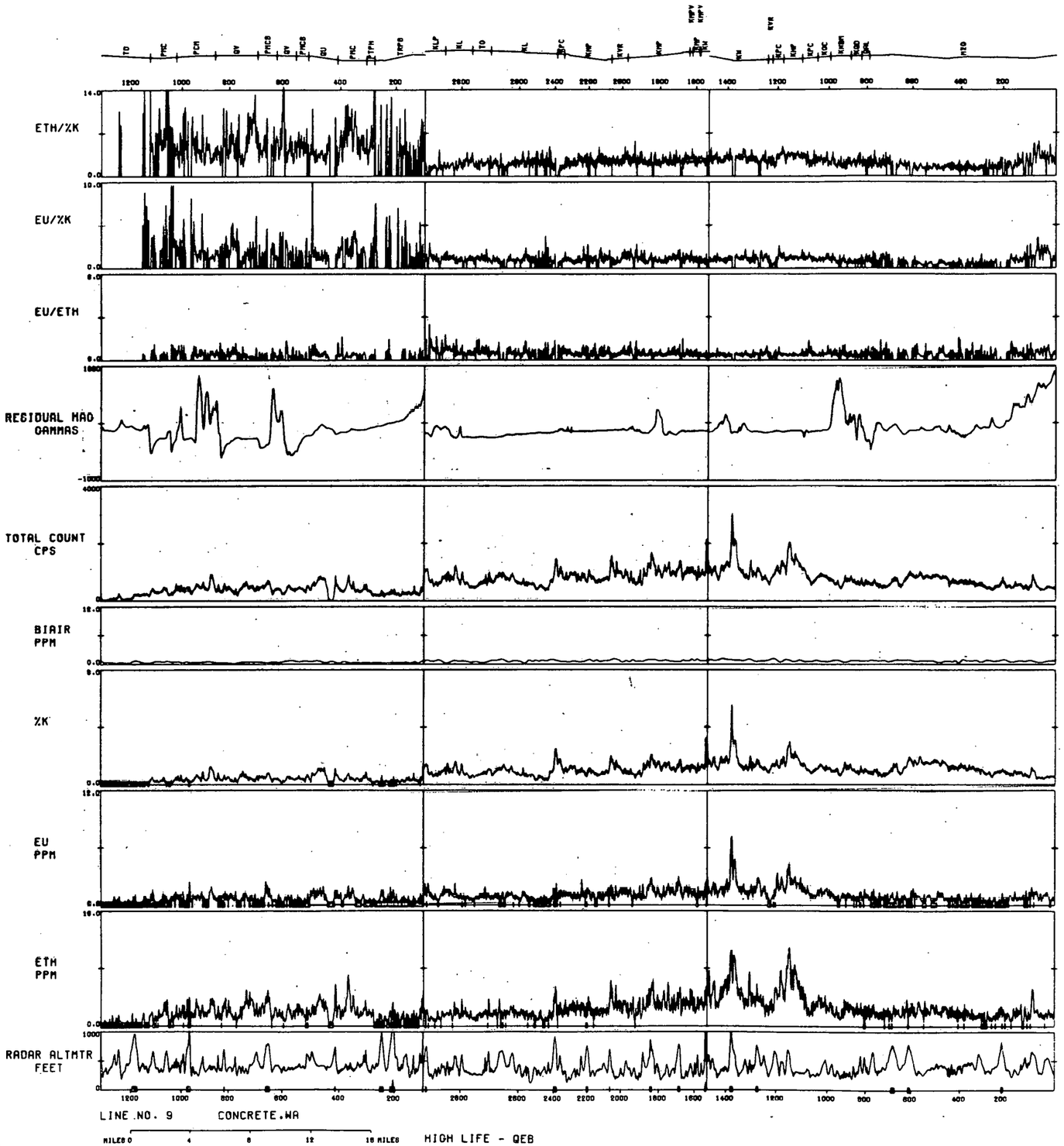
RADAR ALTMTR
FEET
LINE NO. 8
CONCRETE.WA
HIGH LIFE = QFR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LINE NO. 9 CONCRETE.WA
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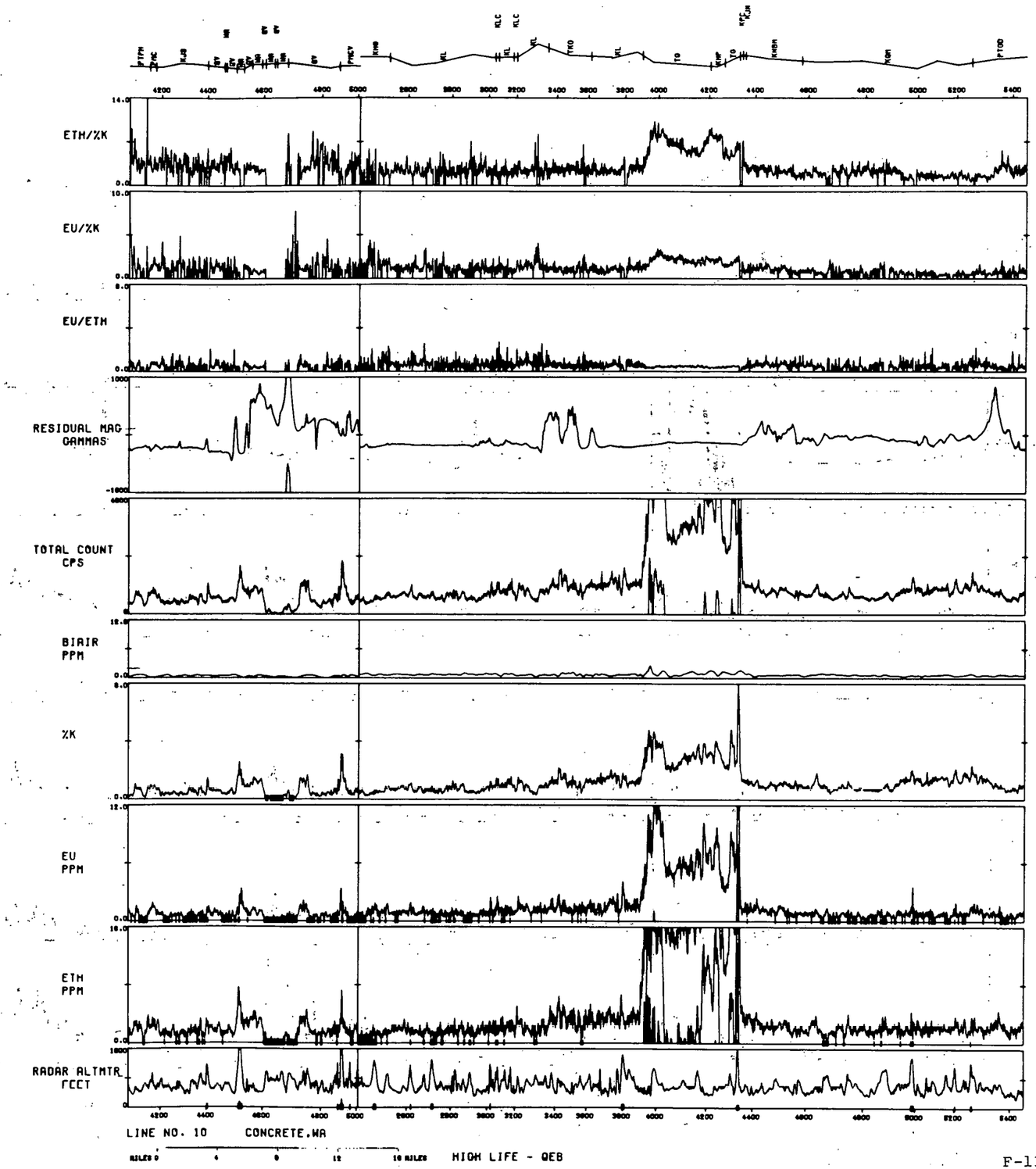
HIGH LIFE - QEB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%K
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RADAR ALTMTR FEET
LINE NO. 10 CONCRETE.WA
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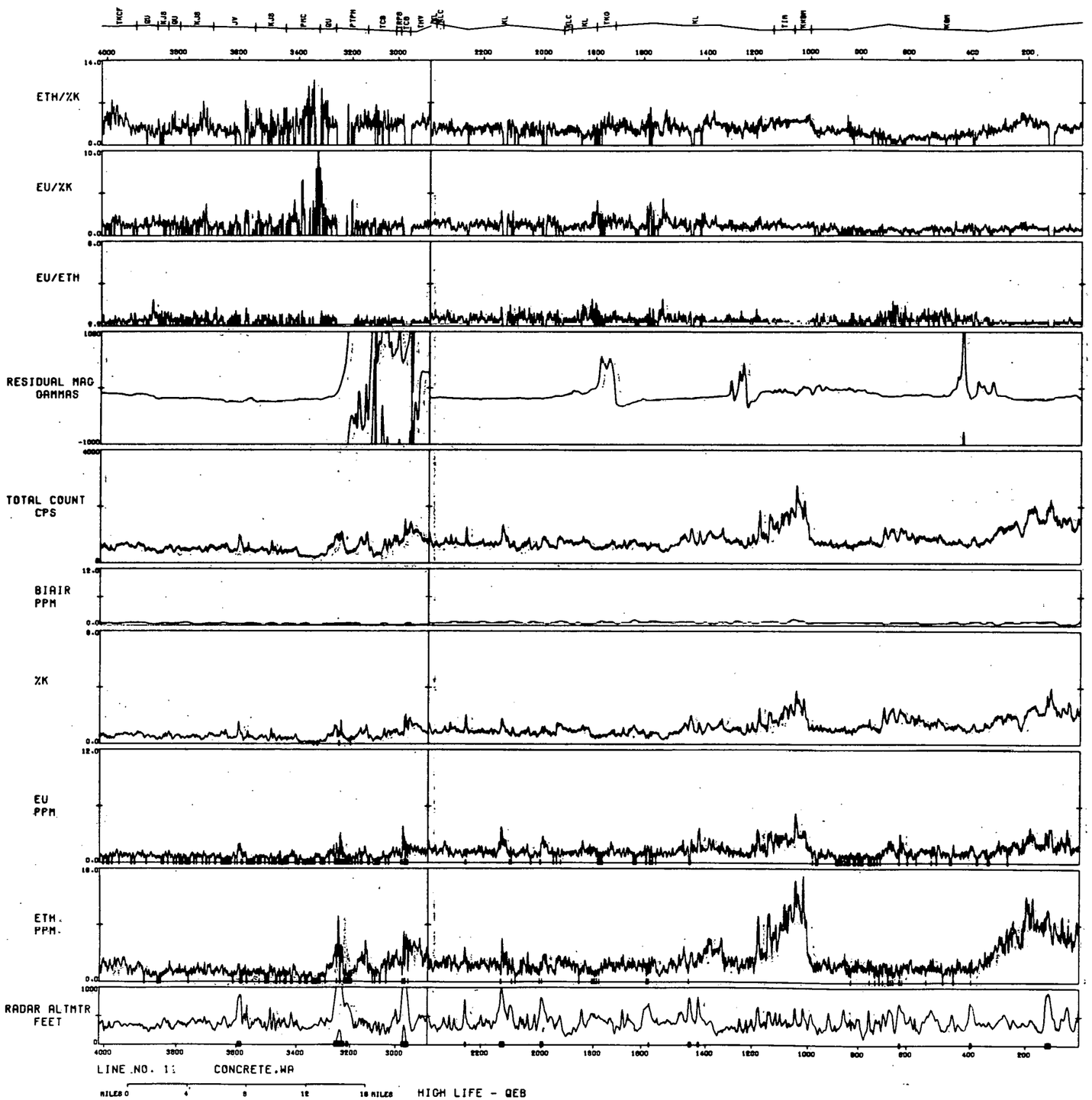
4
8
12
16 MILES
HIGH LIFE - QEB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EU/%K
EU/ETH
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TOTAL COUNT CPS
BIAIR PPM
%K
EU PPM
ETH. PPM.
RADAR ALTMTR FEET
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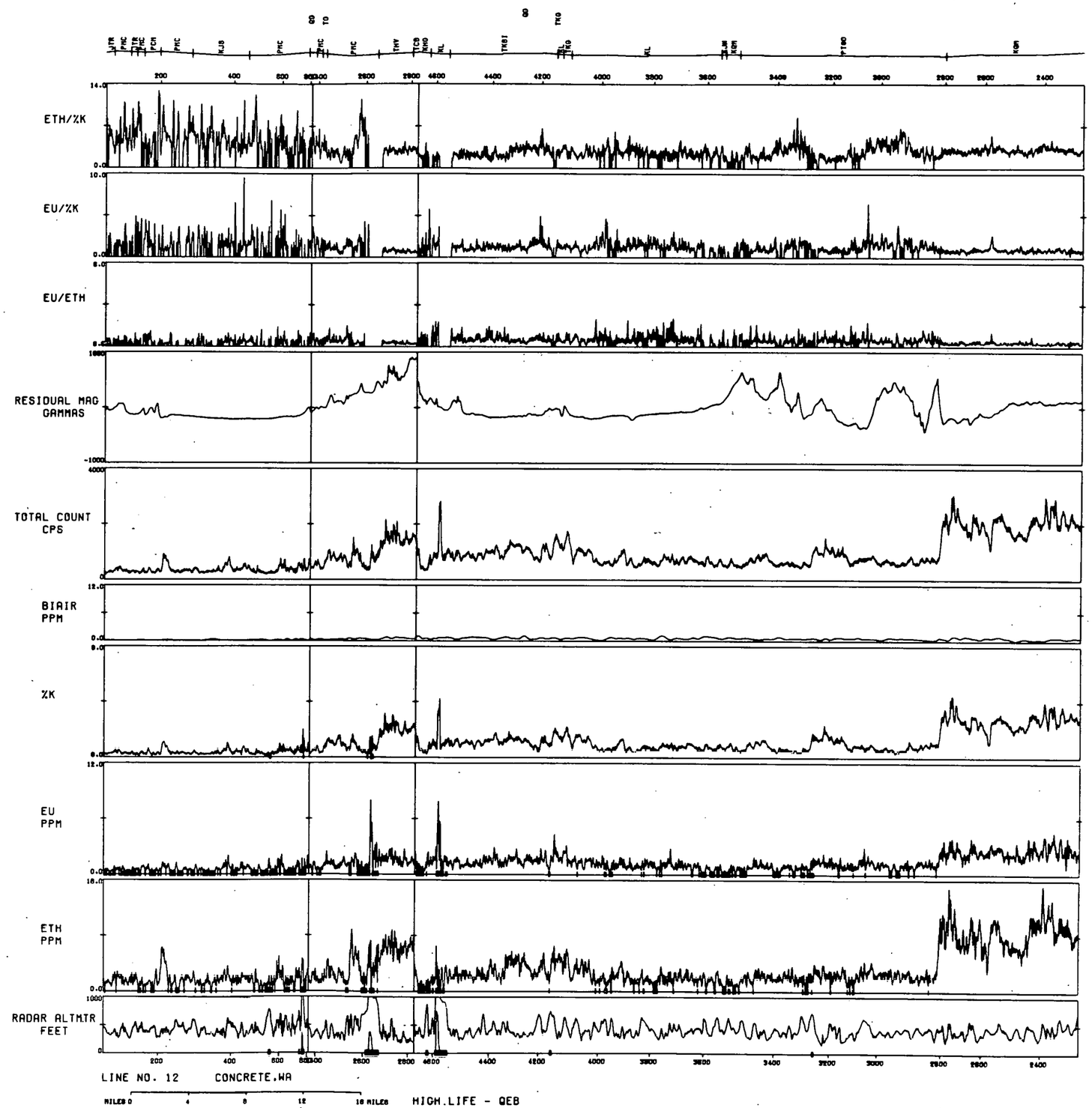
4
8
12
16 MILES
HIGH LIFE - QEB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EU/ETH
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GAMMAS
TOTAL COUNT
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BIAIR
PPM
%K
EU
PPM
ETH
PPM
RADAR ALTMTR
FEET
LINE NO. 12
CONCRETE.WA
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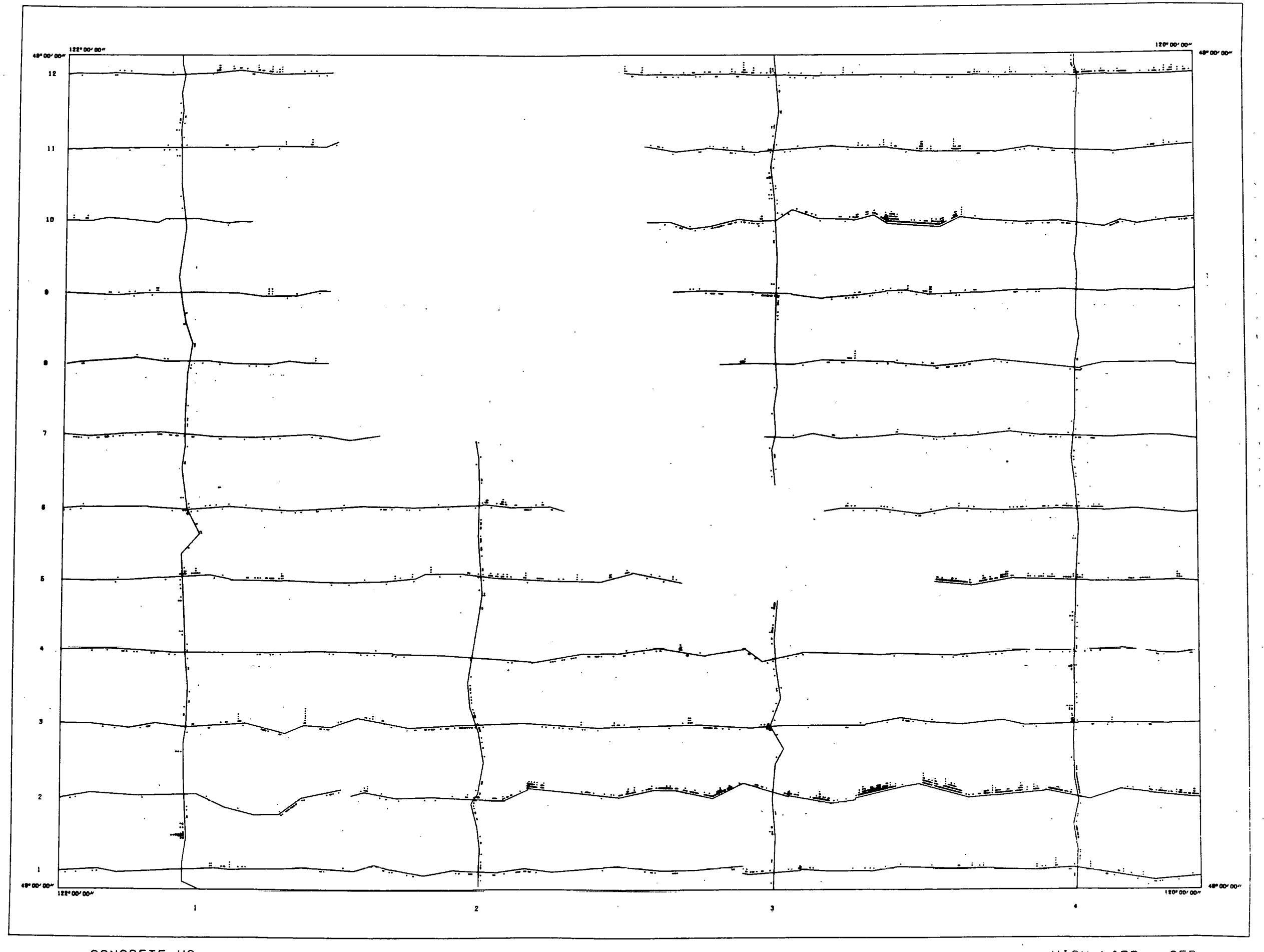
4
8
12
16 MILES
HIGH.LIFE - QEB

APPENDIX F - STACKED PROFILES

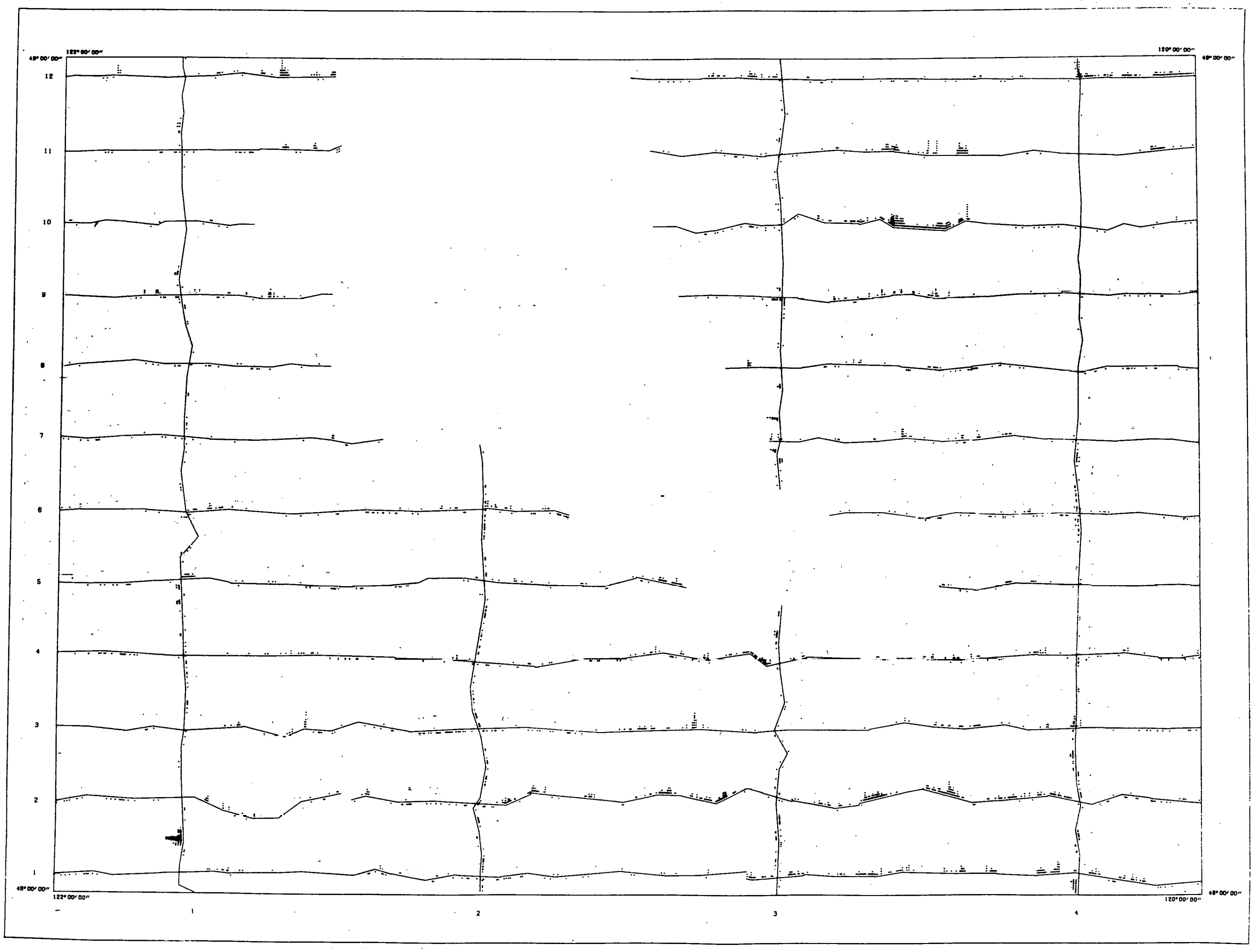
APPENDIX G - ANOMALY MAPS



CONCRETE, WA

EU.

HIGH LIFE - QEB

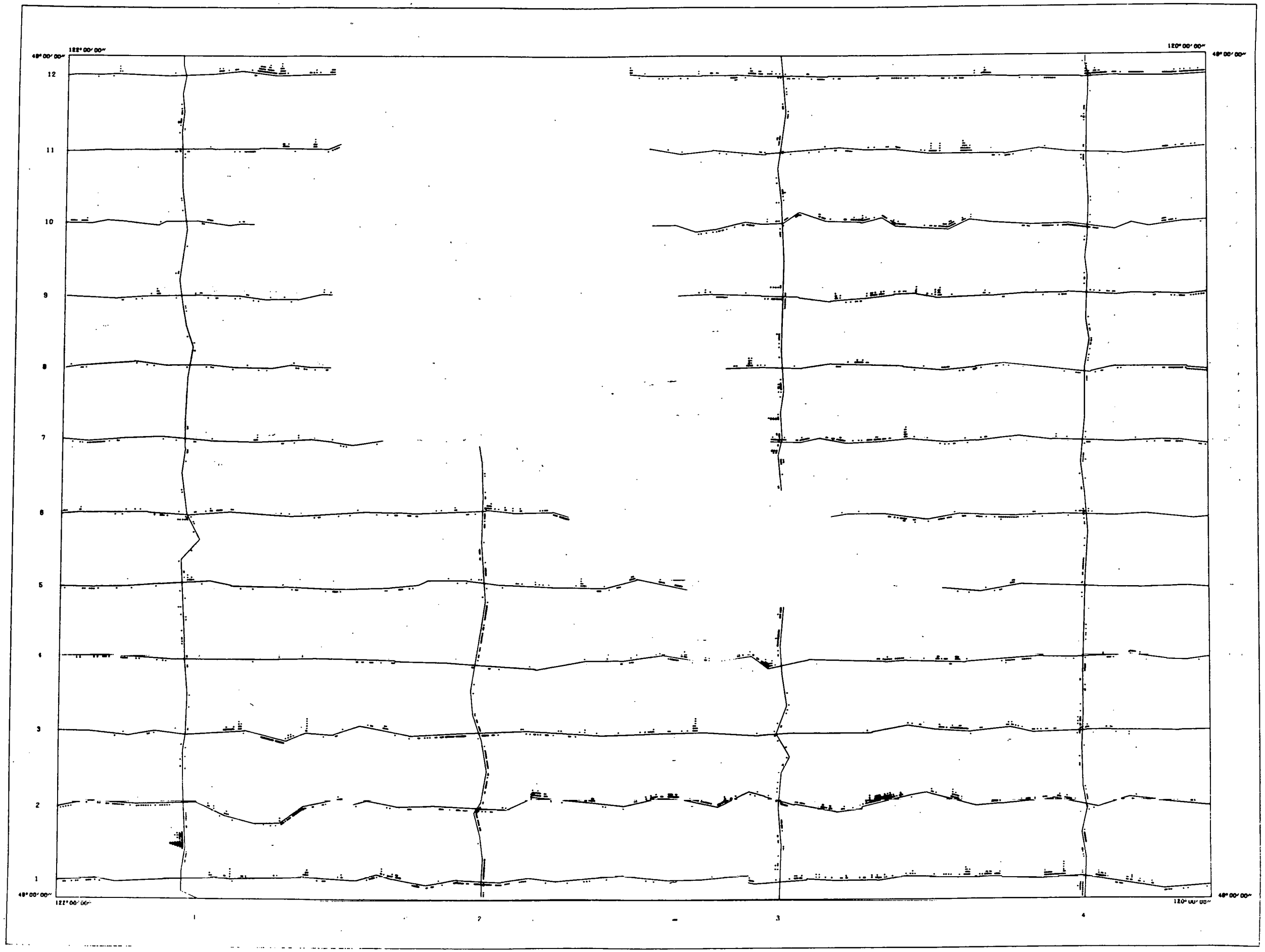


CONCRETE, WA

ETH

MILES 0 4 8 12 16 MILES

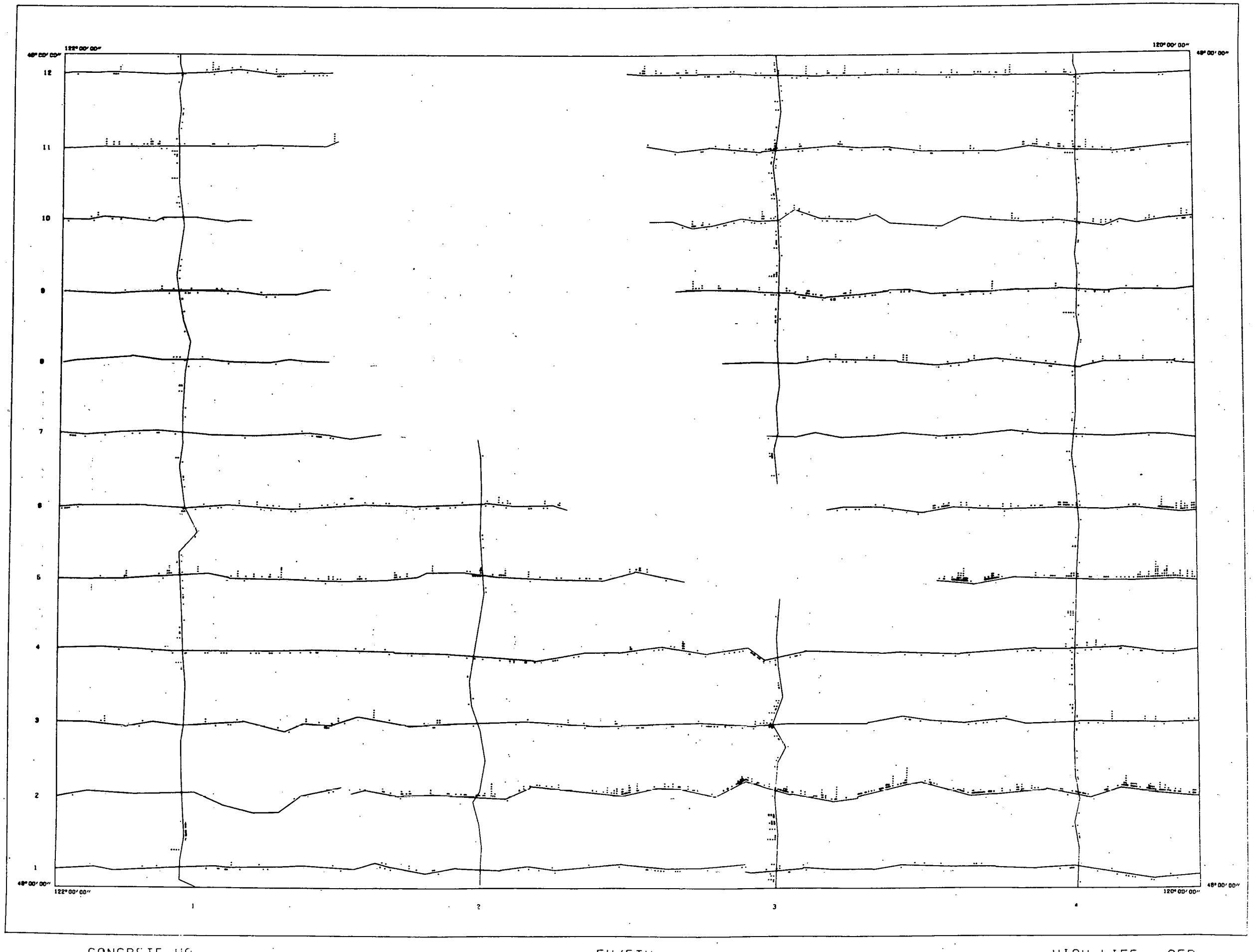
HIGH LIFE - QEB′



CONCRETE.WA

K

HIGH LIFE - QEB



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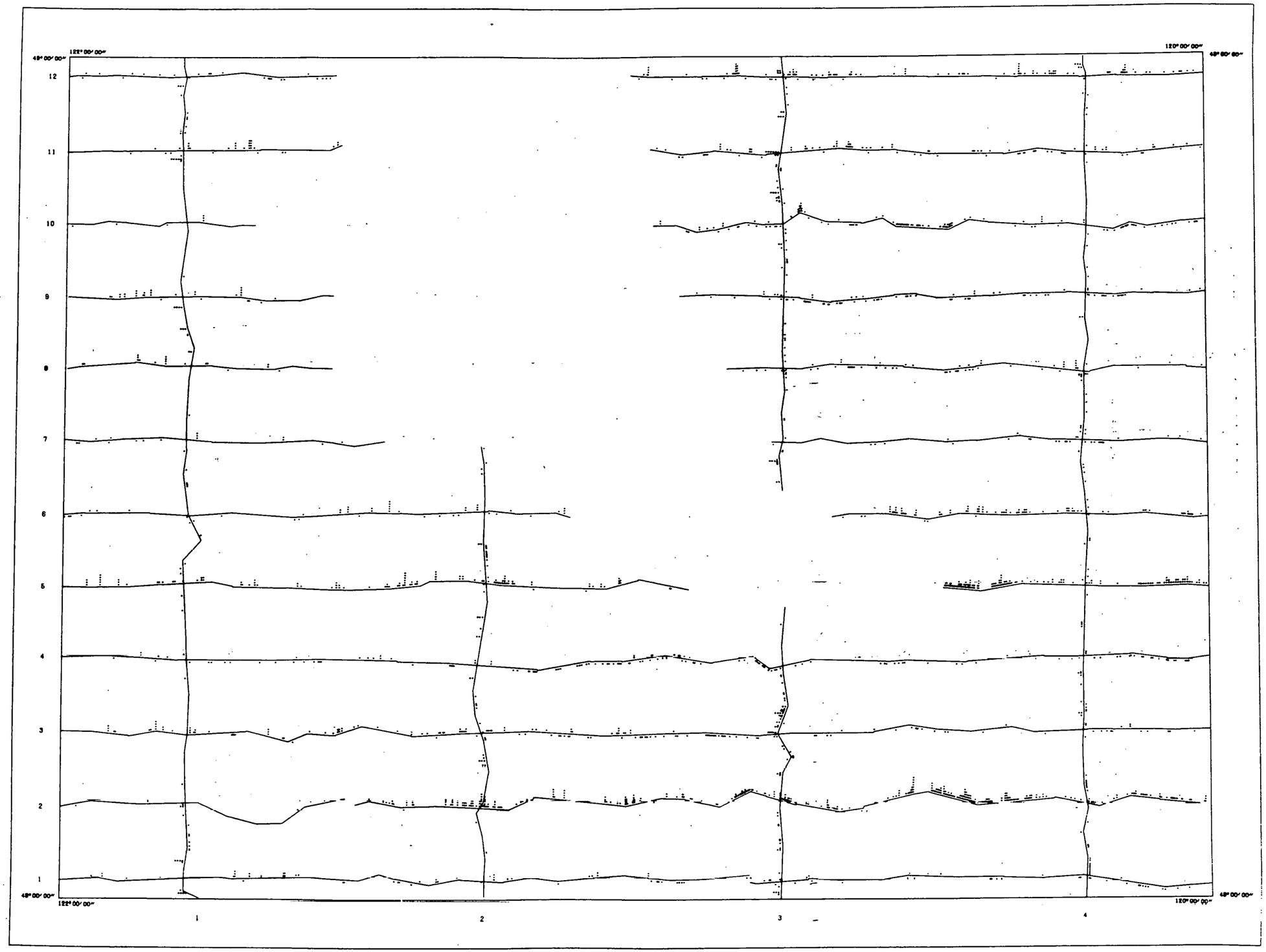
EU/ETH

HIGH LIFE -- QEB



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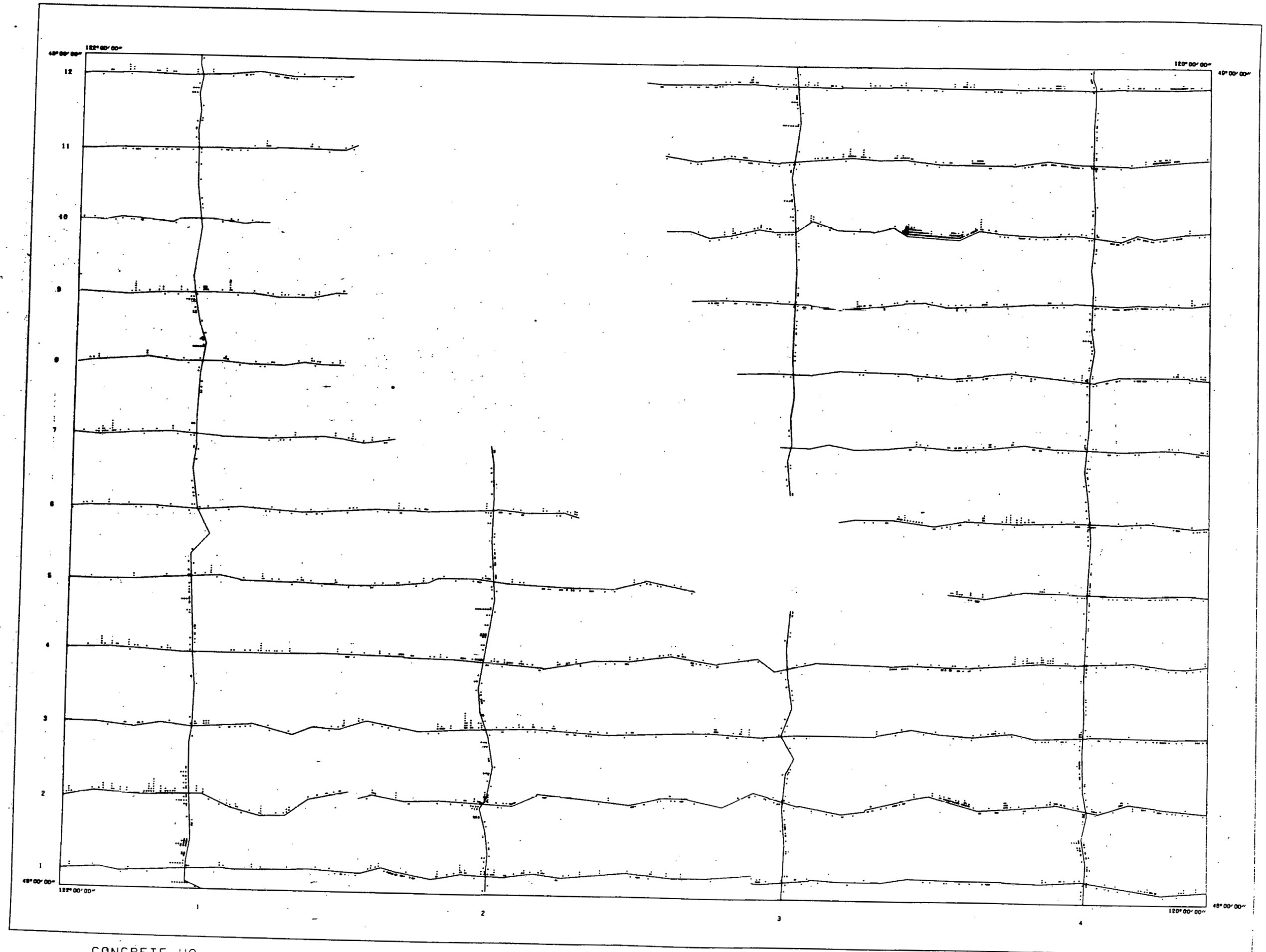
EU/K

MILES 0 4 8 12 16 MILES

HIGH LIFE - QEB



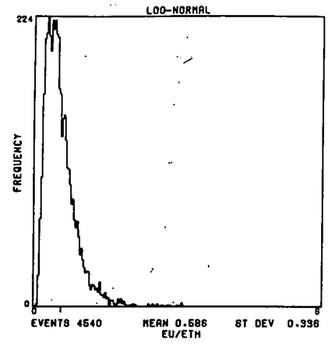
CONCRETE, WA

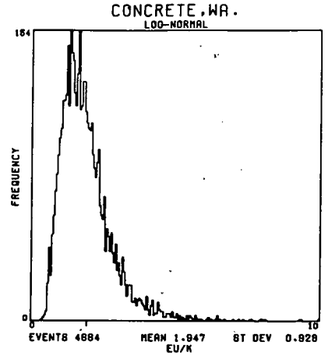
ETH/K

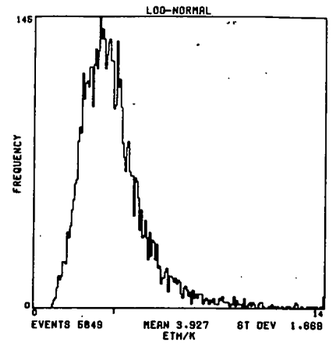
HIGH LIFE - QEB

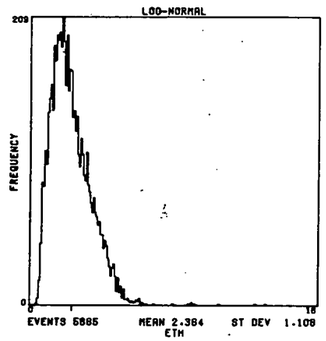
APPENDIX H - GEOLOGIC HISTOGRAMS

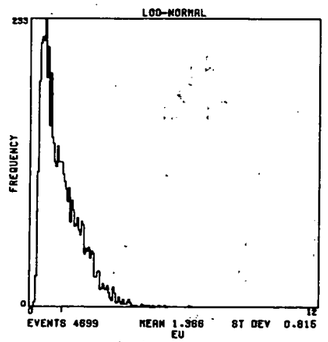
CONCRETE.WA.

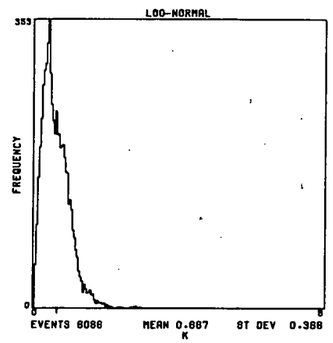












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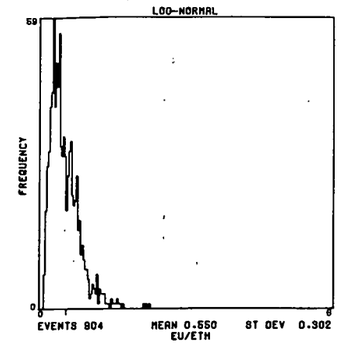

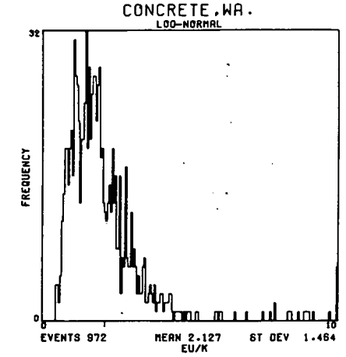

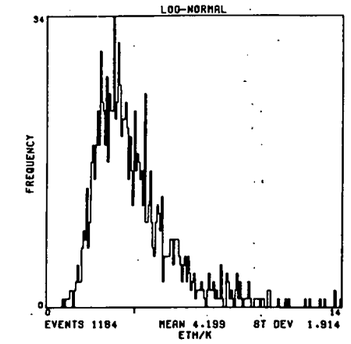

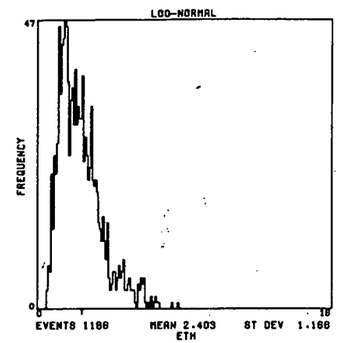

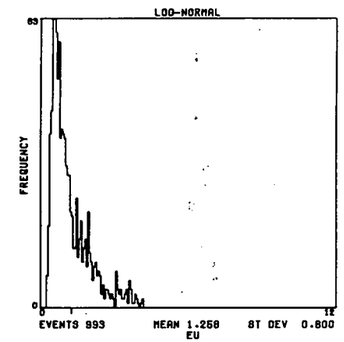

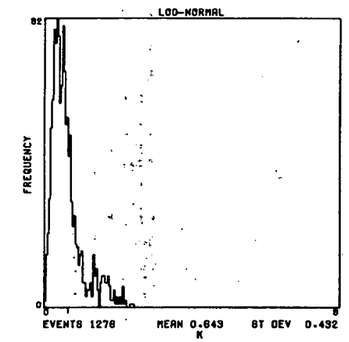

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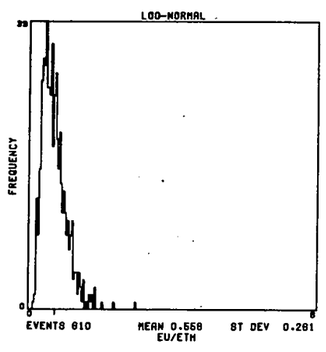

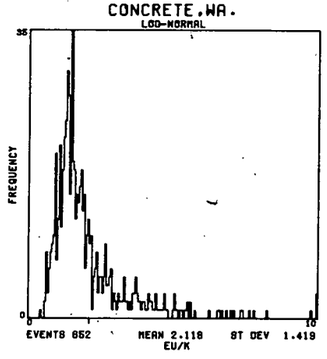

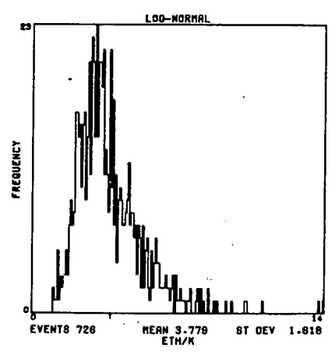

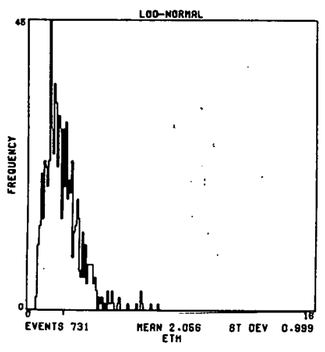

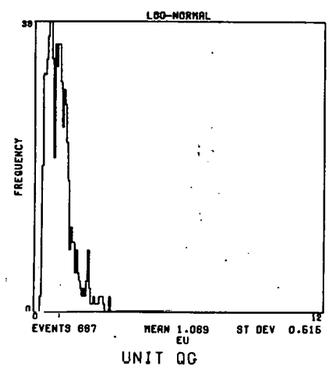

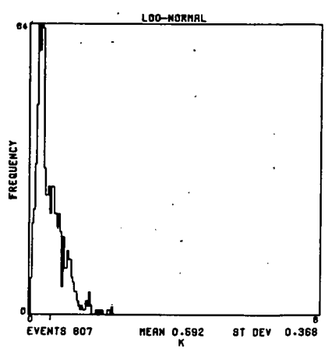

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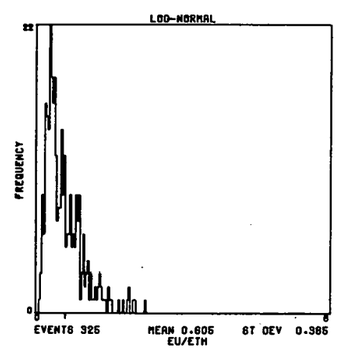

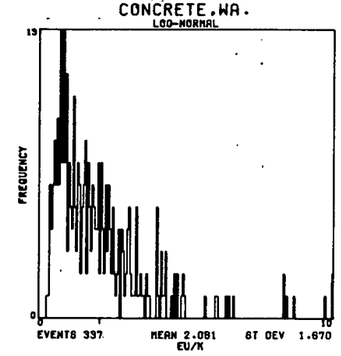

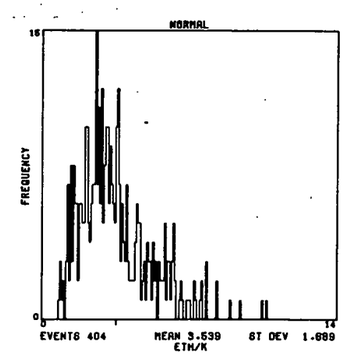

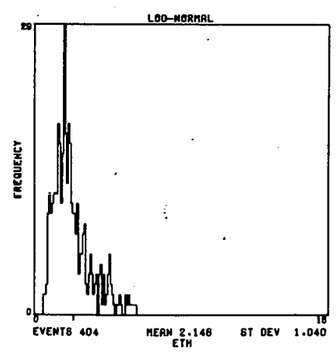

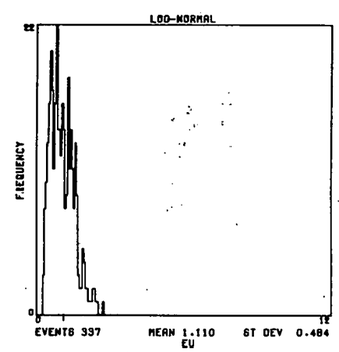

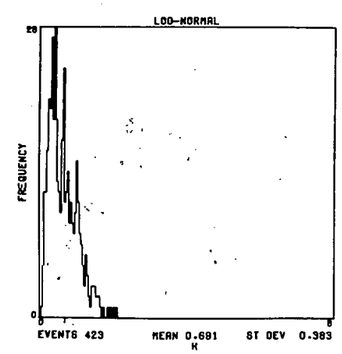

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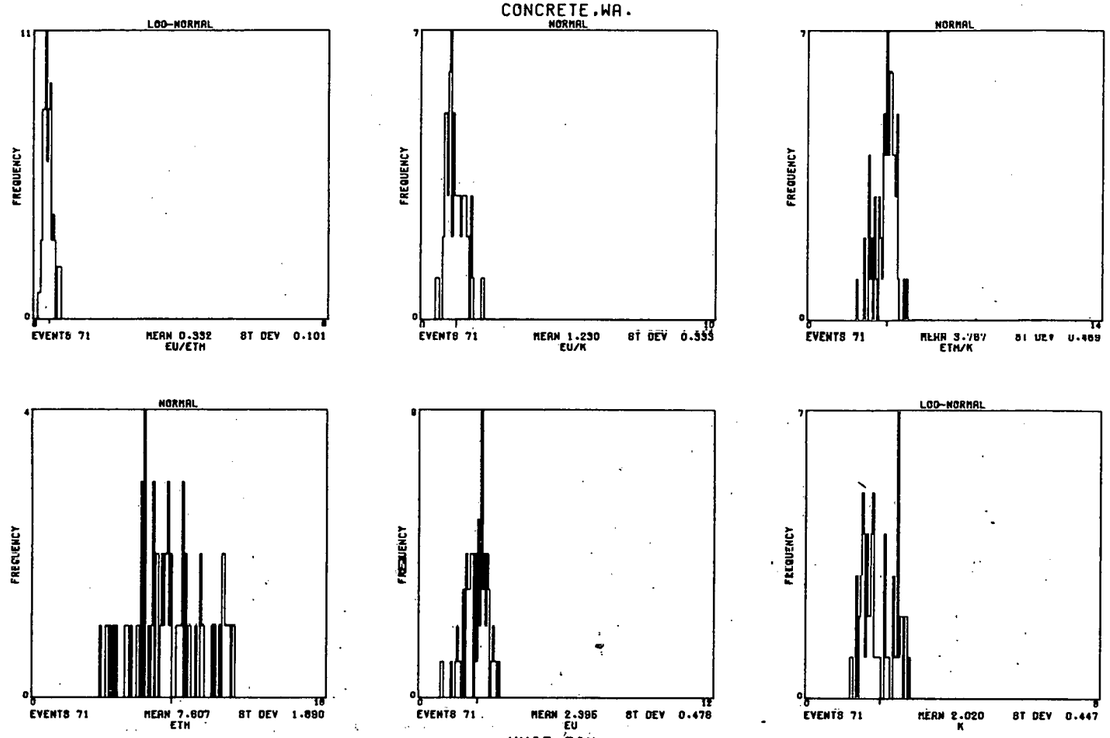

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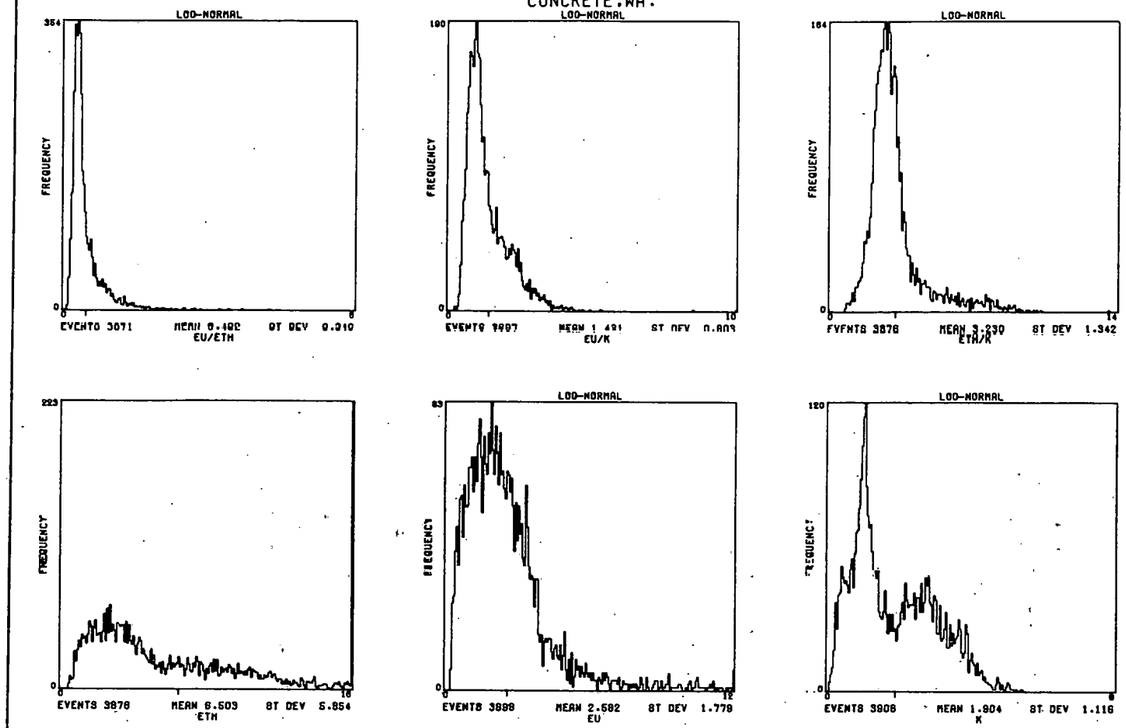

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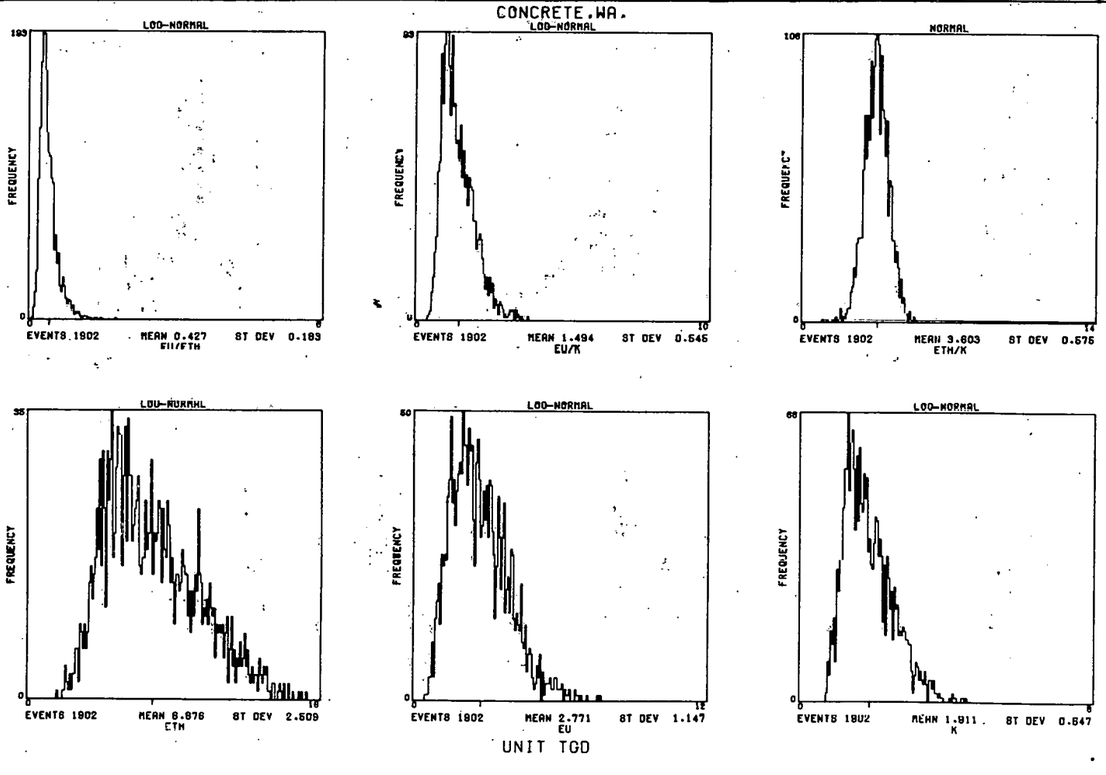

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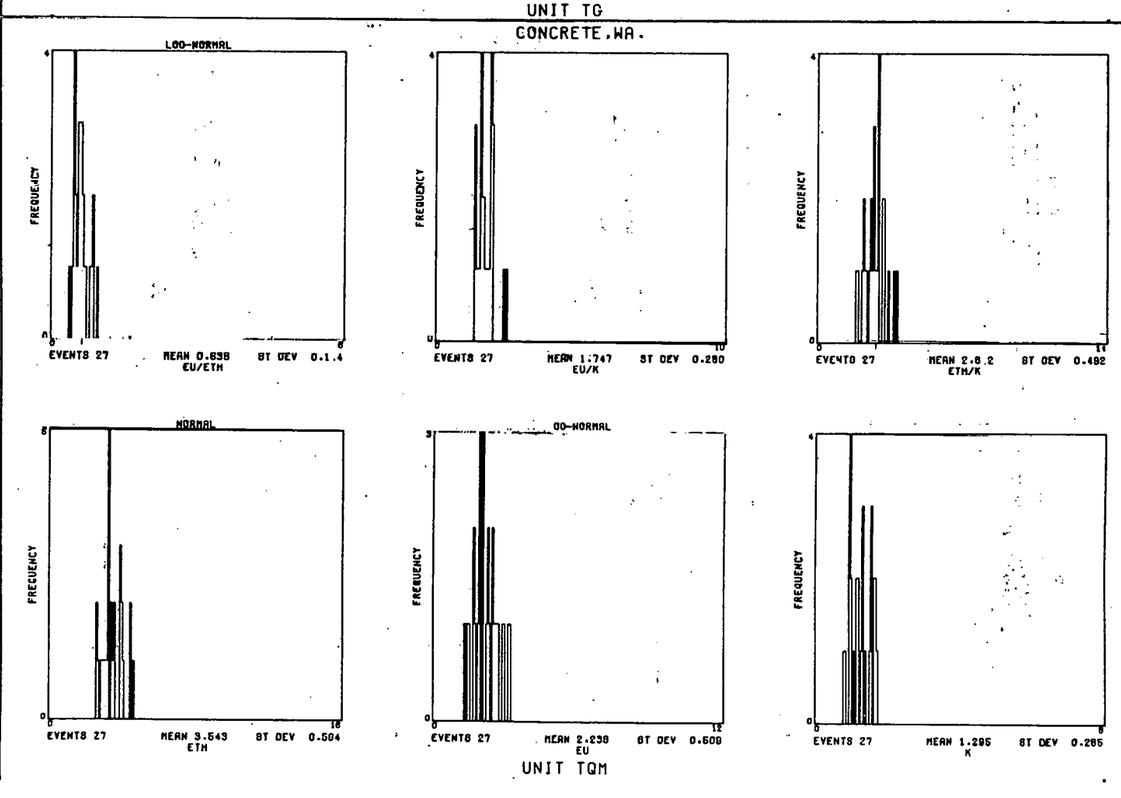

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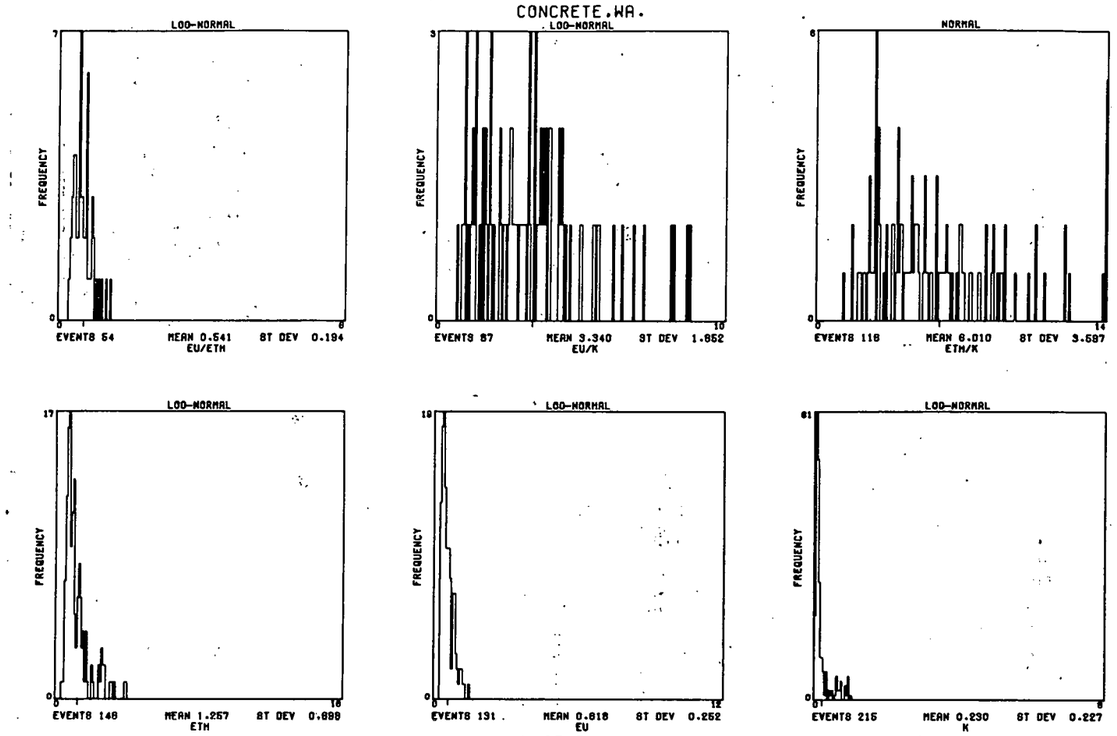

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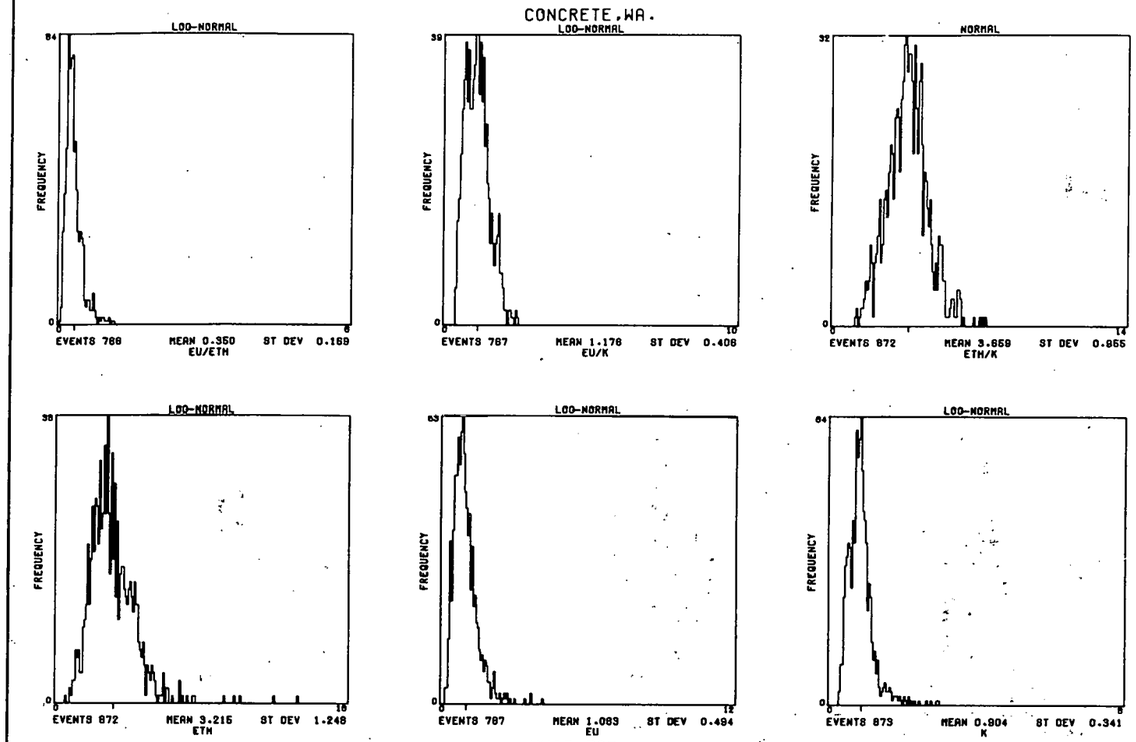

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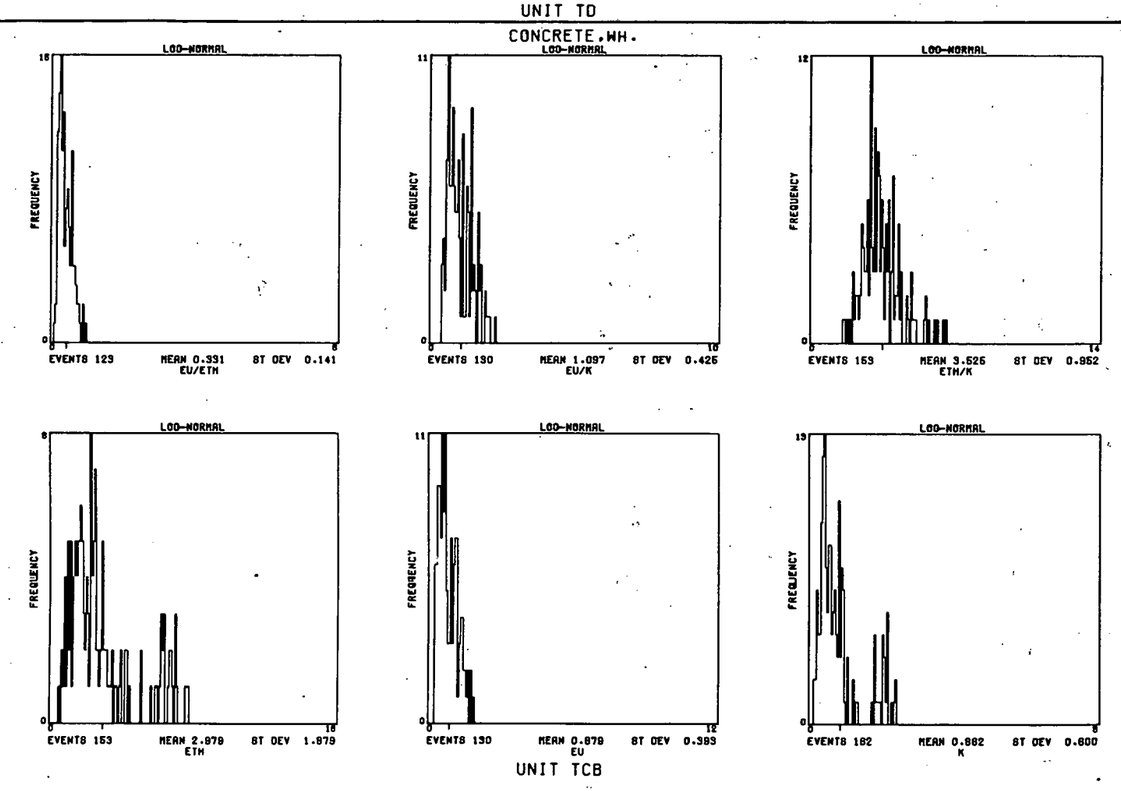

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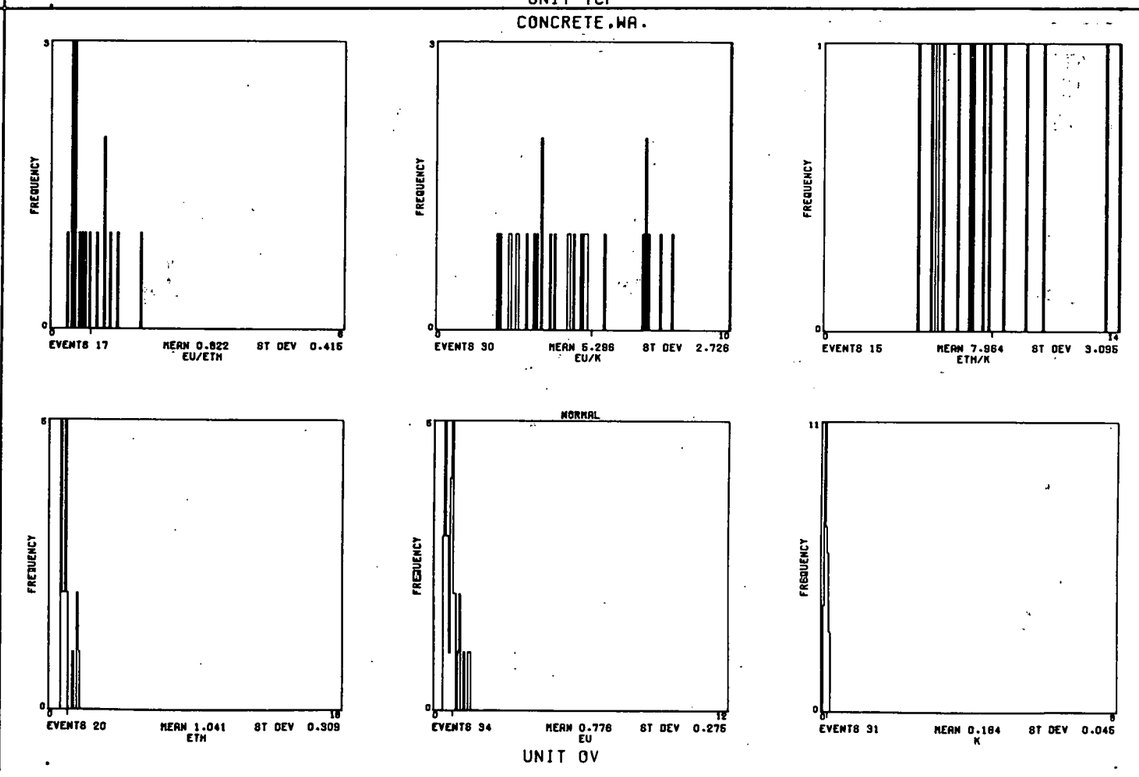

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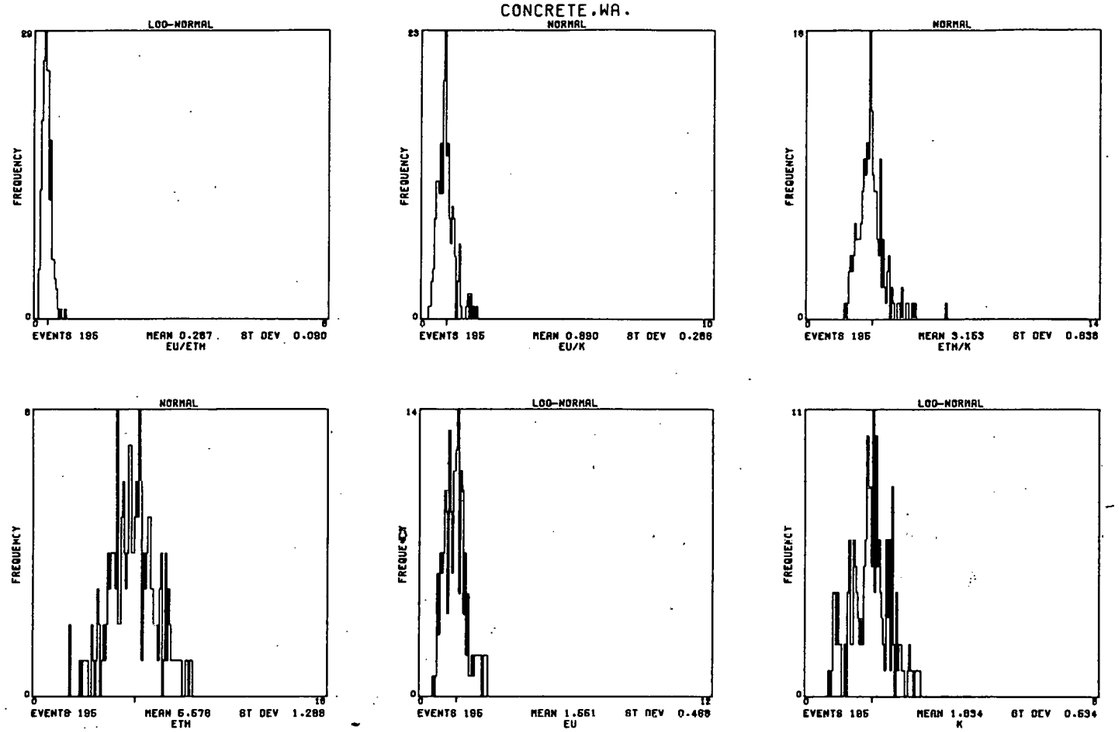

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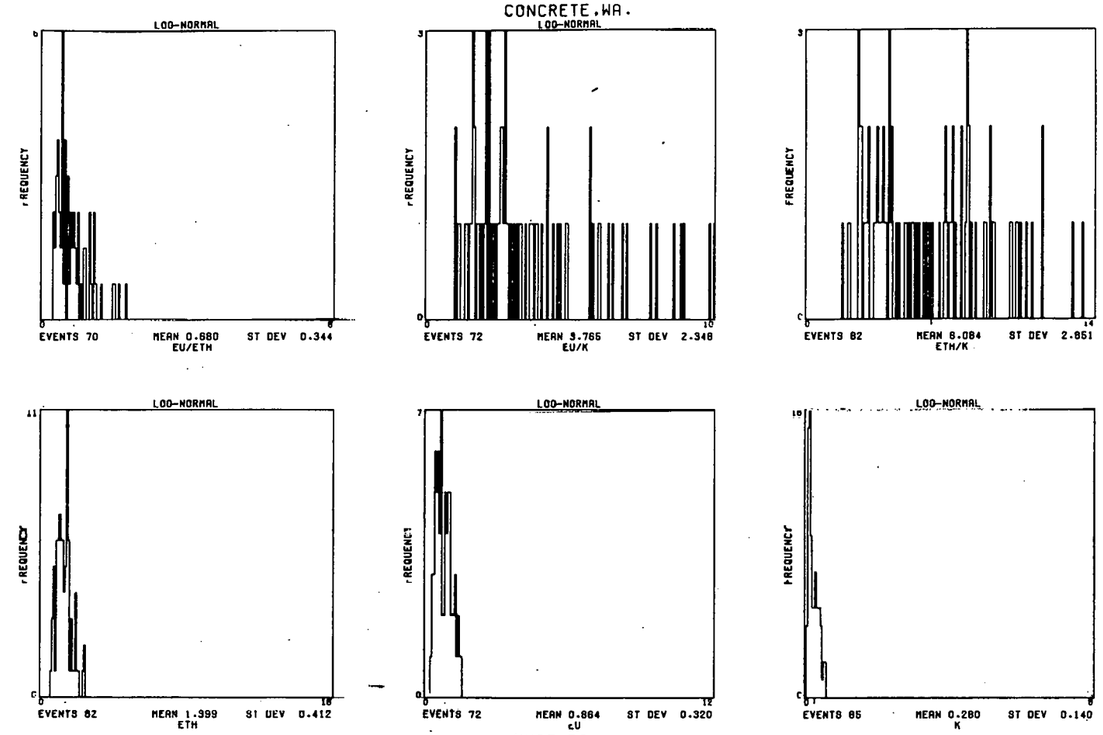
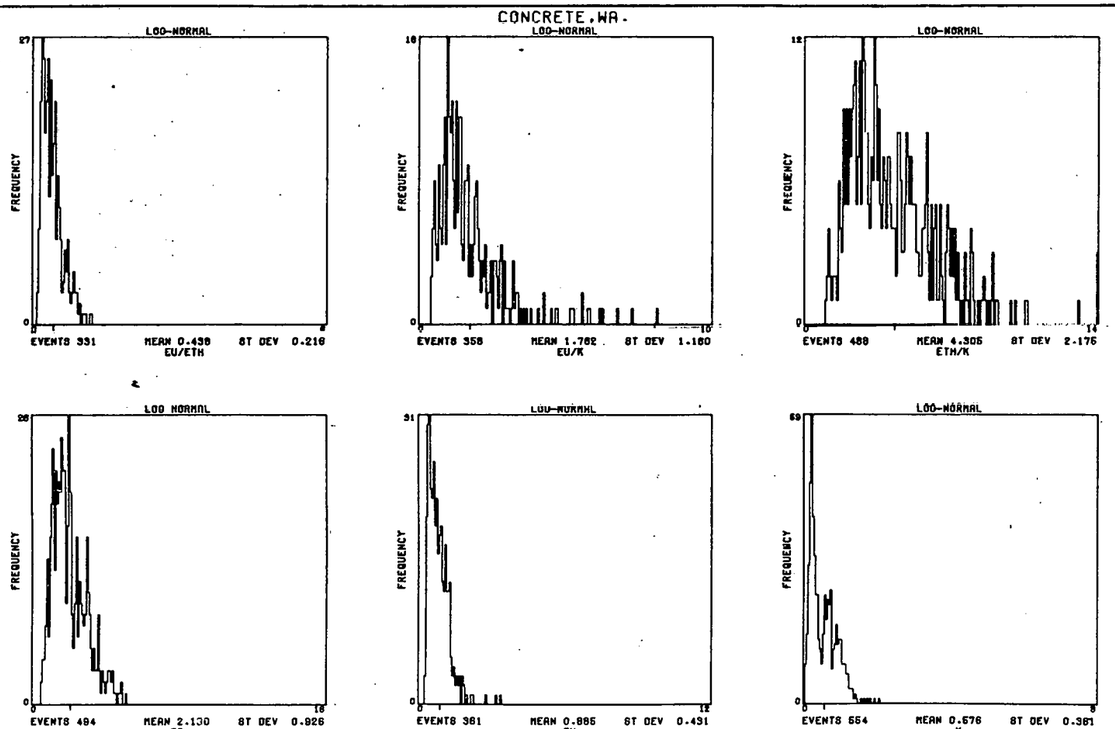


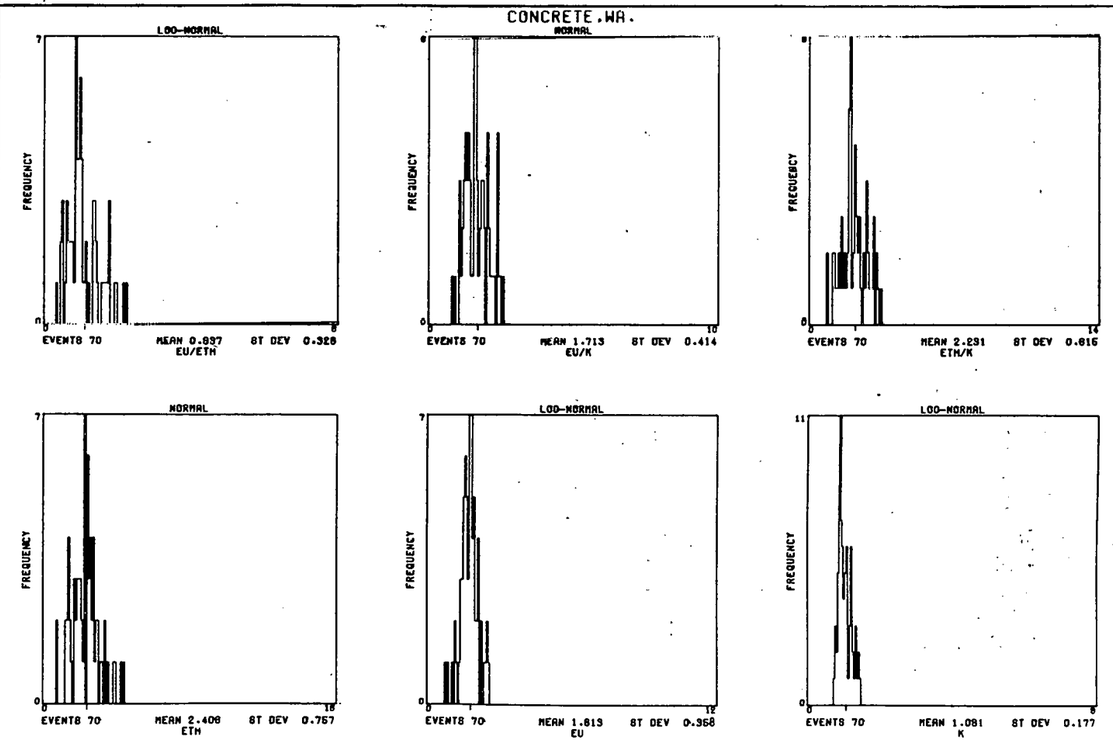
UNIT BI

CONCRETE.WA.



UNIT TKC

CONCRETE.WA.



UNIT TPCF

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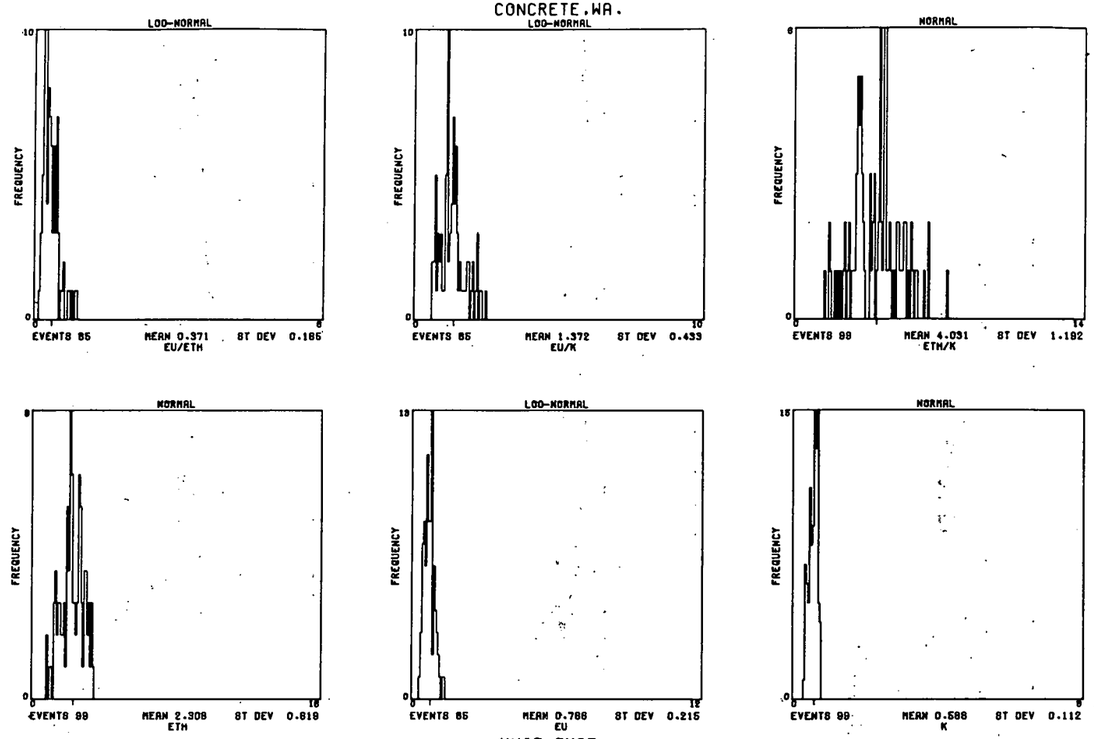

UNIT TKCF

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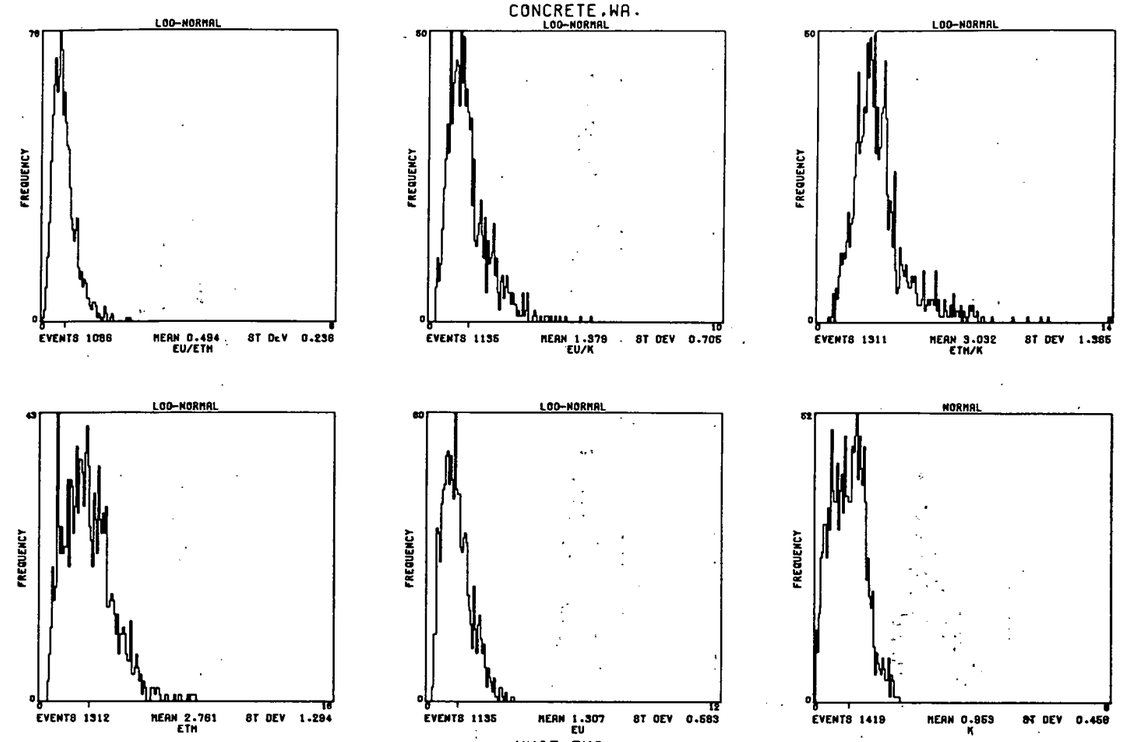

UNIT TKG

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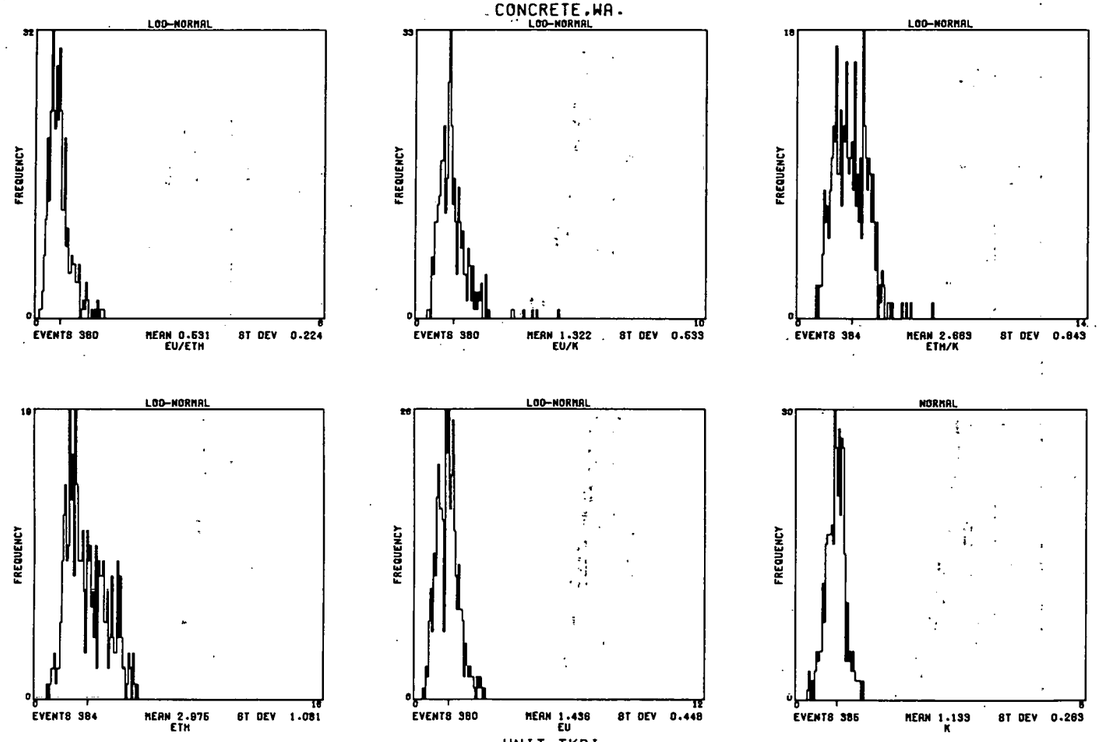

UNIT TKBI

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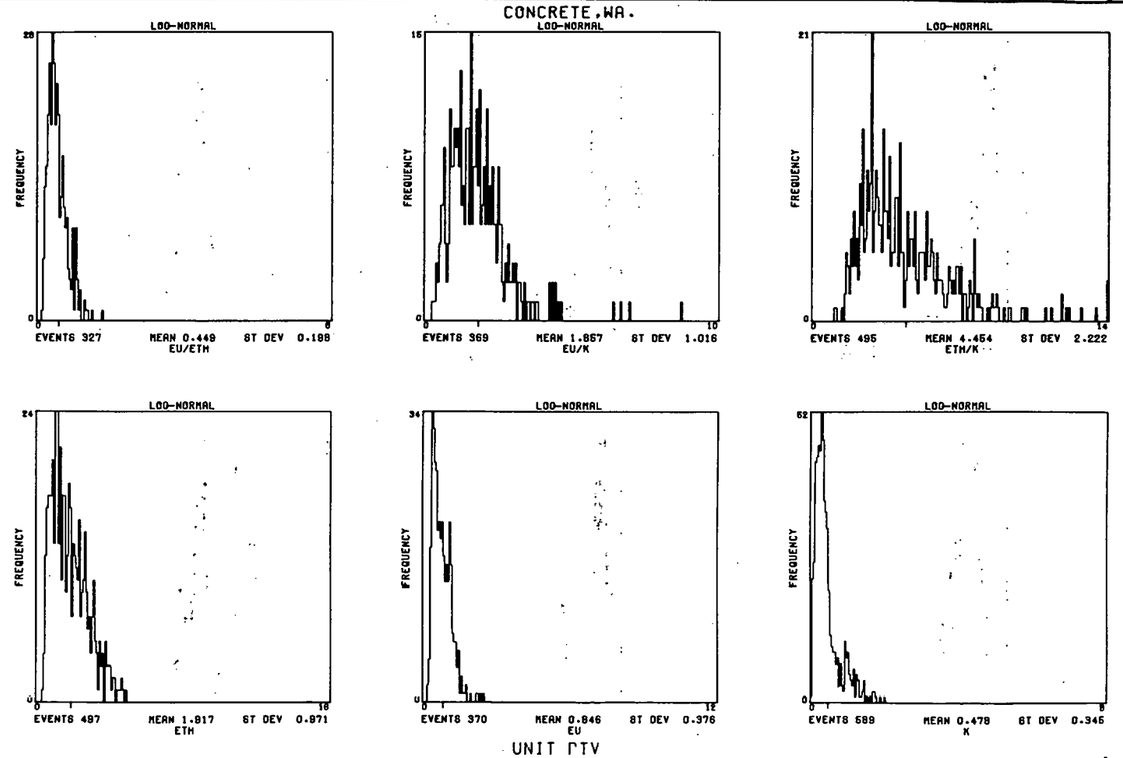
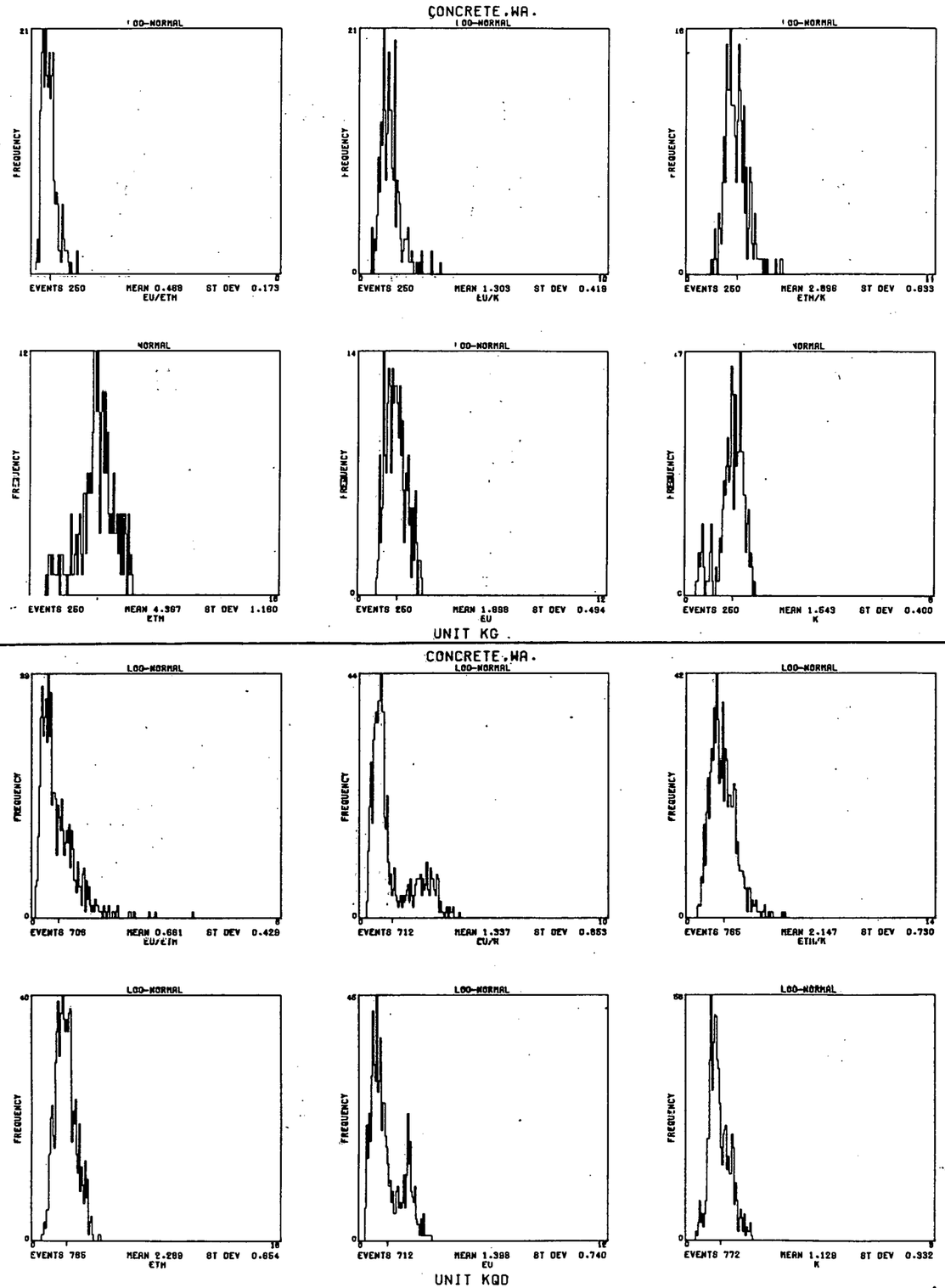
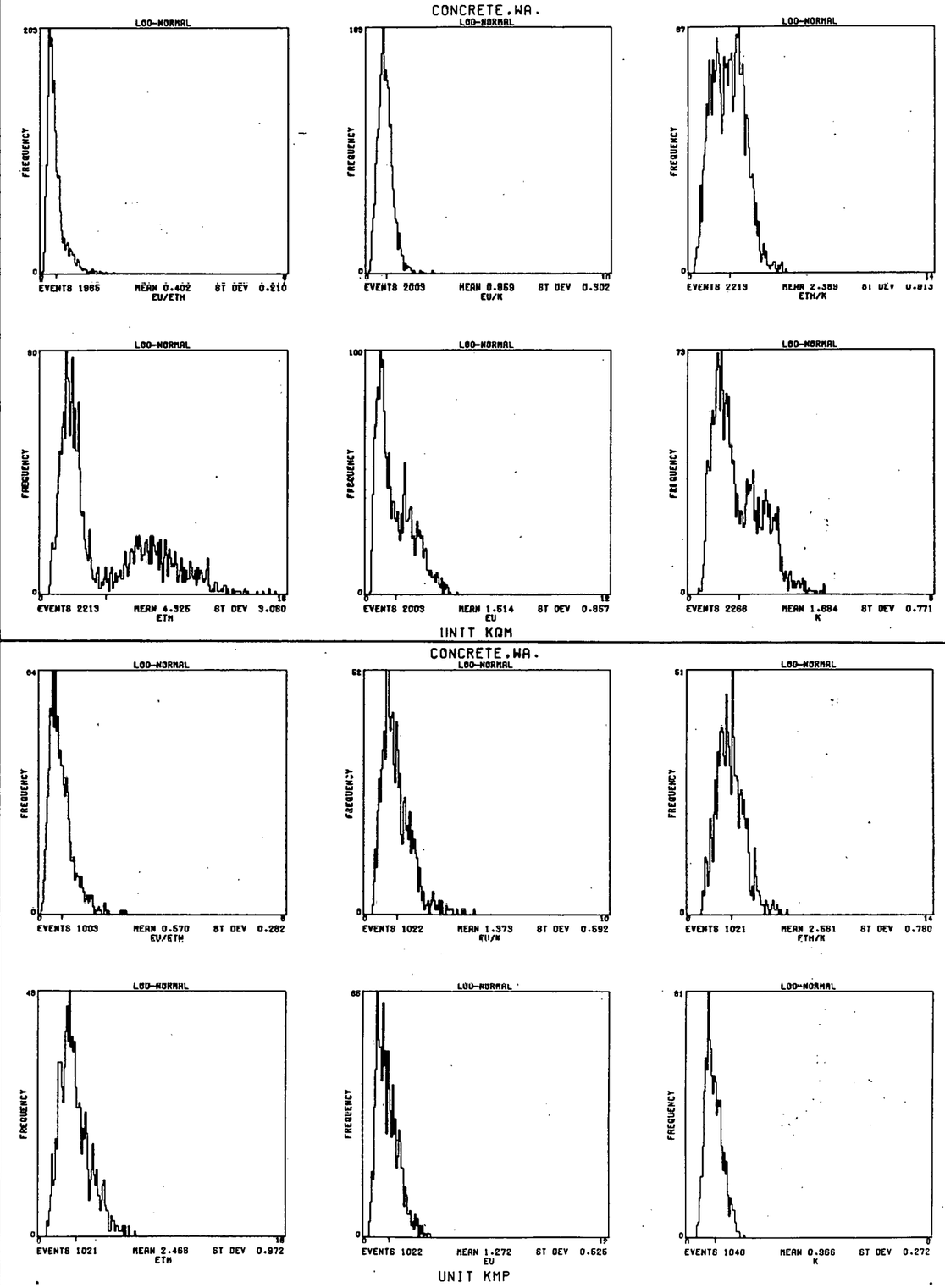


UNIT TKV


CONCRETE.WA.
LOG-NORMAL
FREQUENCY
EVENTS 250 MEAN 0.489 ST DEV 0.173
EU/ETH
EVENTS 250 MEAN 1.303 ST DEV 0.419
EU/K
EVENTS 250 MEAN 2.898 ST DEV 0.833
ETH/K
NORMAL
EVENTS 250 MEAN 4.367 ST DEV 1.160
ETH
EVENTS 250 MEAN 1.898 ST DEV 0.494
EU
EVENTS 250 MEAN 1.543 ST DEV 0.400
K
UNIT KG.
CONCRETE.WA.
LOG-NORMAL
FREQUENCY
EVENTS 706 MEAN 0.681 ST DEV 0.429
EU/ETH
EVENTS 712 MEAN 1.337 ST DEV 0.853
EU/K
EVENTS 765 MEAN 2.147 ST DEV 0.730
ETH/K
EVENTS 785 MEAN 2.289 ST DEV 0.654
ETH
EVENTS 712 MEAN 1.398 ST DEV 0.740
EU
EVENTS 772 MEAN 1.129 ST DEV 0.932
K
UNIT KQD


CONCRETE.WA.
LOG-NORMAL
FREQUENCY
EVENTS 1965 MEAN 0.402 ST DEV 0.210
EU/ETH
EVENTS 2003 MEAN 0.858 ST DEV 0.302
EU/K
EVENTS 2213 MEAN 2.359 ST DEV 0.813
ETH/K
EVENTS 2213 MEAN 4.325 ST DEV 3.080
ETH
EVENTS 2003 MEAN 1.514 ST DEV 0.657
EU
EVENTS 2266 MEAN 1.684 ST DEV 0.771
K
UNIT KQM
CONCRETE.WA.
LOG-NORMAL
FREQUENCY
EVENTS 1003 MEAN 0.570 ST DEV 0.282
EU/ETH
EVENTS 1022 MEAN 1.373 ST DEV 0.592
EU/K
EVENTS 1021 MEAN 2.681 ST DEV 0.780
ETH/K
EVENTS 1021 MEAN 2.468 ST DEV 0.872
ETH
EVENTS 1022 MEAN 1.272 ST DEV 0.626
EU
EVENTS 1040 MEAN 0.966 ST DEV 0.272
K
UNIT KMP

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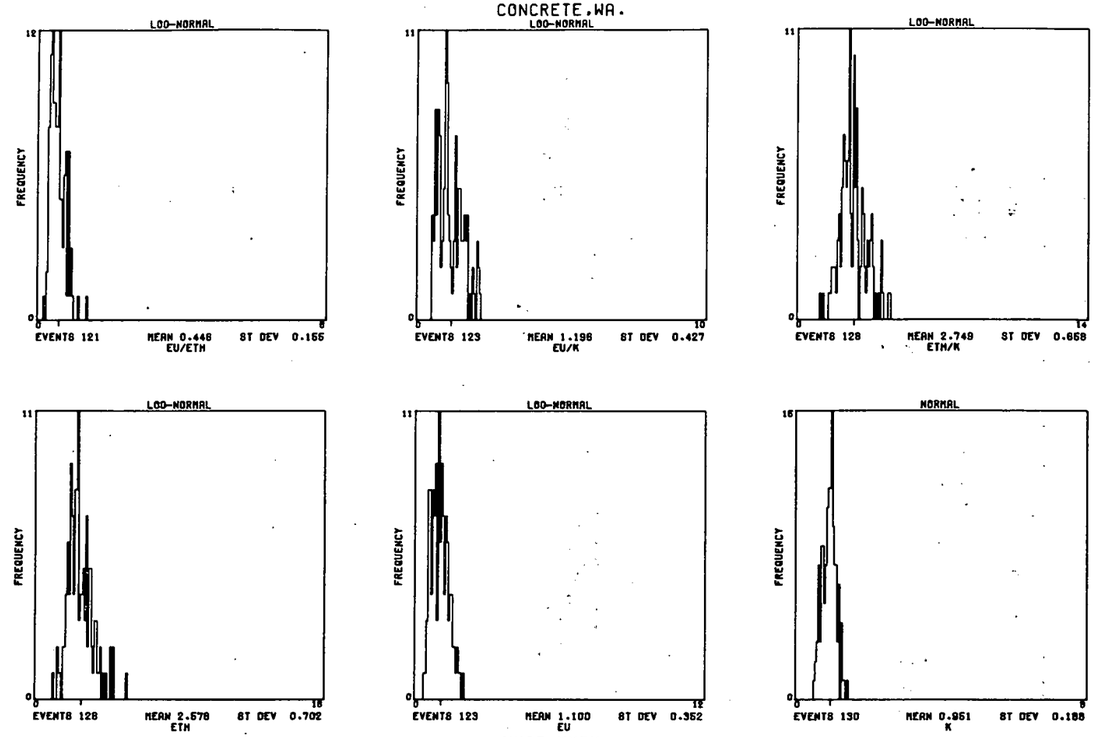

UNIT KMPV

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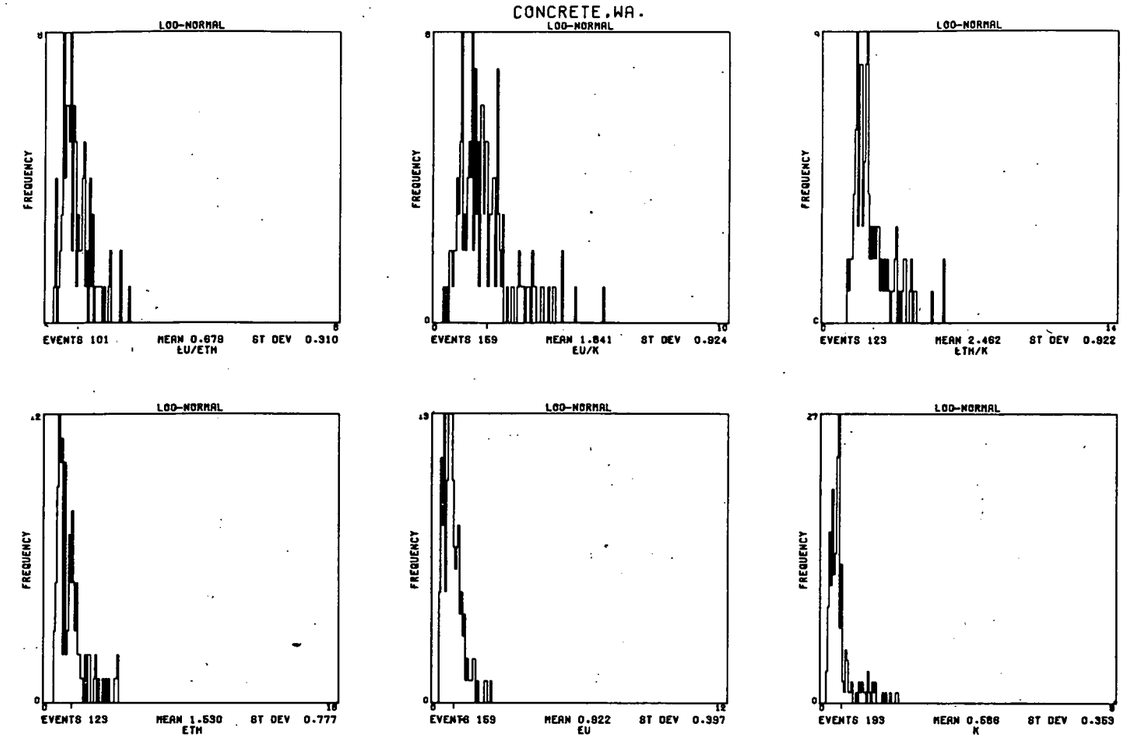

UNIT KHG

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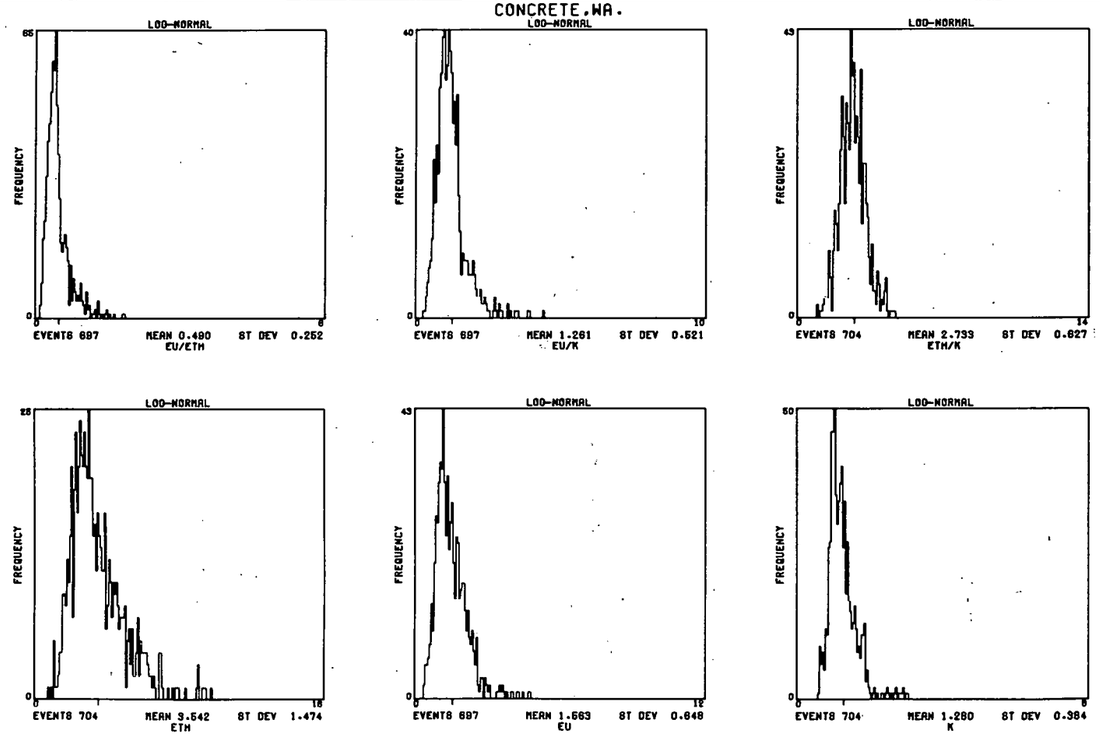
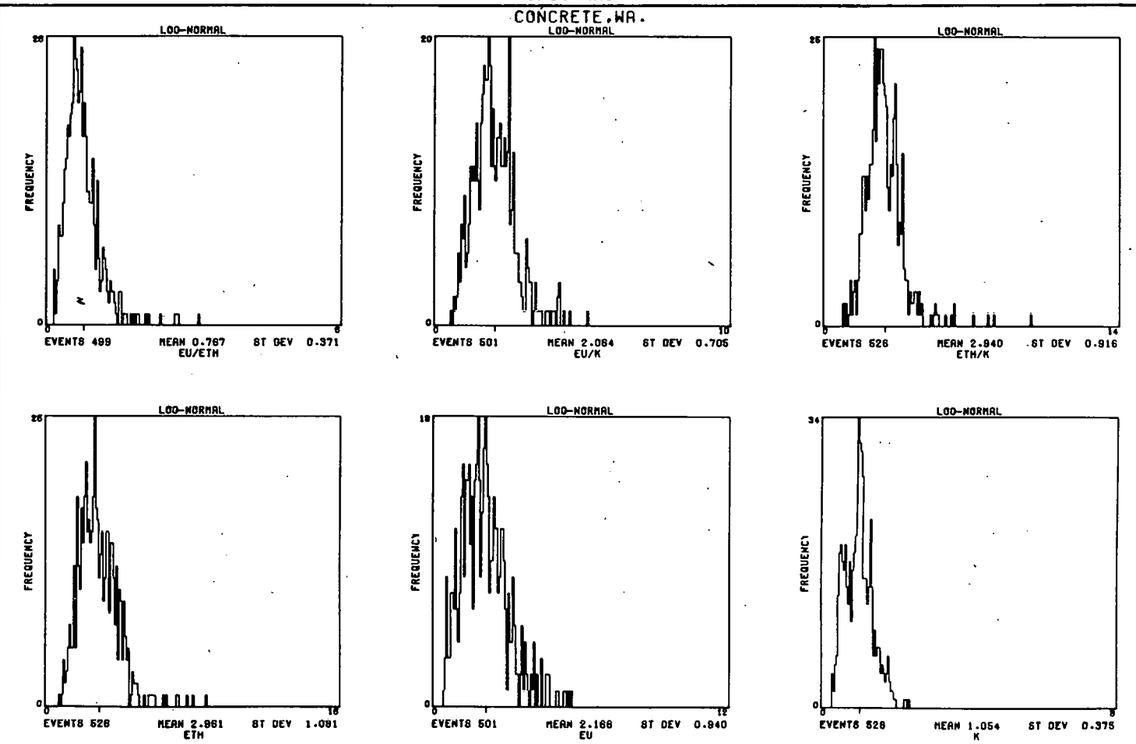


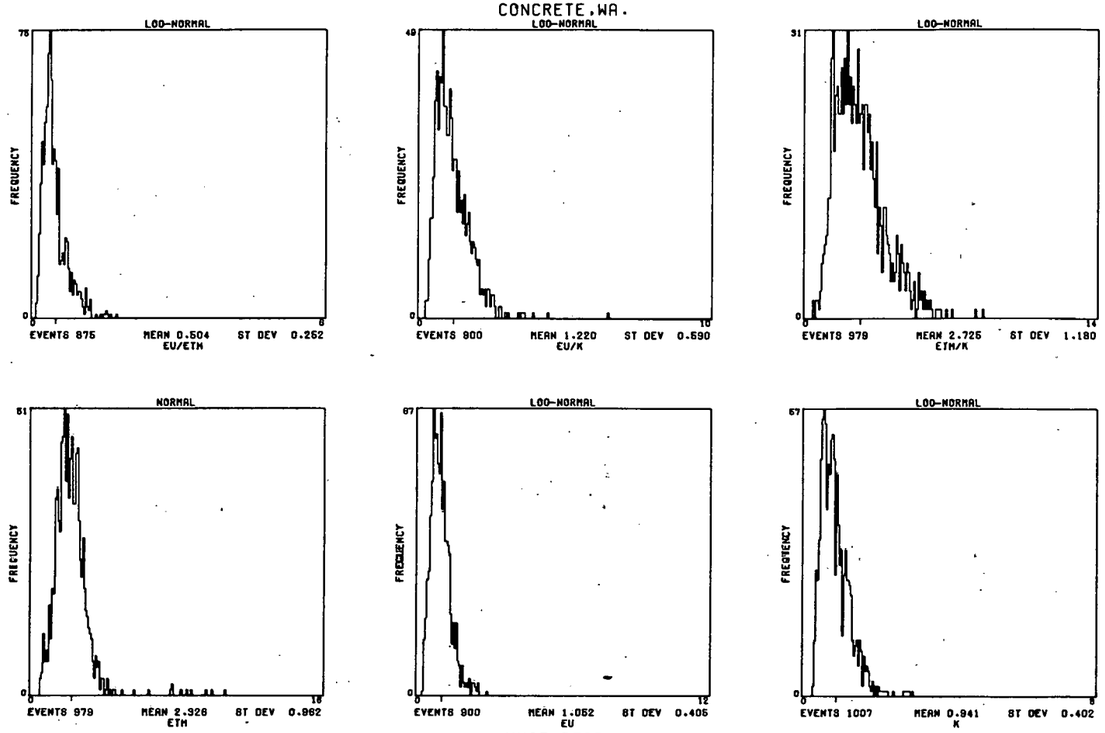
UNIT KW

CONCRETE,WA.



UNIT PTG

CONCRETE.WA.



UNIT PTGD

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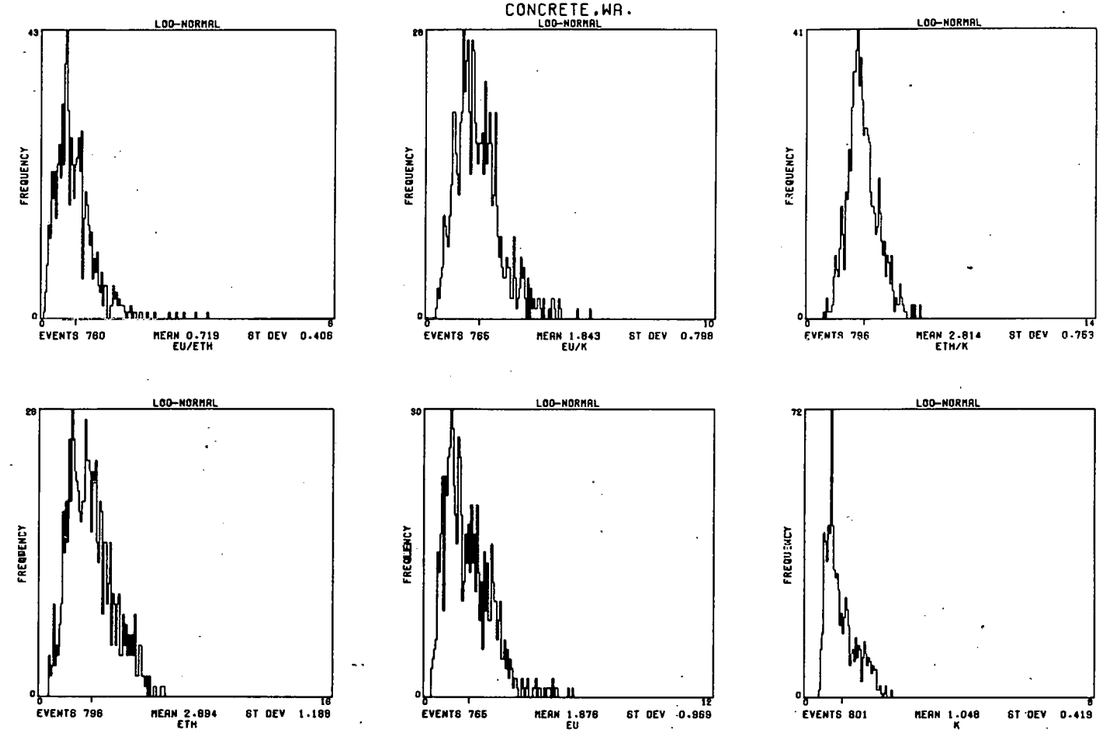

UNIT PTGD

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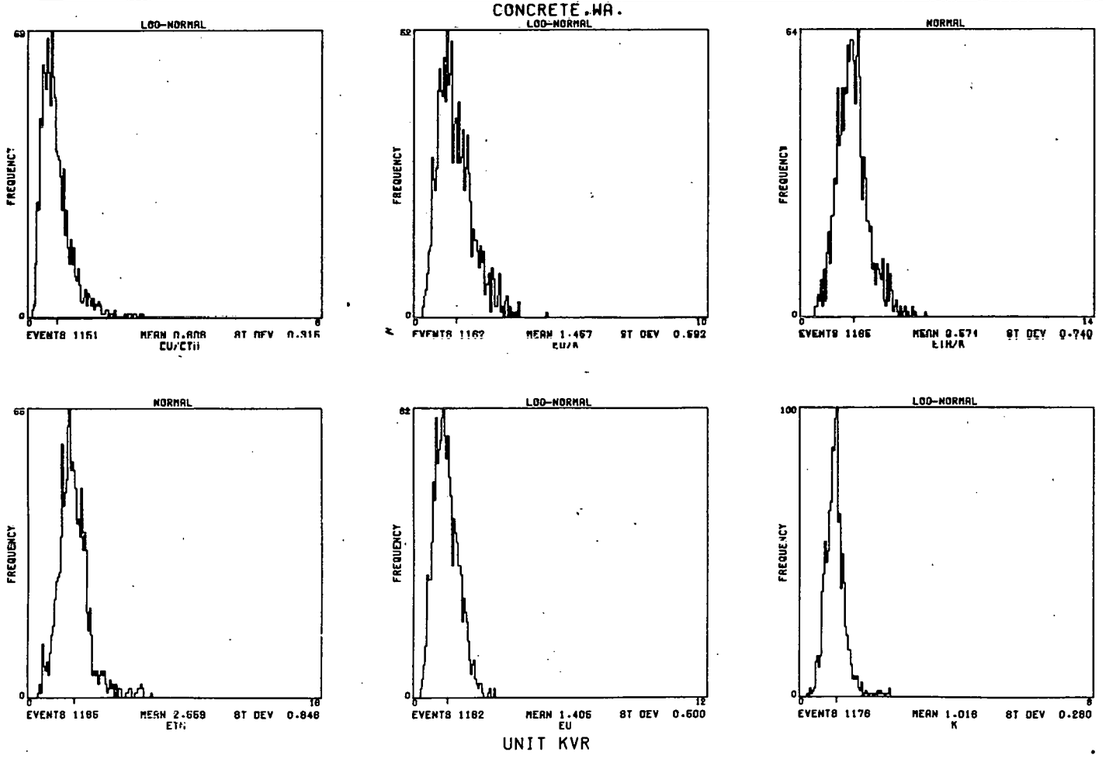

UNIT KVR

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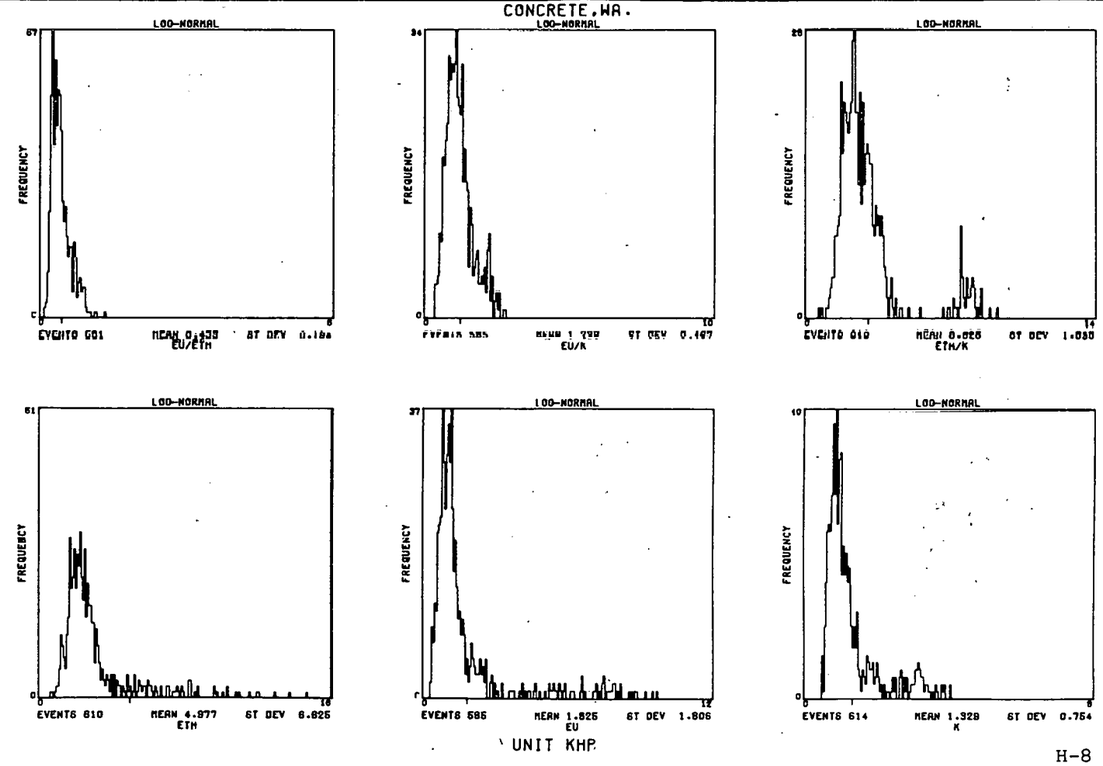

UNIT KHP

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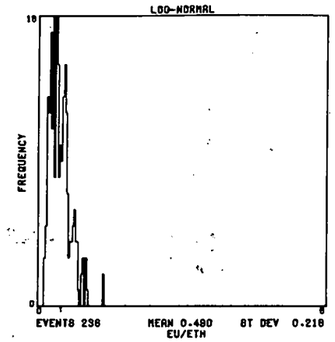

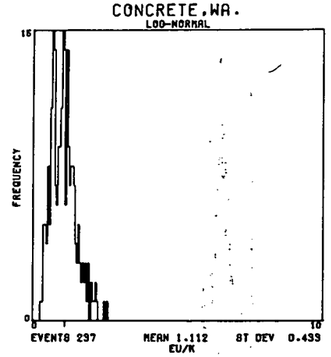

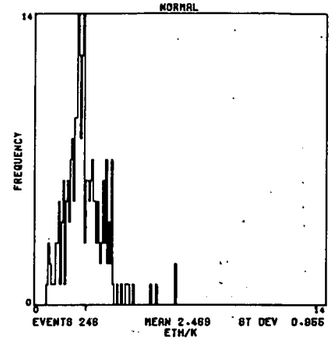

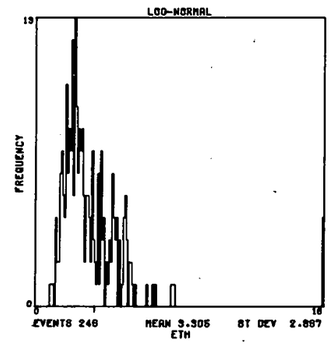

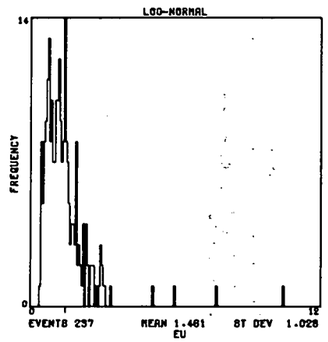

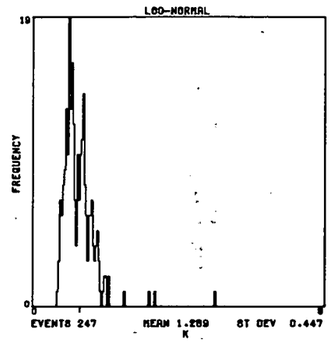

UNIT KPC

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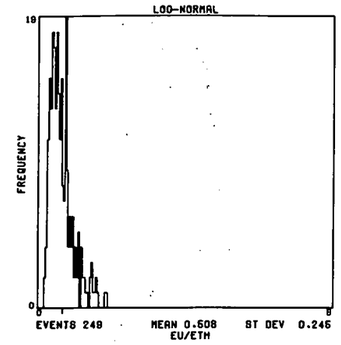

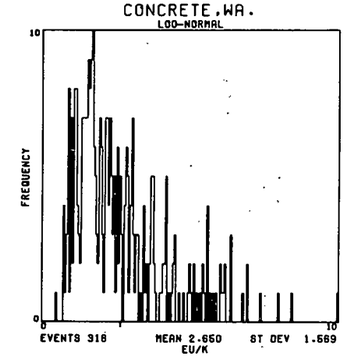

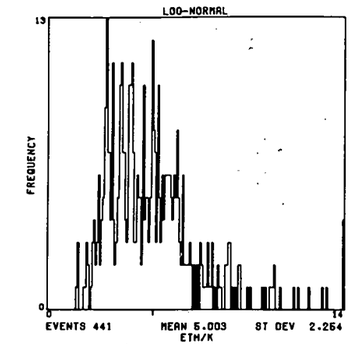

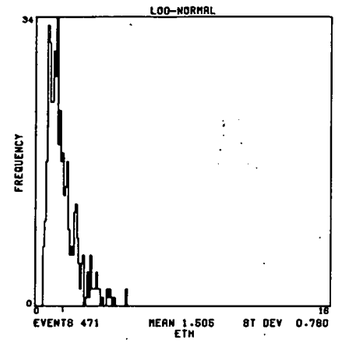

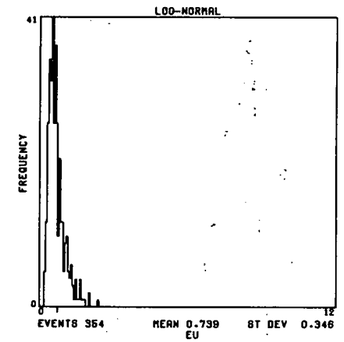

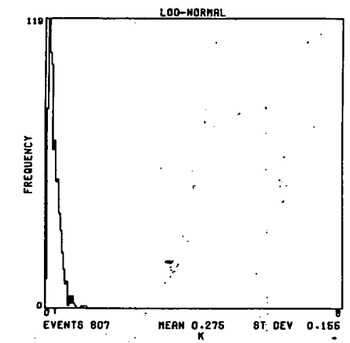

UNIT PTGS

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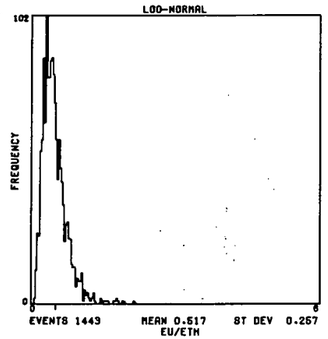
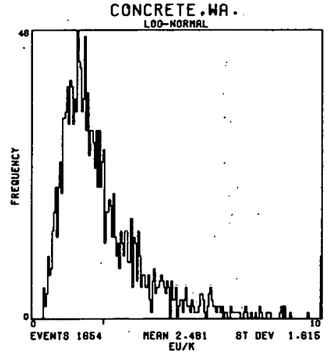
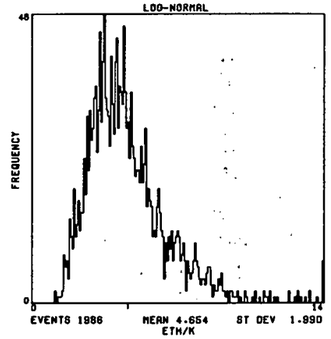
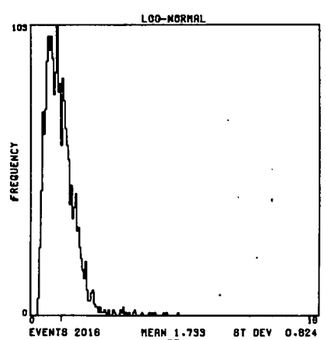
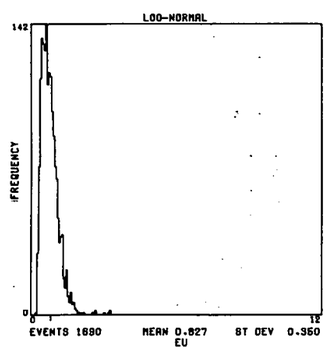
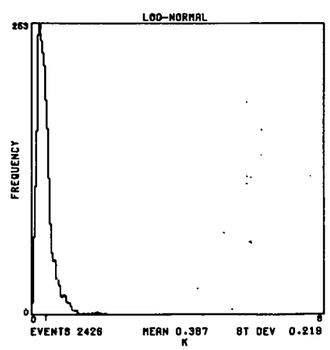






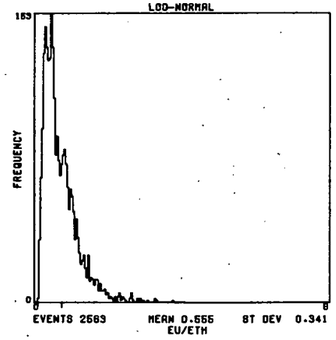


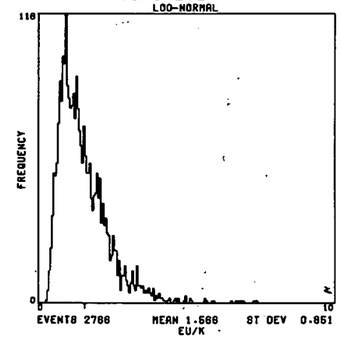


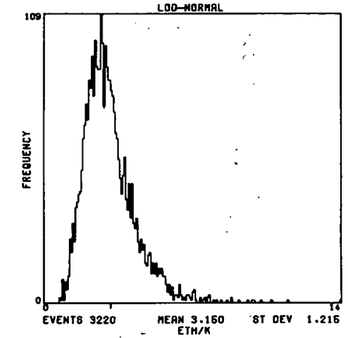


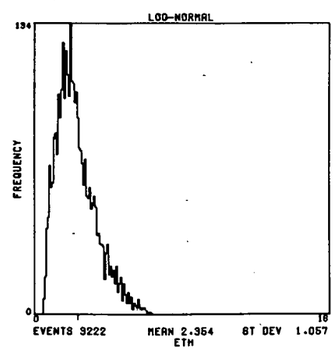
UNIT PTPH

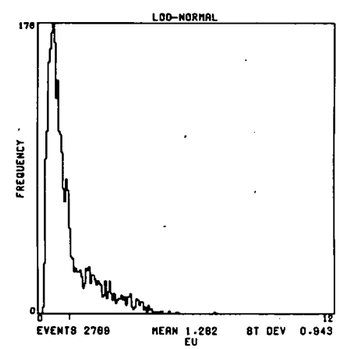
CONCRETE.WA.

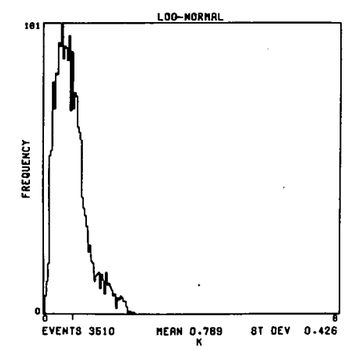












UNIT PTSC

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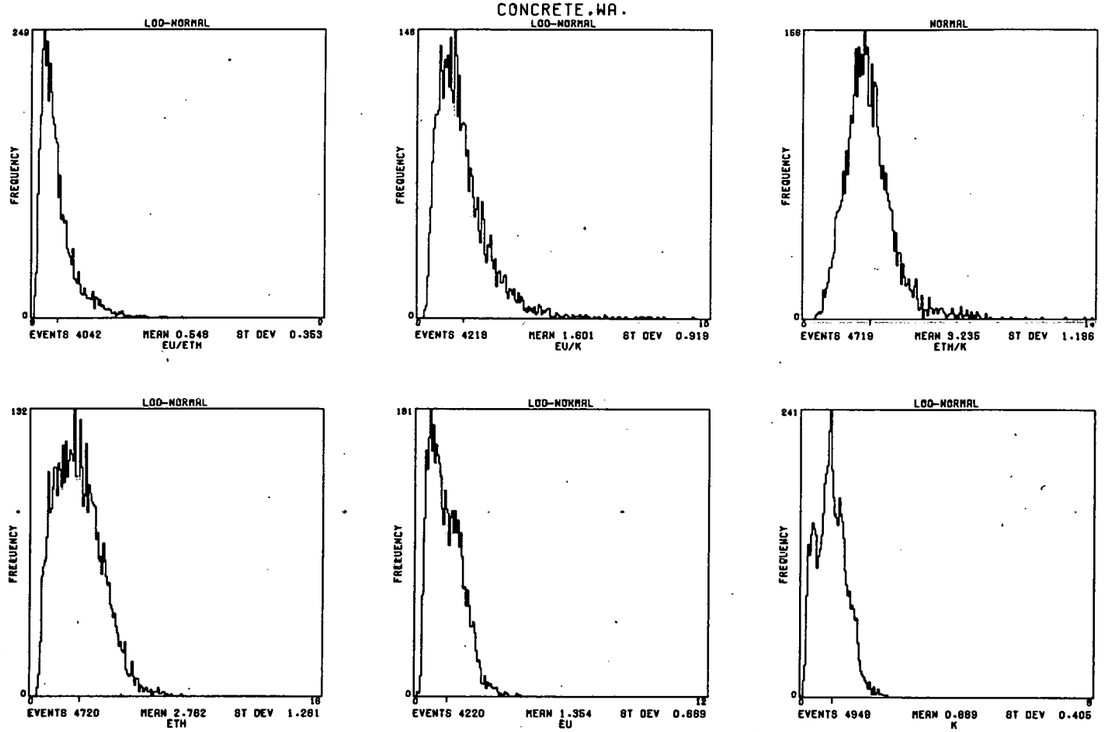

UNIT PTGN

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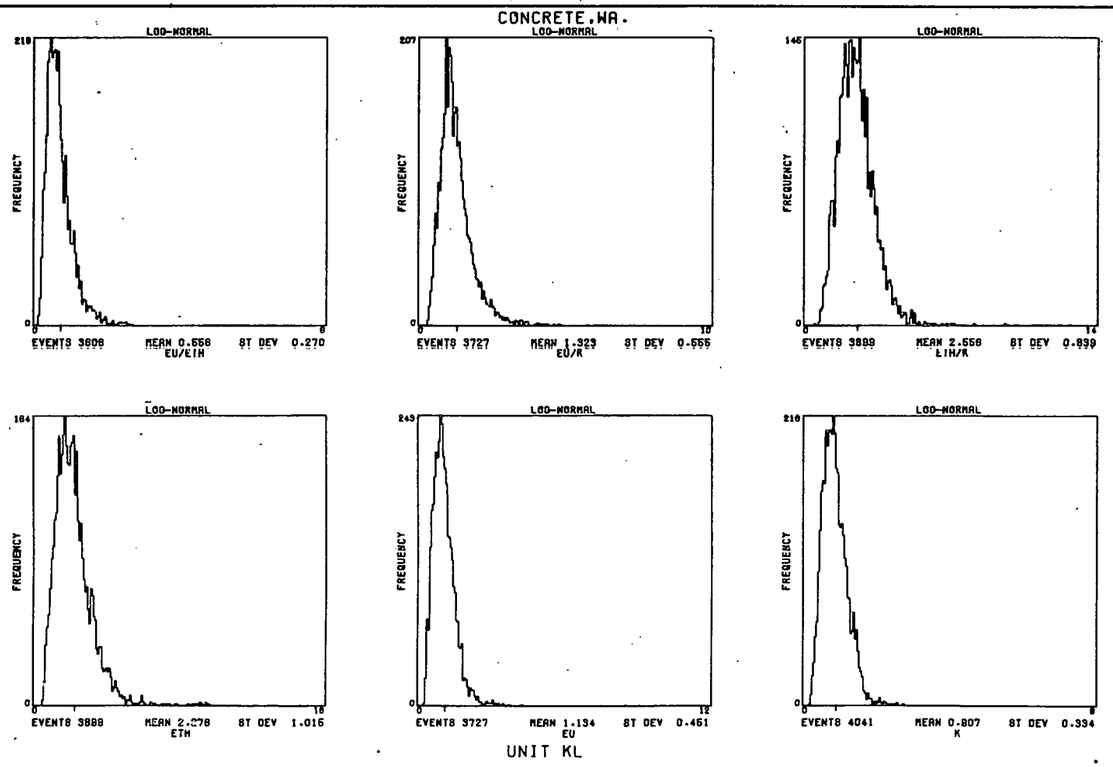

UNIT KL

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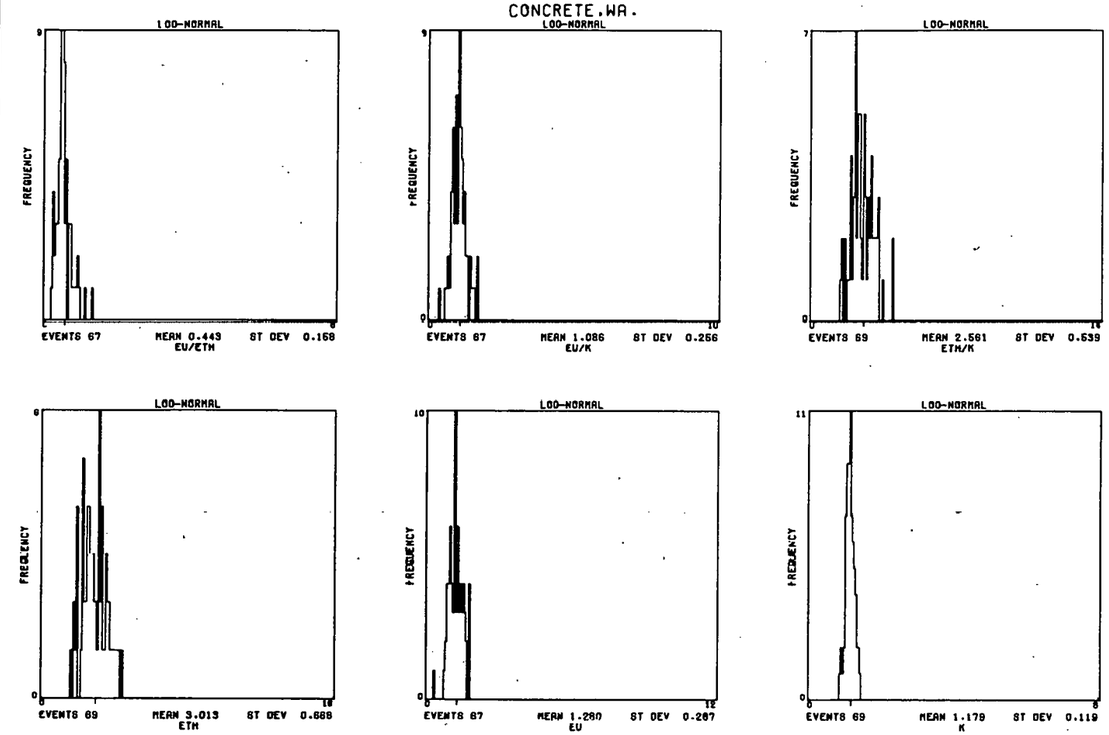

UNIT KGC

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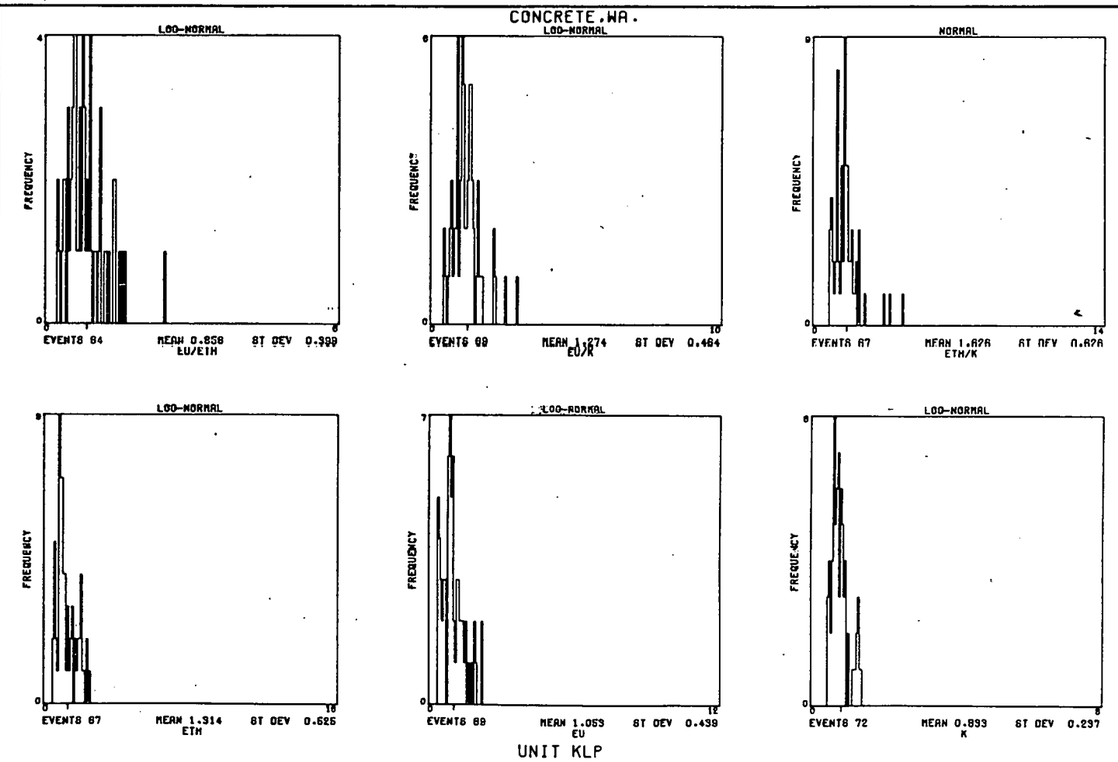

UNIT KLP

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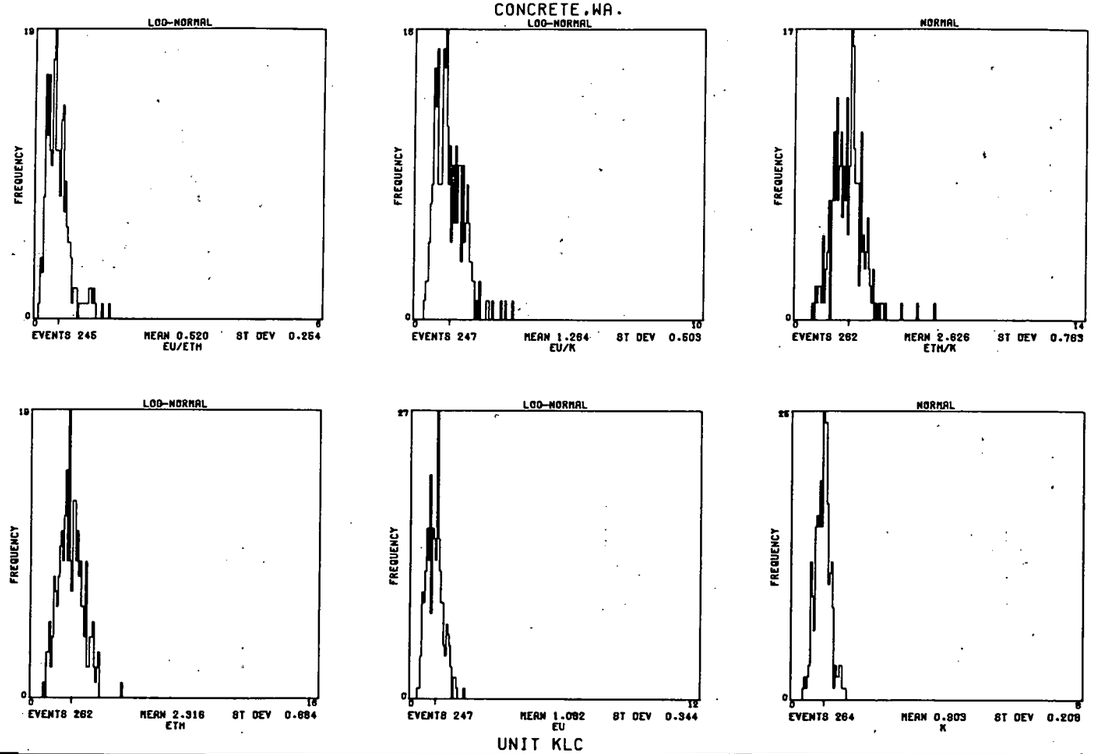

UNIT KLC

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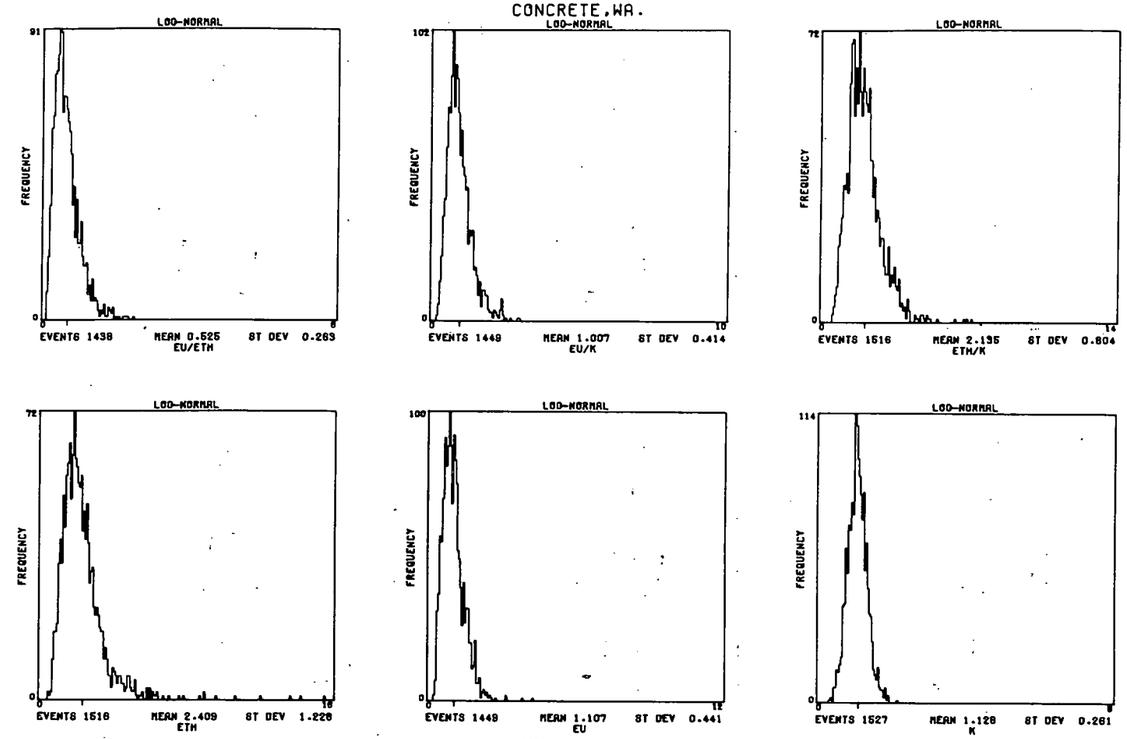

UNIT KJN

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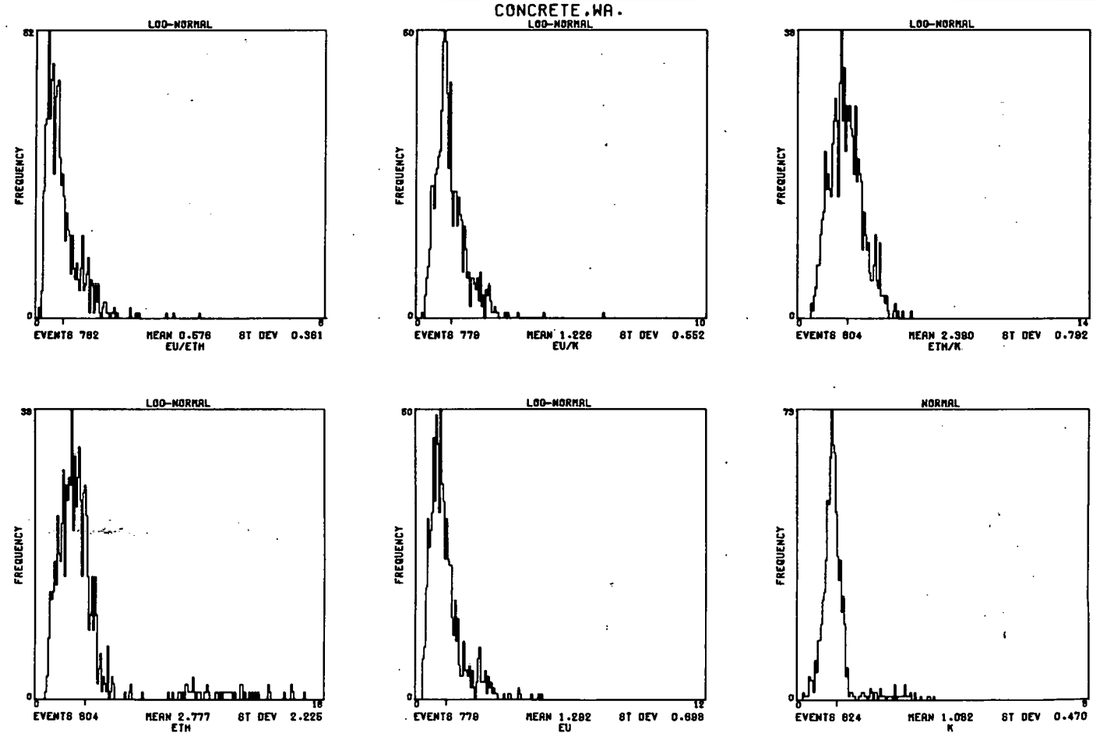

UNIT KNBM

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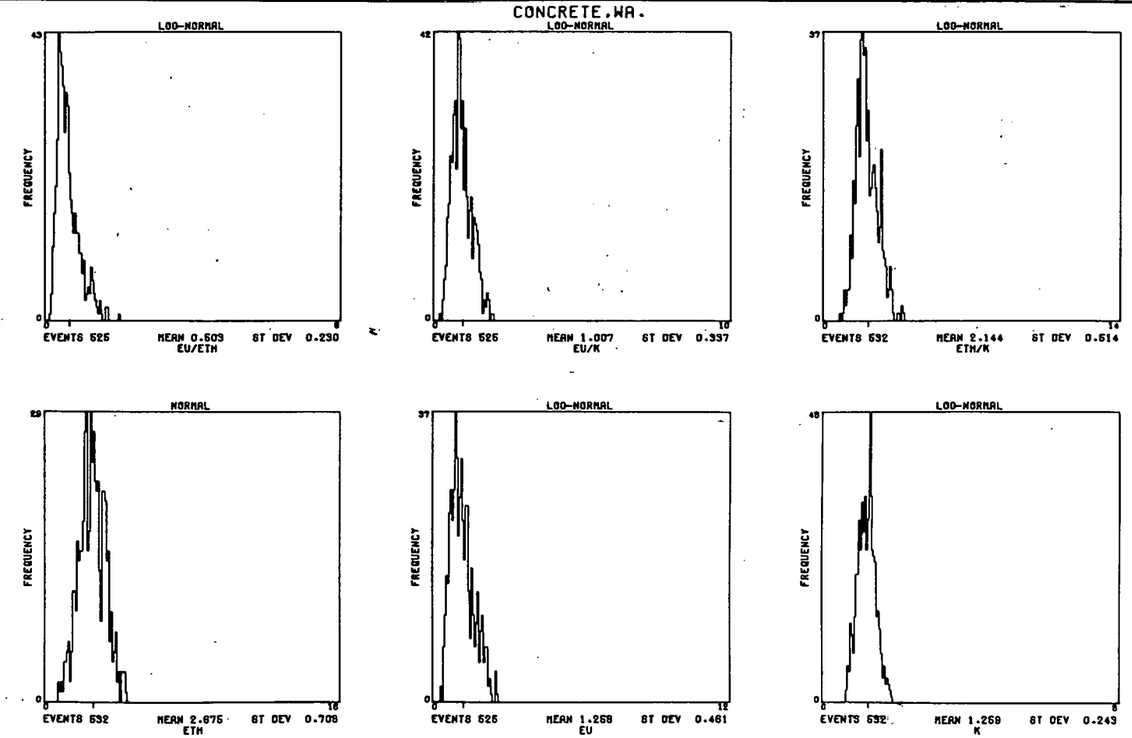

UNIT KJNT

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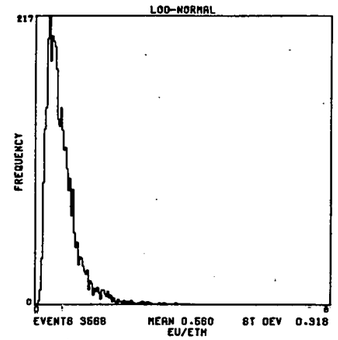

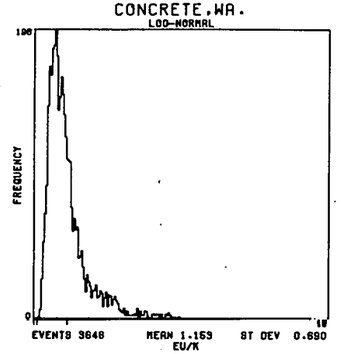

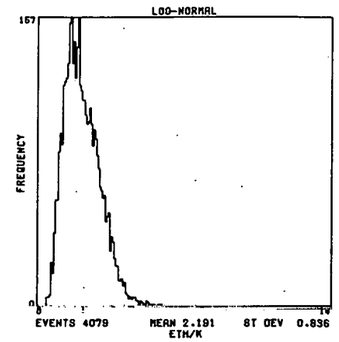

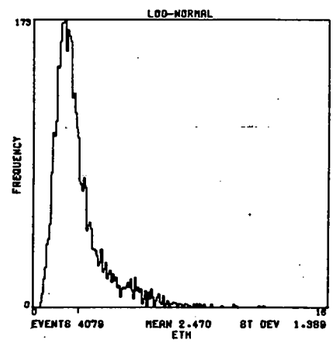

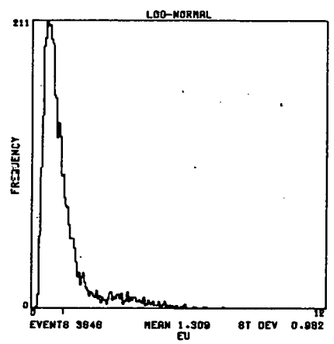

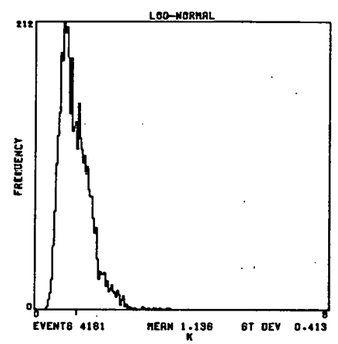

UNIT MZG

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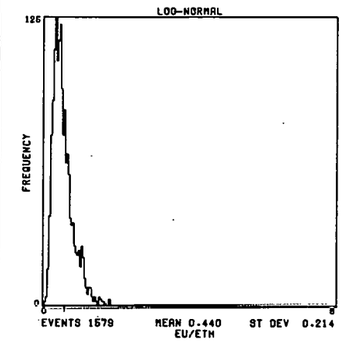

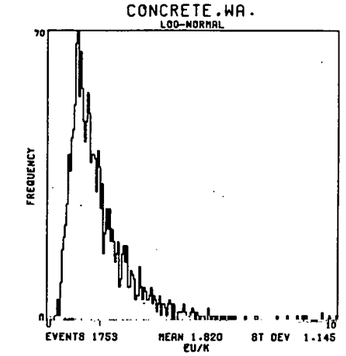

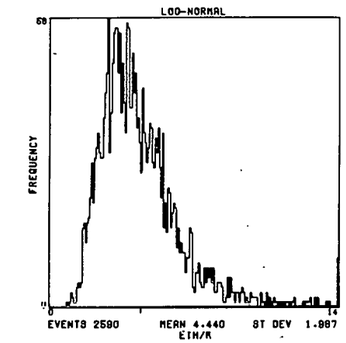

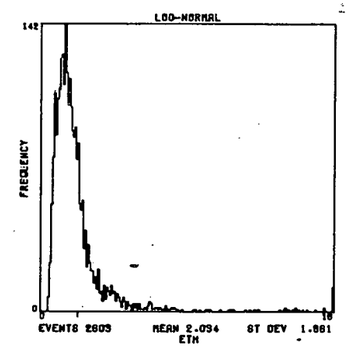

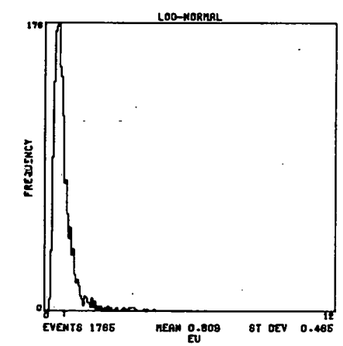

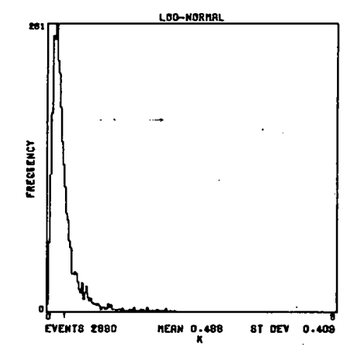

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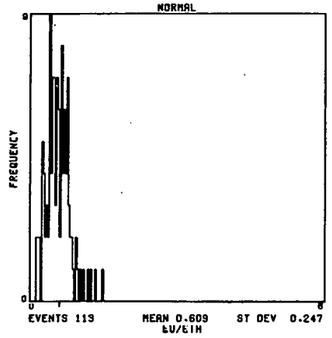

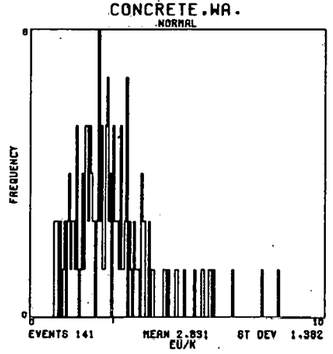

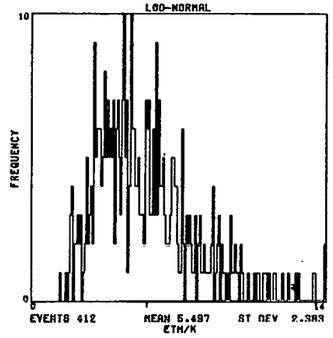

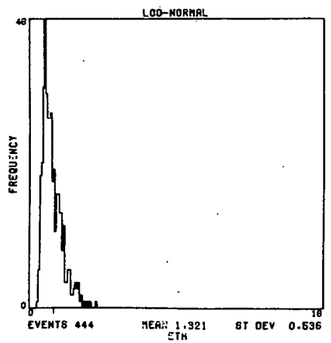

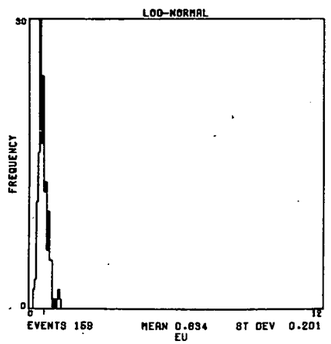

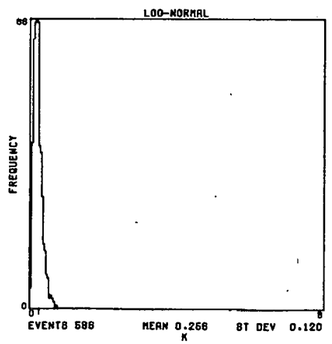

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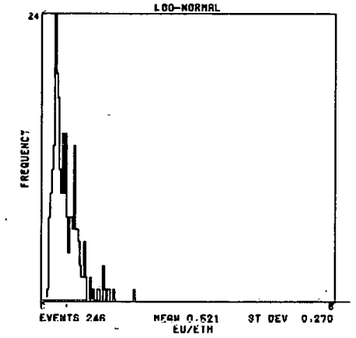

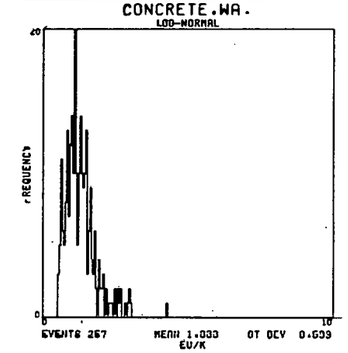

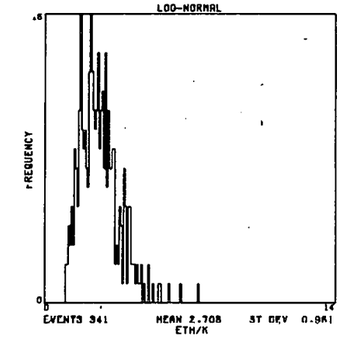

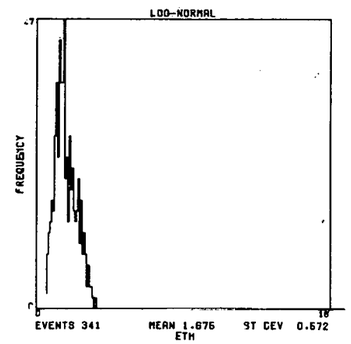

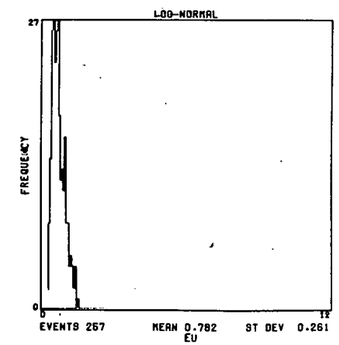

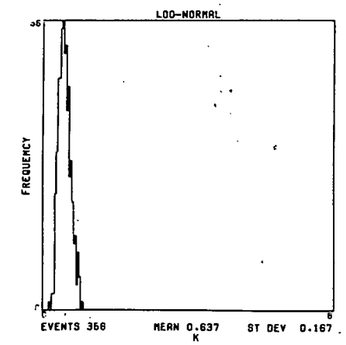

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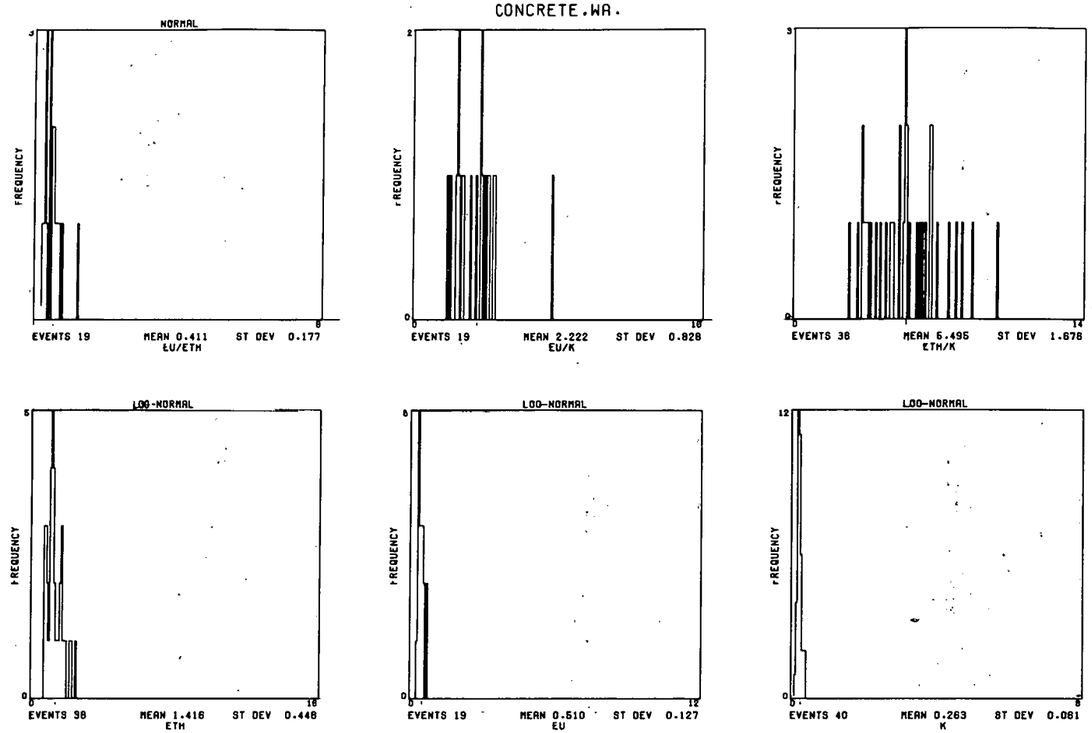

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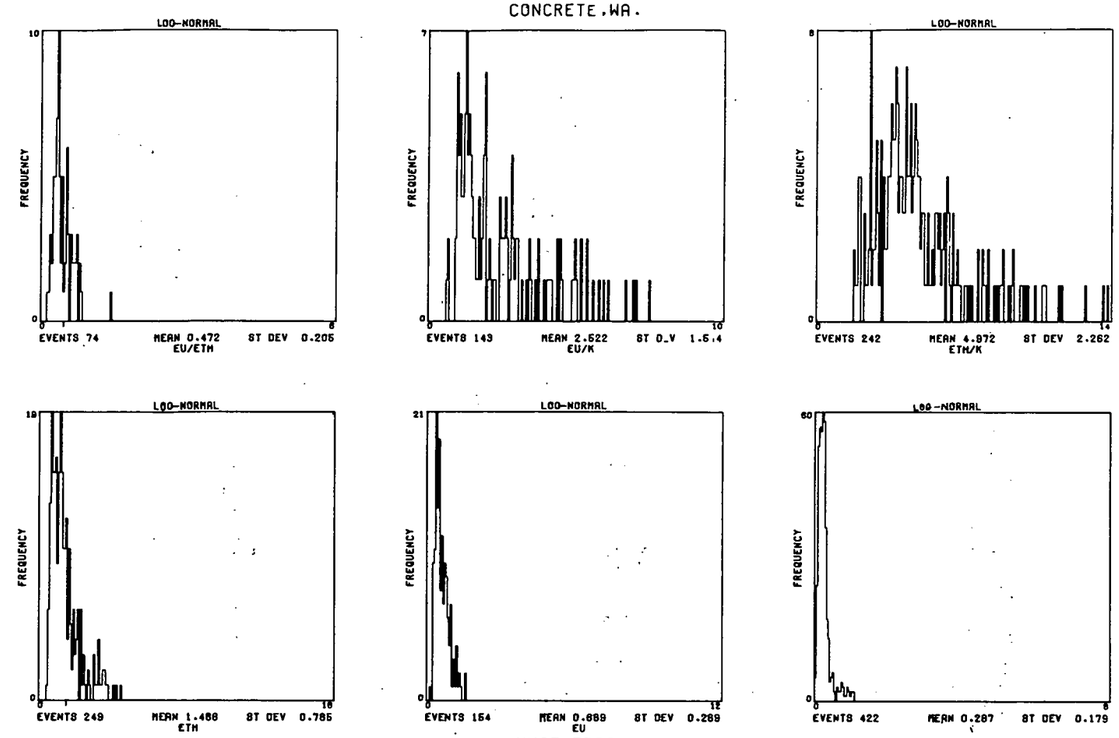

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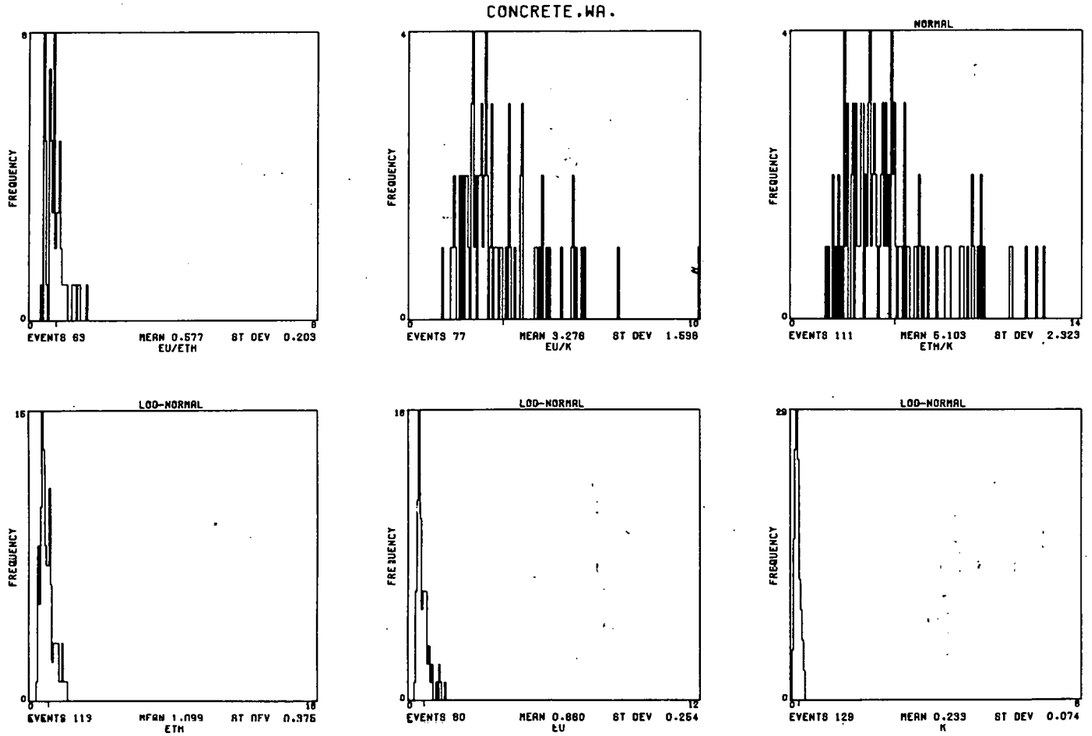

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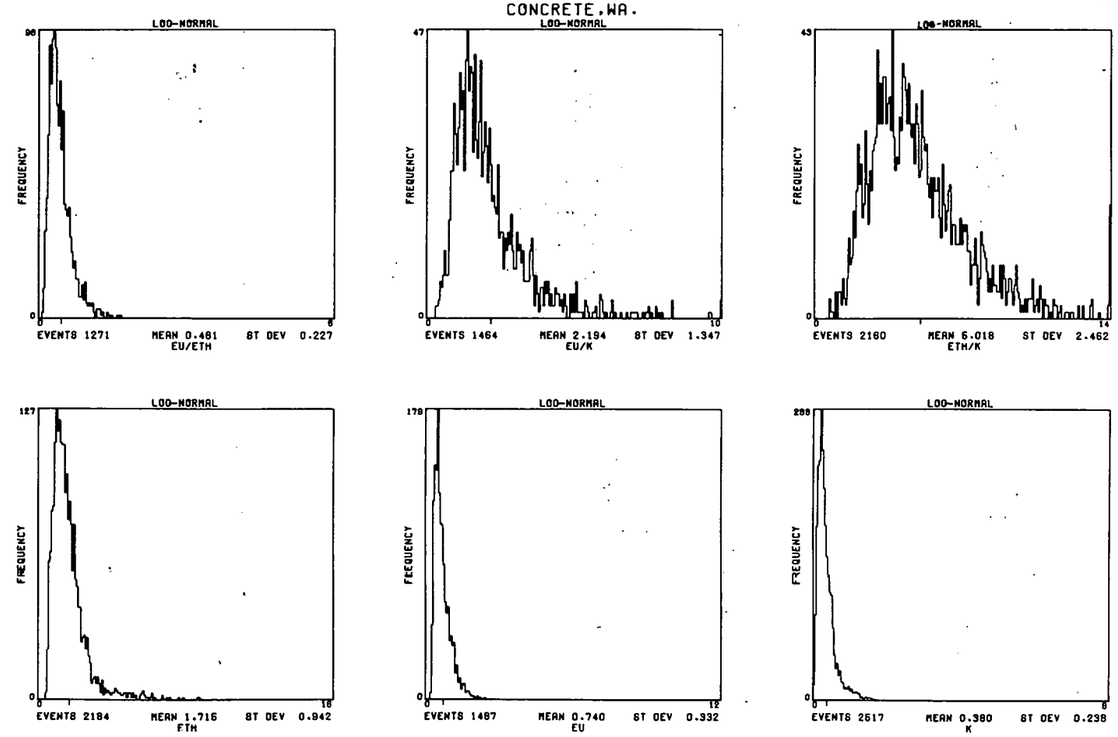

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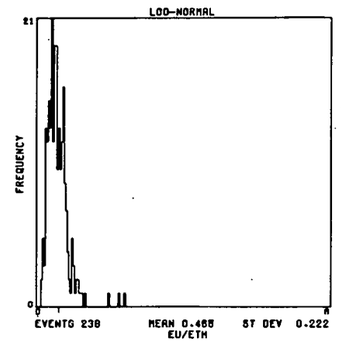

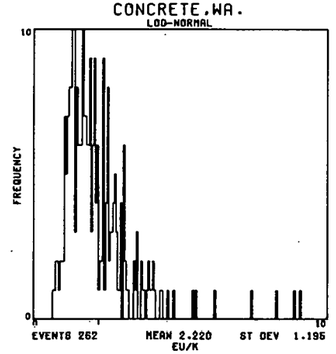

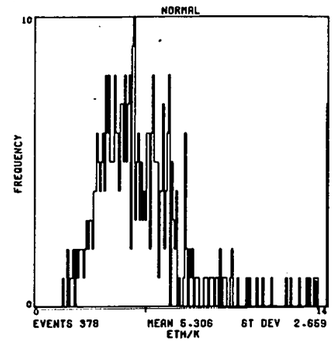

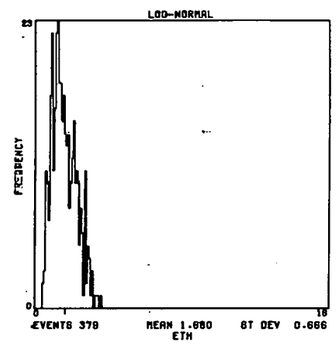

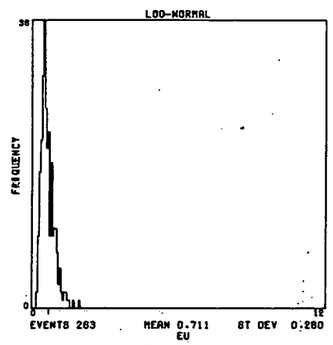

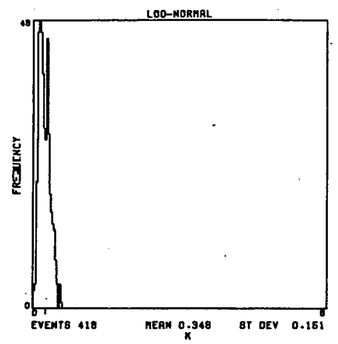

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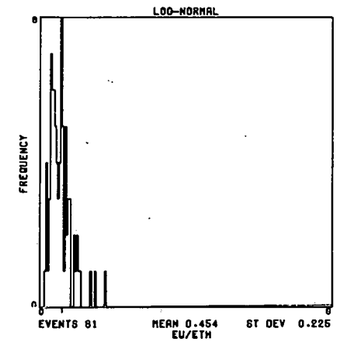

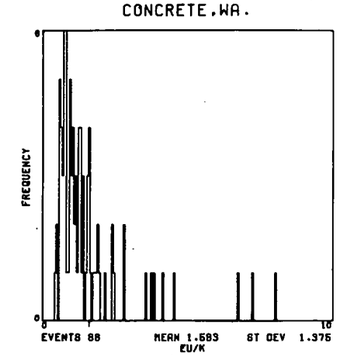

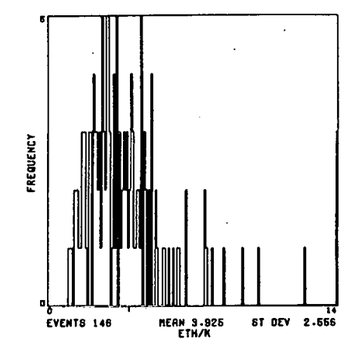

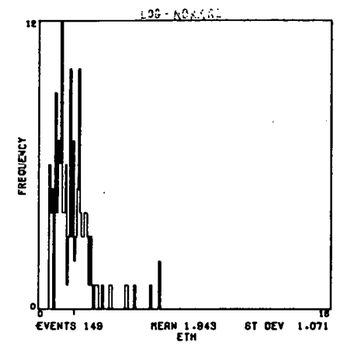

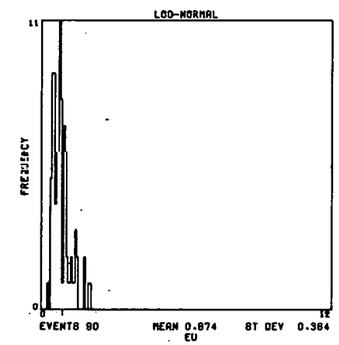

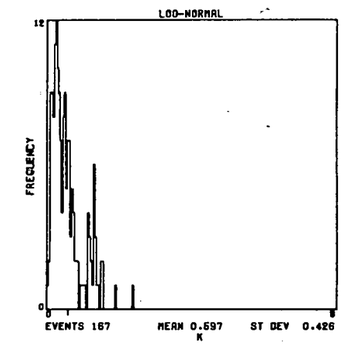

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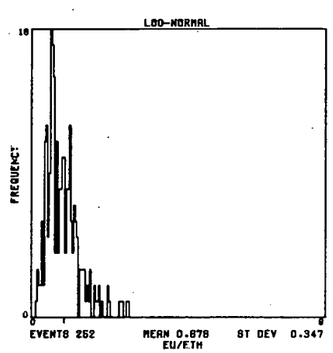

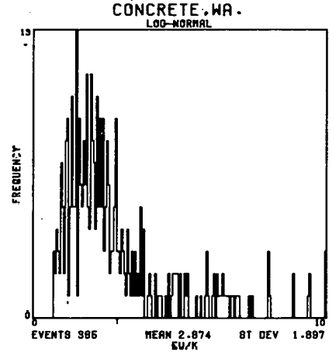

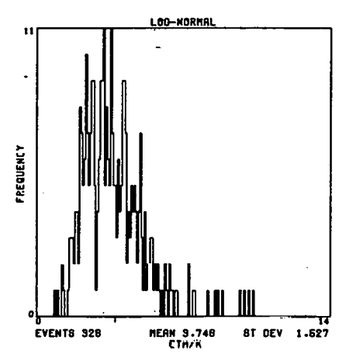

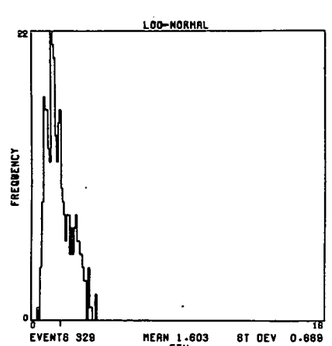

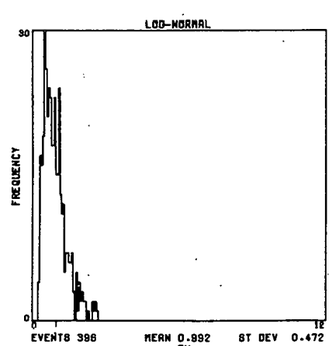

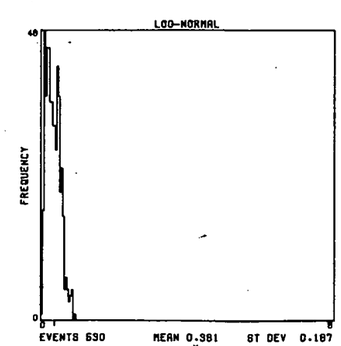

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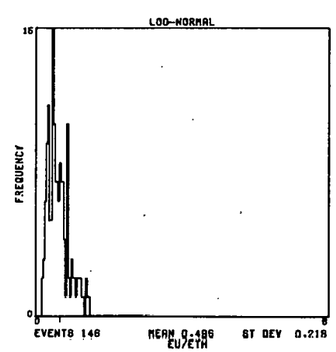

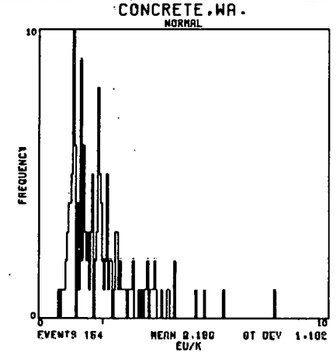

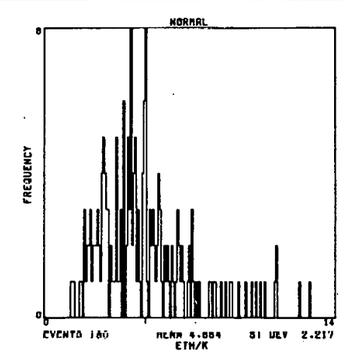

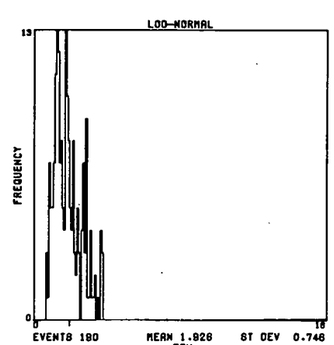

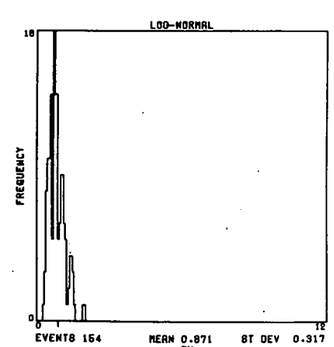

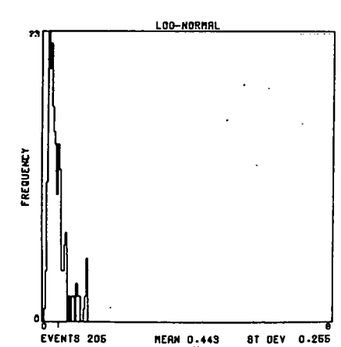

UNIT PCM

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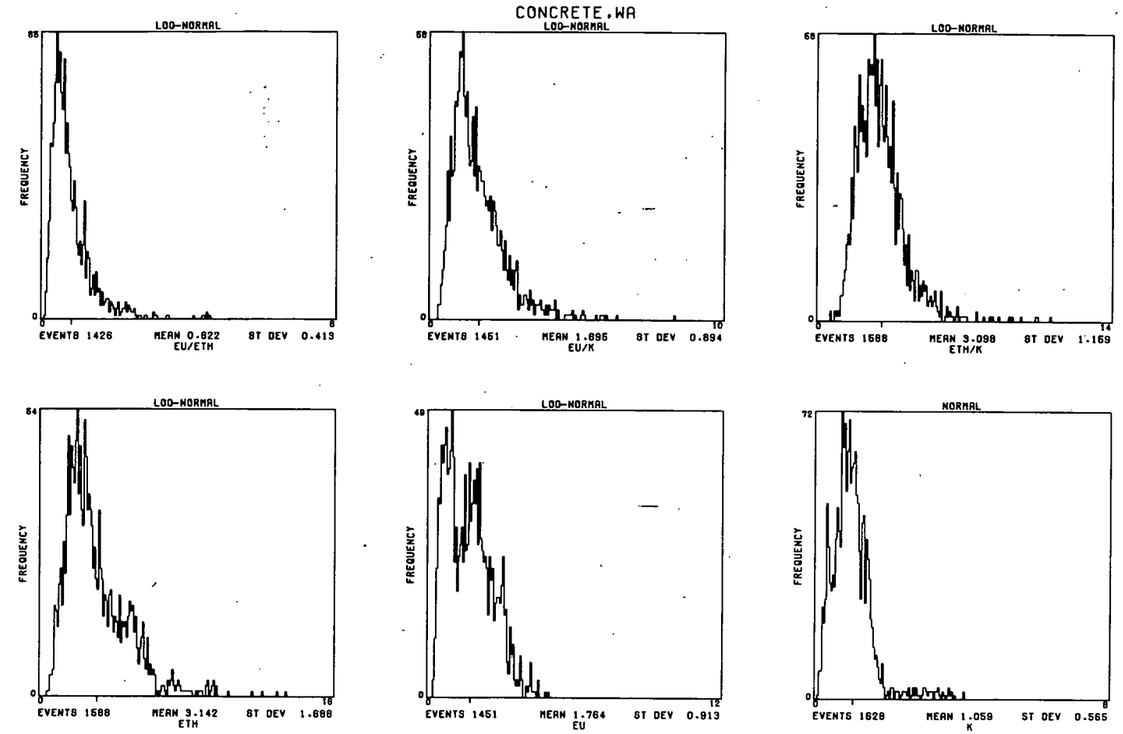
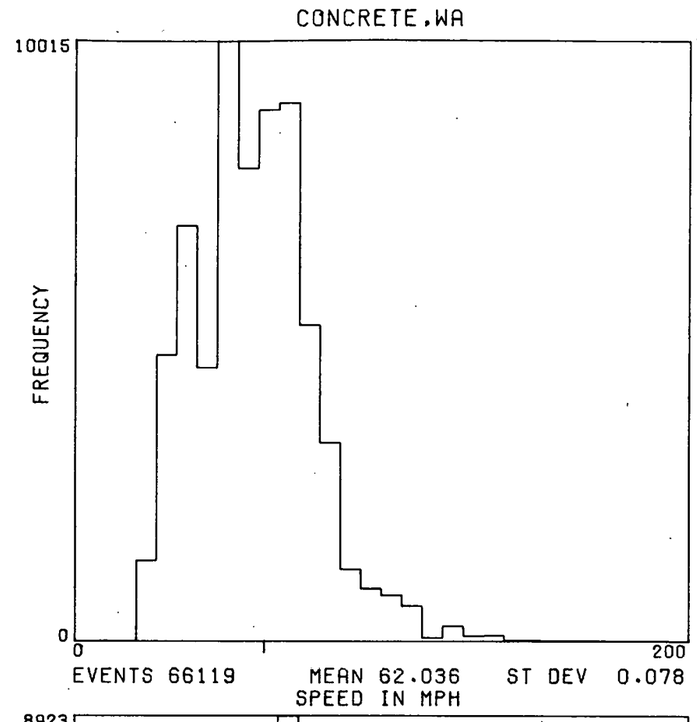


UNIT QAL

APPENDIX I - SPEED AND ALTITUDE HISTOGRAMS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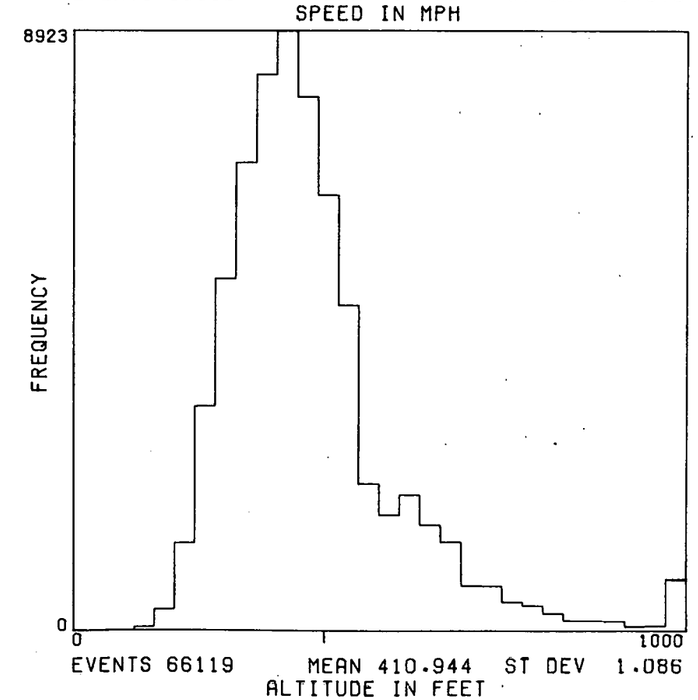
10015
FREQUENCY
0
0
200
EVENTS 66119
MEAN 62.036
ST DEV 0.078
SPEED IN MPH


8923
FREQUENCY
0
0
1000
EVENTS 66119
MEAN 410.944
ST DEV 1.086
ALTITUDE IN FEET

APPENDIX J - STATISTICAL TABLES

UNIT	ETH MEAN	ETH ST.DEV.	ETH EVENTS	ETH DIS.	EU MEAN	EU ST.DEV.	EU EVENTS	EU DIS.	K MEAN	K ST.DEV.	K EVENTS	K DIS.	EU/ETH MEAN	EU/ETH ST.DEV.	EU/ETH EVENTS	EU/ETH DIS.	EU/K MEAN	EU/K ST.DEV.	EU/K EVENTS	EU/K DIS.	ETH/K MEAN	ETH/K ST.DEV.	ETH/K EVENTS	ETH/K DIS.
BI	1.40	.41	82	L	.86	.32	72	L	.28	.14	85	L	.68	.34	70	L	3.76	2.35	72	L	6.08	2.85	82	U
JTR	1.42	.45	38	N	.51	.13	19	L	.26	.06	40	L	.41	.18	19	N	2.22	.83	19	U	5.50	1.68	38	U
JV	1.68	.57	341	L	.78	.26	257	L	.64	.17	356	L	.52	.27	246	L	1.33	.54	257	L	2.71	.96	341	L
KG	4.37	1.16	250	N	1.90	.49	250	L	1.54	.40	250	N	.47	.17	250	L	1.30	.42	250	L	2.90	.63	250	L
KGC	3.01	.67	69	L	1.28	.29	67	L	1.18	.12	69	L	.44	.16	67	L	1.09	.26	67	L	2.56	.54	69	L
KHG	1.53	.78	123	L	.92	.40	159	L	.59	.35	193	L	.68	.31	101	L	1.84	.92	159	L	2.46	.92	123	L
KHP	4.98	6.62	610	L	1.83	1.81	585	L	1.33	.75	614	L	.46	.19	581	L	1.24	.47	585	L	3.03	1.60	610	L
KJN	2.41	1.23	1516	L	1.11	.44	1449	L	1.13	.26	1527	L	.52	.26	1438	L	1.01	.41	1449	L	2.13	.80	1516	L
KJNT	2.68	.71	532	N	1.26	.46	525	L	1.26	.24	532	L	.50	.23	525	L	1.01	.34	525	L	2.14	.51	532	L
KJS	2.03	1.86	2603	L	.81	.47	1765	L	.49	.41	2890	L	.44	.21	1579	L	1.82	1.14	1753	L	4.44	1.99	2590	L
KL	2.28	1.01	3899	L	1.13	.45	3727	L	.91	.33	4041	L	.56	.27	3606	L	1.32	.55	3727	L	2.56	.84	3899	L
KLC	2.32	.68	262	L	1.08	.34	247	L	.90	.21	264	N	.52	.25	245	L	1.26	.50	247	L	2.63	.76	262	N
KLP	1.31	.52	67	L	1.05	.44	69	U	.83	.24	72	L	.86	.40	64	L	1.27	.46	69	L	1.63	.63	67	N
KMP	2.47	.97	1021	L	1.27	.53	1022	L	.97	.27	1040	L	.57	.28	1003	L	1.37	.59	1022	L	2.56	.78	1021	L
KMPV	2.58	.70	128	L	1.10	.35	123	L	.95	.19	130	N	.45	.16	121	L	1.20	.43	123	L	2.75	.66	128	L
KNBM	2.78	2.22	804	L	1.29	.70	779	L	1.08	.47	824	N	.58	.36	762	L	1.23	.55	779	L	2.39	.79	804	L
KPC	3.30	2.87	246	L	1.46	1.03	237	L	1.29	.45	247	L	.49	.22	236	L	1.11	.43	237	L	2.47	.95	246	N
KQD	2.29	.65	765	L	1.40	.74	712	L	1.13	.33	772	L	.66	.43	706	L	1.34	.85	712	L	2.15	.73	765	L
KQM	4.33	3.06	2213	L	1.51	.86	2003	L	1.68	.77	2266	L	.40	.21	1965	L	.86	.30	2003	L	2.39	.91	2213	L
KVR	2.56	.85	1165	N	1.41	.50	1162	L	1.02	.28	1176	L	.61	.31	1151	L	1.46	.59	1162	L	2.57	.75	1165	N
KW	3.54	1.47	704	L	1.56	.65	697	L	1.28	.38	704	L	.49	.25	697	L	1.26	.52	697	L	2.73	.63	704	L
LTV	2.15	1.04	404	L	1.11	.48	337	L	.69	.38	423	L	.60	.38	325	L	2.08	1.67	337	L	3.54	1.69	404	N
MZG	2.47	1.39	4079	L	1.31	.98	3646	L	1.14	.41	4181	L	.56	.32	3568	L	1.15	.69	3646	L	2.19	.84	4079	L
OV	1.04	.31	20	U	.78	.28	34	N	.16	.04	31	U	.82	.42	17	U	5.30	2.73	30	U	7.96	3.10	15	U
PCG	1.60	.69	329	L	.99	.47	396	L	.38	.19	530	L	.68	.35	252	L	2.87	1.90	365	L	3.75	1.53	328	L
PCM	1.93	.75	190	L	.87	.32	154	L	.44	.25	205	L	.50	.22	146	L	2.19	1.16	154	N	4.85	2.22	190	N
PJS	1.32	.54	444	L	.63	.20	159	L	.26	.12	586	L	.61	.25	113	N	2.83	1.38	141	N	5.50	2.38	412	L
PM	1.10	.37	113	L	.66	.25	80	L	.23	.07	129	L	.58	.20	63	U	3.28	1.60	77	U	5.10	2.32	111	N
PMC	1.71	.94	2184	L	.74	.33	1487	L	.38	.24	2517	L	.46	.23	1271	L	2.19	1.35	1464	L	5.02	2.46	2160	N
PMCS	1.68	.67	379	L	.71	.28	263	L	.35	.15	418	L	.46	.22	238	L	2.22	1.19	262	L	5.31	2.66	378	N
PMCV	1.94	1.07	149	U	.87	.36	90	L	.60	.43	167	L	.45	.22	81	L	1.58	1.37	88	U	3.93	2.56	146	U
PTG	2.96	1.08	526	L	2.17	.94	501	L	1.05	.38	528	L	.77	.37	499	L	2.06	.70	501	L	2.94	.92	526	L
PTGD	2.33	.96	979	N	1.05	.40	900	L	.94	.40	1007	L	.50	.25	875	L	1.22	.59	900	L	2.72	1.18	979	L
PTGN	2.76	1.26	4720	L	1.35	.67	4220	L	.89	.40	4949	L	.55	.35	4042	L	1.60	.92	4218	L	3.23	1.20	4719	N
PTGS	1.51	.78	471	L	.74	.35	354	L	.27	.16	807	L	.51	.24	249	L	2.65	1.57	318	L	5.00	2.25	441	L
PTPH	1.73	.82	2016	L	.83	.35	1690	L	.39	.22	2426	L	.52	.26	1443	L	2.48	1.62	1654	L	4.65	1.99	1986	L
PTQD	2.89	1.19	796	L	1.88	.97	765	L	1.05	.42	801	L	.72	.41	760	L	1.84	.80	765	L	2.81	.75	796	L
PTSC	2.35	1.06	3222	L	1.28	.94	2769	L	.79	.43	3510	L	.56	.34	2563	L	1.57	.85	2766	L	3.15	1.22	3220	L
PTV	1.92	.97	497	L	.85	.38	370	L	.48	.34	589	L	.45	.20	327	L	1.86	1.02	369	L	4.45	2.22	495	L
QAL	3.14	1.69	1588	L	1.76	.91	1451	L	1.06	.57	1628	N	.62	.41	1426	L	1.70	.89	1451	L	3.10	1.16	1588	L
QG	2.06	1.00	731	L	1.07	.51	667	L	.59	.37	807	L	.56	.26	610	L	2.12	1.42	652	L	3.78	1.62	726	L
QU	2.36	1.11	5865	L	1.37	.81	4699	L	.67	.37	6086	L	.59	.34	4540	L	1.95	.93	4684	L	3.93	1.67	5849	L
QV	2.40	1.17	1186	L	1.26	.80	993	L	.64	.43	1276	L	.55	.30	904	L	2.13	1.46	972	L	4.20	1.91	1184	L
TCB	2.98	1.88	153	L	.88	.39	130	L	.86	.60	162	L	.33	.14	123	L	1.10	.42	130	L	3.52	.95	153	L
TCP	3.21	1.25	872	L	1.06	.49	767	L	.90	.34	873	L	.35	.17	766	L	1.18	.41	767	L	3.66	.96	872	N
TD	1.26	.70	146	L	.62	.25	131	L	.23	.23	215	L	.54	.19	54	L	3.34	1.85	87	L	6.01	3.60	116	N
TG	6.50	5.85	3876	U	2.58	1.78	3698	L	1.90	1.12	3908	L	.49	.34	3671	L	1.43	.80	3697	L	3.23	1.34	3876	L
TGD	6.88	2.51	1902	L	2.77	1.15	1902	L	1.91	.65	1902	L	.43	.18	1902	L	1.49	.55	1902	L	3.60	.57	1902	N
THV	5.58	1.29	195	N	1.55	.47	195	L	1.83	.53	195	L	.29	.09	195	L	.89	.29	195	N	3.15	.64	195	N
TIM	7.61	1.89	71	N	2.39	.48	71	U	2.02	.45	71	L	.33	.10	71	L	1.23	.33	71	N	3.77	.47	71	N
TKBI	2.98	1.08	384	L	1.44	.45	380	L	1.13	.26	385	N	.53	.22	380	L	1.32	.53	380	L	2.66	.84	384	L
TKC	2.13	.93	494	L	.89	.43	361	L	.58	.36	554	L	.44	.22	331	L	1.76	1.16	358	L	4.31	2.17	488	L
TKCF	2.31	.62	99	N	.79	.22	85	L	.59	.11	99	N	.37	.16	85	L	1.37	.43	85	L	4.03	1.19	99	N
TKG	2.76	1.29	1312	L	1.31	.58	1135	L	.95	.46	1419	N	.49	.24	1086	L	1.38	.70	1135	L	3.03	1.37	1311	L
TPCF	2.41	.76	70	N	1.81	.36	70	L	1.08	.18	70	L	.84	.33	70	L	1.71	.41	70	N	2.23	.62	70	U
TQM	3.54	.56	27	N	2.24	.51	27	L	1.29	.29	27	U	.64	.14	27	L	1.75	.28	27	U	2.81	.49	27	U

TRPS	1.49	.79	249 L	.69	.29	154 L	.29	.18	422 N	.47	.20	74 L	2.52	1.54	143 U	4.97	2.26	242 L
WA	2.39	1.10	349 L	1.11	.60	503 L	.69	.41	397 L	.52	.33	290 L	2.05	2.06	316 L	3.48	1.61	328 L

N=NORMAL DISTRIBUTION
L=LOG-NORMAL DISTRIBUTION
U=UNKNOWN DISTRIBUTION

	BI	JTR	JV	KG	KGC	KHG	KHP	KJN	KJNT	KJS	KL	KLC	KLP	KMP	KMPV
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.68	0.00	1.41	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34	0.00	1.38	0.00	0.00	0.00	3.12	0.00
5	1.40	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00	2.98	0.00
6	0.00	0.00	0.00	4.62	0.00	0.00	0.00	2.44	2.50	0.00	0.00	0.00	0.00	2.01	2.61
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	0.00	0.00	0.00	0.00	1.90	2.37
8	0.00	0.00	0.00	0.00	2.65	0.00	2.44	0.00	0.00	0.00	2.17	0.00	0.00	1.80	2.15
9	0.00	0.00	0.00	0.00	3.14	0.00	3.18	0.00	0.00	0.00	1.61	0.00	1.31	2.88	3.13
10	0.00	0.00	0.00	0.00	0.00	1.29	24.37	8.25	0.00	1.51	2.24	2.21	0.00	0.00	0.00
11	0.00	0.00	1.36	0.00	0.00	0.00	0.00	0.00	0.00	1.45	2.68	2.59	0.00	0.00	0.00
12	0.00	1.42	0.00	0.00	0.00	1.90	0.00	2.01	0.00	1.71	2.18	0.00	0.00	0.00	0.00
501	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00	0.00	2.83	0.00	0.00	0.00	0.00	0.00
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	4.20	0.00	0.00	2.79	0.00	0.00	0.00	2.17	2.26	0.00	0.00	0.00
504	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.79	0.00	0.00	0.00	0.00	0.00	0.00

	KNBM	KPC	KQD	KQM	KVR	KW	LTV	MZG	OV	PCG	PCM	PJS	PM	PMC	PMCS
1	0.00	0.00	0.00	0.00	0.00	0.00	2.00	5.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	2.23	5.11	0.00	0.00	0.00	1.45	0.00	0.00	0.00
3	0.00	0.00	2.33	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	1.10	0.00	1.95
4	0.00	0.00	2.27	0.00	0.00	0.00	0.00	2.68	0.00	0.00	0.00	0.00	0.00	0.00	1.28
5	1.77	0.00	2.29	0.00	2.75	2.81	0.00	1.99	1.04	1.25	0.00	0.00	0.00	0.00	0.00
6	1.87	0.00	0.00	0.00	2.31	1.74	0.00	1.85	0.00	1.89	0.00	0.00	0.00	0.00	0.00
7	2.04	0.00	0.00	0.00	2.70	3.70	0.00	2.01	0.00	0.00	0.00	0.00	0.00	1.62	0.00
8	1.72	2.78	0.00	0.00	2.36	2.60	0.00	1.54	0.00	0.00	0.00	0.00	0.00	1.30	0.00
9	2.15	3.14	2.30	0.00	3.14	4.26	0.00	1.80	0.00	0.00	2.05	0.00	0.00	2.08	2.07
10	2.61	22.53	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.60	0.00
11	10.19	0.00	0.00	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00
12	0.00	0.00	0.00	8.03	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.00	0.00	2.22	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.00	1.39	1.34
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504	2.28	0.00	0.00	5.53	2.38	0.00	0.00	2.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR PPM ETH

	PMCV	PTG	PTGD	PTGN	PTGS	PTPH	PTQD	PTSC	PTV	QAL	QG	QU	QV	TCB	TCP
1	0.00	1.58	3.25	2.80	0.00	1.70	3.22	2.43	0.00	1.95	0.00	2.82	0.00	0.00	0.00
2	0.00	3.28	0.00	2.58	0.00	0.00	3.08	3.62	0.00	1.89	3.69	2.66	3.09	0.00	0.00
3	0.00	2.29	0.00	2.62	0.00	1.95	2.95	1.95	2.12	2.28	0.00	2.72	2.65	0.00	3.56
4	0.00	0.00	0.00	3.69	0.00	1.58	0.00	2.35	0.00	2.63	0.00	2.25	0.00	0.00	3.03
5	0.00	0.00	0.00	3.12	2.07	1.64	0.00	2.52	0.00	2.60	1.75	1.56	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	1.27	1.68	0.00	1.44	2.00	3.75	2.21	2.10	0.00	0.00	0.00
7	1.98	0.00	0.00	0.00	0.00	1.10	0.00	0.00	0.00	4.26	0.00	1.82	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	1.64	0.00	0.00	0.00	4.71	1.87	1.76	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	1.90	0.00	0.00	0.00	2.13	0.00	2.58	2.03	0.00	0.00
10	1.93	0.00	2.17	0.00	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	2.44	0.00	0.00	0.00	0.00	0.00	1.62	0.00	2.23	0.00
12	0.00	0.00	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.00	0.00	6.63	0.00
501	0.00	0.00	0.00	0.00	1.47	1.90	0.00	0.00	1.79	0.00	2.14	1.85	2.50	0.00	0.00
502	0.00	0.00	0.00	1.91	0.00	1.08	0.00	1.40	0.00	1.56	1.93	1.42	1.40	0.00	0.00
503	0.00	2.70	0.00	3.48	0.00	0.00	2.30	2.14	0.00	6.04	0.00	2.41	0.00	0.00	0.00
504	0.00	0.00	2.24	0.00	0.00	0.00	0.00	0.00	0.00	3.81	0.00	0.00	0.00	0.00	0.00

	TD	TG	TGD	THV	TIM	TKBI	TKC	TKCF	TKG	TPCF	TQM	TRPS	WA
1	2.22	3.06	7.68	0.00	0.00	0.00	2.04	0.00	3.02	0.00	0.00	0.00	1.91
2	1.24	2.87	7.14	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.00	2.21
3	0.00	2.87	0.00	0.00	0.00	0.00	3.42	0.00	0.00	0.00	0.00	0.00	2.39
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
5	0.00	2.52	0.00	0.00	0.00	0.00	2.17	0.00	3.10	0.00	0.00	0.00	0.00
6	0.00	1.90	0.00	0.00	0.00	0.00	2.29	0.00	2.96	2.41	0.00	0.00	2.41
7	0.00	8.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.00
8	.90	5.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00
9	1.18	1.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.00
10	0.00	19.46	0.00	0.00	0.00	0.00	0.00	0.00	3.15	0.00	0.00	0.00	2.64
11	0.00	0.00	0.00	4.43	7.61	0.00	0.00	2.31	2.04	0.00	0.00	3.27	0.00
12	0.00	1.51	0.00	6.09	0.00	2.98	0.00	0.00	4.49	0.00	0.00	0.00	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	1.94	0.00	3.65	0.00	0.00	0.00	2.56
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.00	0.00	0.00	1.49
503	0.00	6.54	3.14	0.00	0.00	0.00	0.00	0.00	3.40	0.00	3.54	0.00	0.00
504	0.00	0.00	5.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR PPM ETH

	BI	JTR	JV	KG	KGC	KHG	KHP	KJN	KJNT	KJS	KL	KLC	KLP	KMP	KMPV
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.82	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.59	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	.63	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.89	0.00	.60	0.00	0.00	0.00	1.07	0.00
5	.86	0.00	0.00	0.00	0.00	0.00	0.00	2.02	0.00	0.00	0.00	0.00	0.00	2.05	0.00
6	0.00	0.00	0.00	2.05	0.00	0.00	0.00	1.28	2.07	0.00	0.00	0.00	0.00	1.42	1.27
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.00	0.00	0.00	0.00	1.05	.97
8	0.00	0.00	0.00	0.00	1.11	0.00	1.19	0.00	0.00	0.00	1.12	0.00	0.00	.93	.95
9	0.00	0.00	0.00	0.00	1.33	0.00	1.34	0.00	0.00	0.00	.87	0.00	1.05	1.27	1.32
10	0.00	0.00	0.00	0.00	0.00	.91	6.83	2.05	0.00	.68	1.10	.91	0.00	0.00	0.00
11	0.00	0.00	.71	0.00	0.00	0.00	0.00	0.00	0.00	.68	1.25	1.14	0.00	0.00	0.00
12	0.00	.51	0.00	0.00	0.00	.94	0.00	.92	0.00	.75	1.19	0.00	0.00	0.00	0.00
501	0.00	0.00	.81	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	1.80	0.00	0.00	1.20	0.00	0.00	0.00	1.10	1.12	0.00	0.00	0.00
504	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	1.13	0.00	0.00	0.00	0.00	0.00	0.00

	KNBM	KPC	KQD	KQM	KVR	KW	LTV	MZG	OV	PCG	PCM	PJS	PM	PMC	PMCS
1	0.00	0.00	0.00	0.00	0.00	0.00	.84	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	1.22	4.04	0.00	0.00	0.00	.60	0.00	0.00	0.00
3	0.00	0.00	1.25	0.00	0.00	0.00	0.00	1.32	0.00	0.00	0.00	0.00	.66	0.00	.87
4	0.00	0.00	.98	0.00	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	.58
5	2.41	0.00	2.50	0.00	2.05	2.34	0.00	2.52	.78	1.02	0.00	0.00	0.00	0.00	0.00
6	1.54	0.00	0.00	0.00	1.52	1.02	0.00	1.68	0.00	1.07	0.00	0.00	0.00	0.00	0.00
7	.86	0.00	0.00	0.00	1.24	1.36	0.00	.90	0.00	0.00	0.00	0.00	0.00	.58	0.00
8	.81	1.31	0.00	0.00	1.21	1.36	0.00	.77	0.00	0.00	0.00	0.00	0.00	.63	0.00
9	.92	1.40	.78	0.00	1.22	1.62	0.00	.82	0.00	0.00	.92	0.00	0.00	.89	.73
10	1.18	7.37	0.00	.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	0.00
11	2.96	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.68	0.00
12	0.00	0.00	0.00	2.47	0.00	0.00	0.00	0.00	0.00	0.00	.70	0.00	0.00	.91	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.65	0.00	.66	.58
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.63	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504	.97	0.00	0.00	2.03	1.48	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR PPM EU

	PMCV	PTG	PTGD	PTGN	PTGS	PTPH	PTQD	PTSC	PTV	QAL	QG	QU	QV	TCB	TCP
1	0.00	.89	1.67	1.24	0.00	.75	1.59	1.01	0.00	.79	0.00	1.49	0.00	0.00	0.00
2	0.00	2.63	0.00	1.98	0.00	0.00	2.82	2.99	0.00	2.15	1.95	2.26	2.10	0.00	0.00
3	0.00	.78	0.00	.92	0.00	.87	1.00	.91	.83	1.17	0.00	1.17	1.13	0.00	1.19
4	0.00	0.00	0.00	1.03	0.00	.66	0.00	.77	0.00	.84	0.00	.75	0.00	0.00	.98
5	0.00	0.00	0.00	1.55	.91	.99	0.00	1.31	0.00	2.43	1.14	.97	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	.58	.74	0.00	.76	1.02	2.44	.93	.91	0.00	0.00	0.00
7	.84	0.00	0.00	0.00	0.00	.45	0.00	0.00	0.00	1.60	0.00	.61	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	.79	0.00	0.00	0.00	2.23	1.01	.73	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	.50	0.00	0.00	0.00	.96	0.00	1.18	.80	0.00	0.00
10	.88	0.00	.84	0.00	0.00	.76	0.00	0.00	0.00	0.00	0.00	0.00	.86	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	.96	0.00	0.00	0.00	0.00	0.00	.80	0.00	.75	0.00
12	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.86	0.00	0.00	1.38	0.00
501	0.00	0.00	0.00	0.00	.69	.72	0.00	0.00	.81	0.00	.90	.77	.81	0.00	0.00
502	0.00	0.00	0.00	.81	0.00	.58	0.00	.69	0.00	.82	1.07	1.04	.59	0.00	0.00
503	0.00	1.58	0.00	1.80	0.00	0.00	1.62	1.66	0.00	2.15	0.00	1.75	0.00	0.00	0.00
504	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.00	0.00	0.00	0.00

	TD	TG	TGD	THV	TIM	TKBI	TKC	TKCF	TKG	TPCF	TQM	TRPS	WA
1	1.02	1.34	2.55	0.00	0.00	0.00	.90	0.00	1.47	0.00	0.00	0.00	.91
2	.62	2.27	3.65	0.00	0.00	0.00	.66	0.00	0.00	0.00	0.00	0.00	1.41
3	0.00	1.14	0.00	0.00	0.00	0.00	.92	0.00	0.00	0.00	0.00	0.00	1.12
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.75
5	0.00	2.69	0.00	0.00	0.00	0.00	.99	0.00	1.83	0.00	0.00	0.00	0.00
6	0.00	1.45	0.00	0.00	0.00	0.00	.69	0.00	1.14	1.81	0.00	0.00	.79
7	0.00	2.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.45	0.00
8	.46	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.68	0.00
9	.64	.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.63	0.00
10	0.00	6.28	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.00	0.00	0.00	.87
11	0.00	0.00	0.00	1.33	2.39	0.00	0.00	.79	1.20	0.00	0.00	1.05	0.00
12	0.00	.59	0.00	1.65	0.00	1.44	0.00	0.00	2.10	0.00	0.00	0.00	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	.93	0.00	1.09	0.00	0.00	0.00	.97
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.85	0.00	0.00	0.00	1.58
503	0.00	2.27	2.25	0.00	0.00	0.00	0.00	0.00	1.61	0.00	2.24	0.00	0.00
504	0.00	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR PPM EU

	BI	JTR	JV	KG	KGC	KHG	KHP	KJN	KJNT	KJS	KL	KLC	KLP	KMP	KMPV
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.49	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.28	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.00	.32	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.00	.34	0.00	0.00	0.00	.91	0.00
5	.28	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	0.00	0.00	0.00	0.00	1.04	0.00
6	0.00	0.00	0.00	1.71	0.00	0.00	0.00	.83	1.43	0.00	0.00	0.00	0.00	.80	1.02
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.00	0.00	0.00	0.00	1.08	.84
8	0.00	0.00	0.00	0.00	1.15	0.00	1.07	0.00	0.00	0.00	1.02	0.00	0.00	.85	1.04
9	0.00	0.00	0.00	0.00	1.19	0.00	1.14	0.00	0.00	0.00	.78	0.00	.83	1.10	1.12
10	0.00	0.00	0.00	0.00	0.00	.48	3.27	1.64	0.00	.46	.91	.95	0.00	0.00	0.00
11	0.00	0.00	.57	0.00	0.00	0.00	0.00	0.00	0.00	.48	.97	.96	0.00	0.00	0.00
12	0.00	.26	0.00	0.00	0.00	.73	0.00	.83	0.00	.39	.85	0.00	0.00	0.00	0.00
501	0.00	0.00	.67	0.00	0.00	0.00	0.00	0.00	0.00	.67	0.00	0.00	0.00	0.00	0.00
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	1.43	0.00	0.00	1.14	0.00	0.00	0.00	.90	.87	0.00	0.00	0.00
504	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.25	0.00	0.00	0.00	0.00	0.00	0.00

	KNBM	KPC	KQD	KQM	KVR	KW	LTV	MZG	OV	PCG	PCM	PJS	PM	PMC	PMCS
1	0.00	0.00	0.00	0.00	0.00	0.00	.85	1.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	.59	1.57	0.00	0.00	0.00	.28	0.00	0.00	0.00
3	0.00	0.00	1.42	0.00	0.00	0.00	0.00	1.44	0.00	0.00	0.00	0.00	.23	0.00	.47
4	0.00	0.00	1.12	0.00	0.00	0.00	0.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00	.24
5	1.12	0.00	.95	0.00	1.15	1.06	0.00	.86	.16	.31	0.00	0.00	0.00	0.00	0.00
6	.93	0.00	0.00	0.00	.89	.80	0.00	1.04	0.00	.54	0.00	0.00	0.00	0.00	0.00
7	.98	0.00	0.00	0.00	1.03	1.25	0.00	.85	0.00	0.00	0.00	0.00	0.00	.35	0.00
8	.60	1.20	0.00	0.00	1.01	1.10	0.00	.80	0.00	0.00	0.00	0.00	0.00	.26	0.00
9	1.03	1.29	.99	0.00	1.19	1.47	0.00	1.02	0.00	0.00	.49	0.00	0.00	.34	.43
10	1.08	3.57	0.00	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.82	0.00
11	2.55	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.27	0.00
12	0.00	0.00	0.00	2.57	0.00	0.00	0.00	0.00	0.00	0.00	.29	0.00	0.00	.54	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.23	0.00	.35	.22
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.24	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504	.92	0.00	0.00	1.70	1.27	0.00	0.00	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR %K

	PMCV	PTG	PTGD	PTGN	PTGS	PTPH	PTQD	PTSC	PTV	QAL	QG	QU	QV	TCB	TCP
1	0.00	.54	.98	.72	0.00	.63	1.15	.69	0.00	.48	0.00	.84	0.00	0.00	0.00
2	0.00	1.17	0.00	.87	0.00	0.00	1.19	1.46	0.00	.65	1.02	.83	.98	0.00	0.00
3	0.00	.59	0.00	.81	0.00	.37	.89	.73	.68	.77	0.00	.73	.63	0.00	1.00
4	0.00	0.00	0.00	1.27	0.00	.41	0.00	.77	0.00	.81	0.00	.52	0.00	0.00	.85
5	0.00	0.00	0.00	1.08	.35	.33	0.00	.85	0.00	1.03	.56	.41	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	.24	.39	0.00	.38	.59	1.30	.61	.62	0.00	0.00	0.00
7	.39	0.00	0.00	0.00	0.00	.22	0.00	0.00	0.00	1.33	0.00	.41	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	.29	0.00	0.00	0.00	1.70	.30	.42	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	.40	0.00	0.00	0.00	.98	0.00	.73	.41	0.00	0.00
10	.70	0.00	1.05	0.00	0.00	.48	0.00	0.00	0.00	0.00	0.00	0.00	.62	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	.63	0.00	0.00	0.00	0.00	0.00	.53	0.00	.62	0.00
12	0.00	0.00	.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.52	0.00	0.00	2.11	0.00
501	0.00	0.00	0.00	0.00	.31	.38	0.00	0.00	.36	0.00	.49	.47	.55	0.00	0.00
502	0.00	0.00	0.00	.59	0.00	.26	0.00	.39	0.00	.41	.69	.37	.28	0.00	0.00
503	0.00	1.02	0.00	1.16	0.00	0.00	.87	.78	0.00	2.10	0.00	.82	0.00	0.00	0.00
504	0.00	0.00	.91	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.00	0.00

	TD	TG	TGD	THV	TIM	TKBI	TKC	TKCF	TKG	TPCF	TQM	TRPS	WA
1	.74	1.01	2.11	0.00	0.00	0.00	.82	0.00	.83	0.00	0.00	0.00	.56
2	.28	1.00	1.94	0.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	0.00	.50
3	0.00	.96	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	.89
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.41
5	0.00	1.03	0.00	0.00	0.00	0.00	.43	0.00	1.01	0.00	0.00	0.00	0.00
6	0.00	.79	0.00	0.00	0.00	0.00	.45	0.00	.97	1.08	0.00	0.00	.76
7	0.00	3.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.22	0.00
8	.13	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.20	0.00
9	.12	.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.29	0.00
10	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	.79
11	0.00	0.00	0.00	1.25	2.02	0.00	0.00	.59	.65	0.00	0.00	.87	0.00
12	0.00	.39	0.00	2.09	0.00	1.13	0.00	0.00	1.67	0.00	0.00	0.00	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	.59	0.00	.61	0.00	0.00	0.00	.67
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.75	0.00	0.00	0.00	.50
503	0.00	2.26	1.03	0.00	0.00	0.00	0.00	0.00	1.32	0.00	1.29	0.00	0.00
504	0.00	0.00	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR %K

	BI	JTR	JV	KG	KGC	KHG	KHP	KJN	KJNT	KJS	KL	KLC	KLP	KMP	KMPV
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.40	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.53	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.49	0.00	.49	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.43	0.00	.49	0.00	0.00	0.00	.37	0.00
5	.68	0.00	0.00	0.00	0.00	0.00	0.00	.76	0.00	0.00	0.00	0.00	0.00	.74	0.00
6	0.00	0.00	0.00	.46	0.00	0.00	0.00	.59	.87	0.00	0.00	0.00	0.00	.77	.51
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.50	0.00	0.00	0.00	0.00	.59	.43
8	0.00	0.00	0.00	0.00	.43	0.00	.51	0.00	0.00	0.00	.57	0.00	0.00	.57	.46
9	0.00	0.00	0.00	0.00	.45	0.00	.47	0.00	0.00	0.00	.59	0.00	.86	.48	.44
10	0.00	0.00	0.00	0.00	0.00	.75	.28	.25	0.00	.49	.54	.46	0.00	0.00	0.00
11	0.00	0.00	.55	0.00	0.00	0.00	0.00	0.00	0.00	.52	.53	.46	0.00	0.00	0.00
12	0.00	.41	0.00	0.00	0.00	.57	0.00	.66	0.00	.44	.62	0.00	0.00	0.00	0.00
501	0.00	0.00	.51	0.00	0.00	0.00	0.00	0.00	0.00	.40	0.00	0.00	0.00	0.00	0.00
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	.47	0.00	0.00	.47	0.00	0.00	0.00	.56	.56	0.00	0.00	0.00
504	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.55	.43	0.00	0.00	0.00	0.00	0.00	0.00

	KNBM	KPC	KQD	KQM	KVR	KW	LTV	MZG	OV	PCG	PCM	PJS	PM	PMC	PMCS
1	0.00	0.00	0.00	0.00	0.00	0.00	.47	.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	.66	.85	0.00	0.00	0.00	.50	0.00	0.00	0.00
3	0.00	0.00	.58	0.00	0.00	0.00	0.00	.49	0.00	0.00	0.00	0.00	.58	0.00	.49
4	0.00	0.00	.47	0.00	0.00	0.00	0.00	.43	0.00	0.00	0.00	0.00	0.00	0.00	.49
5	1.48	0.00	1.19	0.00	.77	.90	0.00	1.43	.82	.82	0.00	0.00	0.00	0.00	0.00
6	.89	0.00	0.00	0.00	.73	.66	0.00	1.06	0.00	.63	0.00	0.00	0.00	0.00	0.00
7	.49	0.00	0.00	0.00	.50	.38	0.00	.47	0.00	0.00	0.00	0.00	0.00	.38	0.00
8	.48	.48	0.00	0.00	.56	.56	0.00	.56	0.00	0.00	0.00	0.00	0.00	.50	0.00
9	.48	.50	.36	0.00	.41	.40	0.00	.51	0.00	0.00	.48	0.00	0.00	.47	.40
10	.49	.32	0.00	.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.50	0.00
11	.29	0.00	0.00	.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.54	0.00
12	0.00	0.00	0.00	.32	0.00	0.00	0.00	0.00	0.00	0.00	.56	0.00	0.00	.45	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.66	0.00	.52	.48
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.65	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504	.48	0.00	0.00	.39	.72	0.00	0.00	.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR EU/ETH

	PMCV	PTG	PTGD	PTGN	PTGS	PTPH	PTQD	PTSC	PTV	QAL	QG	QU	QV	TCB	TCP
1	0.00	.57	.52	.43	0.00	.50	.53	.49	0.00	.45	0.00	.54	0.00	0.00	0.00
2	0.00	.87	0.00	.93	0.00	0.00	1.01	.90	0.00	1.21	.68	.82	.79	0.00	0.00
3	0.00	.32	0.00	.39	0.00	.47	.37	.52	.42	.50	0.00	.48	.47	0.00	.35
4	0.00	0.00	0.00	.30	0.00	.46	0.00	.36	0.00	.35	0.00	.35	0.00	0.00	.35
5	0.00	0.00	0.00	.56	.55	.67	0.00	.59	0.00	1.05	.71	.72	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	.46	.48	0.00	.51	.56	.67	.43	.52	0.00	0.00	0.00
7	.42	0.00	0.00	0.00	0.00	.57	0.00	0.00	0.00	.39	0.00	.38	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	.39	0.00	0.00	0.00	.46	.56	.43	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	.31	0.00	0.00	0.00	.47	0.00	.47	.48	0.00	0.00
10	.46	0.00	.44	0.00	0.00	.45	0.00	0.00	0.00	0.00	0.00	0.00	.46	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	.39	0.00	0.00	0.00	0.00	0.00	.53	0.00	.36	0.00
12	0.00	0.00	.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.51	0.00	0.00	.21	0.00
501	0.00	0.00	0.00	0.00	.49	.41	0.00	0.00	.44	0.00	.44	.47	.37	0.00	0.00
502	0.00	0.00	0.00	.46	0.00	.53	0.00	.56	0.00	.48	.59	.68	.64	0.00	0.00
503	0.00	.65	0.00	.54	0.00	0.00	.78	.89	0.00	.41	0.00	.80	0.00	0.00	0.00
504	0.00	0.00	.53	0.00	0.00	0.00	0.00	0.00	0.00	.43	0.00	0.00	0.00	0.00	0.00

	TD	TG	TGD	THV	TIM	TKBI	TKC	TKCF	TKG	TPCF	TQM	TRPS	WA
1	.49	.48	.35	0.00	0.00	0.00	.53	0.00	.71	0.00	0.00	0.00	.59
2	.45	.78	.55	0.00	0.00	0.00	.48	0.00	0.00	0.00	0.00	0.00	.80
3	0.00	.41	0.00	0.00	0.00	0.00	.27	0.00	0.00	0.00	0.00	0.00	.54
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.54
5	0.00	1.26	0.00	0.00	0.00	0.00	.51	0.00	.63	0.00	0.00	0.00	0.00
6	0.00	.84	0.00	0.00	0.00	0.00	.26	0.00	.39	.84	0.00	0.00	.36
7	0.00	.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.53	0.00
8	.64	.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.42	0.00
9	.44	.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.56	0.00
10	0.00	.33	0.00	0.00	0.00	0.00	0.00	0.00	.46	0.00	0.00	0.00	.33
11	0.00	0.00	0.00	.31	.33	0.00	0.00	.37	.61	0.00	0.00	.32	0.00
12	0.00	.43	0.00	.27	0.00	.53	0.00	0.00	.51	0.00	0.00	0.00	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	.47	0.00	.33	0.00	0.00	0.00	.39
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.49	0.00	0.00	0.00	1.29
503	0.00	.43	.75	0.00	0.00	0.00	0.00	0.00	.49	0.00	.64	0.00	0.00
504	0.00	0.00	.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR EU/ETH

	BI	JTR	JV	KG	KGC	KHG	KHP	KJN	KJNT	KJS	KL	KLC	KLP	KMP	KMPV
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.92	0.00	2.33	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.84	0.00	1.54	0.00	0.00	0.00	1.21	0.00
5	3.76	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.00	0.00	0.00	0.00	0.00	2.02	0.00
6	0.00	0.00	0.00	1.21	0.00	0.00	0.00	1.61	1.47	0.00	0.00	0.00	0.00	1.92	1.26
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.98	0.00	0.00	0.00	0.00	.97	1.22
8	0.00	0.00	0.00	0.00	.95	0.00	1.12	0.00	0.00	0.00	1.18	0.00	0.00	1.15	.93
9	0.00	0.00	0.00	0.00	1.13	0.00	1.18	0.00	0.00	0.00	1.15	0.00	1.27	1.19	1.21
10	0.00	0.00	0.00	0.00	0.00	2.02	2.07	1.18	0.00	1.55	1.26	.97	0.00	0.00	0.00
11	0.00	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.36	1.23	0.00	0.00	0.00
12	0.00	2.22	0.00	0.00	0.00	1.60	0.00	1.14	0.00	2.06	1.48	0.00	0.00	0.00	0.00
501	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	1.59	0.00	0.00	0.00	0.00	0.00
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	1.37	0.00	0.00	1.08	0.00	0.00	0.00	1.35	1.38	0.00	0.00	0.00
504	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.96	.92	0.00	0.00	0.00	0.00	0.00	0.00

	KNBM	KPC	KQD	KQM	KVR	KW	LTV	MZG	OV	PCG	PCM	PJS	PM	PMC	PMCS
1	0.00	0.00	0.00	0.00	0.00	0.00	.95	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	2.53	2.71	0.00	0.00	0.00	2.39	0.00	0.00	0.00
3	0.00	0.00	.88	0.00	0.00	0.00	0.00	.95	0.00	0.00	0.00	0.00	3.28	0.00	1.86
4	0.00	0.00	.91	0.00	0.00	0.00	0.00	.97	0.00	0.00	0.00	0.00	0.00	0.00	2.49
5	2.17	0.00	2.67	0.00	1.82	2.29	0.00	2.99	5.30	3.99	0.00	0.00	0.00	0.00	0.00
6	1.70	0.00	0.00	0.00	1.78	1.36	0.00	1.68	0.00	2.09	0.00	0.00	0.00	0.00	0.00
7	.89	0.00	0.00	0.00	1.26	1.09	0.00	1.11	0.00	0.00	0.00	0.00	0.00	1.94	0.00
8	1.66	1.06	0.00	0.00	1.23	1.25	0.00	1.00	0.00	0.00	0.00	0.00	0.00	2.83	0.00
9	.91	1.12	.80	0.00	1.08	1.10	0.00	.93	0.00	0.00	2.13	0.00	0.00	2.80	1.90
10	1.10	2.05	0.00	.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00
11	1.16	0.00	0.00	.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.23	0.00
12	0.00	0.00	0.00	.96	0.00	0.00	0.00	0.00	0.00	0.00	2.39	0.00	0.00	1.75	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00	2.04	3.40
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504	1.11	0.00	0.00	1.17	1.21	0.00	0.00	.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR EU/%K

	PMCV	PTG	PTGD	PTGN	PTGS	PTPH	PTQD	PTSC	PTV	QAL	QG	QU	QV	TCB	TCP
1	0.00	1.66	1.71	1.62	0.00	1.13	1.42	1.60	0.00	1.71	0.00	1.77	0.00	0.00	0.00
2	0.00	2.33	0.00	2.48	0.00	0.00	2.53	2.15	0.00	3.44	3.07	2.45	2.87	0.00	0.00
3	0.00	1.58	0.00	1.29	0.00	2.59	1.13	1.33	1.48	1.47	0.00	1.70	1.76	0.00	1.20
4	0.00	0.00	0.00	.83	0.00	1.71	0.00	1.07	0.00	1.07	0.00	1.44	0.00	0.00	1.16
5	0.00	0.00	0.00	1.49	3.33	3.49	0.00	1.76	0.00	2.45	2.72	2.69	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	2.70	2.07	0.00	2.06	1.81	1.87	1.46	1.55	0.00	0.00	0.00
7	2.79	0.00	0.00	0.00	0.00	2.78	0.00	0.00	0.00	1.24	0.00	1.60	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	2.43	0.00	0.00	0.00	1.32	3.68	1.68	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	2.09	0.00	0.00	0.00	.98	0.00	1.72	2.20	0.00	0.00
10	1.20	0.00	.82	0.00	0.00	2.14	0.00	0.00	0.00	0.00	0.00	0.00	1.54	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	1.48	0.00	0.00	0.00	0.00	0.00	1.70	0.00	1.21	0.00
12	0.00	0.00	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	0.00	0.00	.66	0.00
501	0.00	0.00	0.00	0.00	2.15	2.03	0.00	0.00	2.15	0.00	1.88	1.76	1.64	0.00	0.00
502	0.00	0.00	0.00	1.43	0.00	2.67	0.00	1.87	0.00	1.96	1.65	2.81	2.70	0.00	0.00
503	0.00	1.64	0.00	1.63	0.00	0.00	1.92	2.30	0.00	1.13	0.00	2.26	0.00	0.00	0.00
504	0.00	0.00	1.18	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.00	0.00

	TD	TG	TGD	THV	TIM	TKBI	TKC	TKCF	TKG	TPCF	TQM	TRPS	WA
1	1.46	1.36	1.24	0.00	0.00	0.00	1.12	0.00	2.13	0.00	0.00	0.00	2.62
2	2.47	2.13	1.95	0.00	0.00	0.00	2.58	0.00	0.00	0.00	0.00	0.00	4.63
3	0.00	1.23	0.00	0.00	0.00	0.00	.89	0.00	0.00	0.00	0.00	0.00	1.33
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82
5	0.00	2.60	0.00	0.00	0.00	0.00	2.48	0.00	1.98	0.00	0.00	0.00	0.00
6	0.00	1.95	0.00	0.00	0.00	0.00	1.31	0.00	1.14	1.71	0.00	0.00	1.15
7	0.00	.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00
8	4.20	.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.96	0.00
9	5.51	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83	0.00
10	0.00	2.06	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.00	0.00	0.00	.94
11	0.00	0.00	0.00	1.11	1.23	0.00	0.00	1.37	1.89	0.00	0.00	1.20	0.00
12	0.00	1.51	0.00	.79	0.00	1.32	0.00	0.00	1.27	0.00	0.00	0.00	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.00	1.63	0.00	0.00	0.00	1.40
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00	0.00	3.34
503	0.00	1.16	2.20	0.00	0.00	0.00	0.00	0.00	1.26	0.00	1.75	0.00	0.00
504	0.00	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR EU/%K

	KNBM	KPC	KQD	KQM	KVR	KW	LTV	MZG	OV	PCG	PCM	PJS	PM	PMC	PMCS
1	0.00	0.00	0.00	0.00	0.00	0.00	2.69	2.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	4.05	3.31	0.00	0.00	0.00	5.63	0.00	0.00	0.00
3	0.00	0.00	1.66	0.00	0.00	0.00	0.00	2.16	0.00	0.00	0.00	0.00	5.10	0.00	4.16
4	0.00	0.00	2.16	0.00	0.00	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	6.11
5	1.59	0.00	2.42	0.00	2.44	2.65	0.00	2.35	7.96	3.87	0.00	0.00	0.00	0.00	0.00
6	2.02	0.00	0.00	0.00	2.66	2.18	0.00	1.75	0.00	3.62	0.00	0.00	0.00	0.00	0.00
7	2.09	0.00	0.00	0.00	2.67	2.95	0.00	2.46	0.00	0.00	0.00	0.00	0.00	5.21	0.00
8	2.60	2.32	0.00	0.00	2.36	2.37	0.00	2.00	0.00	0.00	0.00	0.00	0.00	5.77	0.00
9	2.09	2.47	2.37	0.00	2.68	2.87	0.00	1.88	0.00	0.00	4.79	0.00	0.00	6.36	4.89
10	2.41	6.37	0.00	1.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.24	0.00
11	4.02	0.00	0.00	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.67	0.00
12	0.00	0.00	0.00	3.03	0.00	0.00	0.00	0.00	0.00	0.00	5.12	0.00	0.00	4.43	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.33	0.00	4.35	6.60
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.07	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504	2.48	0.00	0.00	3.17	1.89	0.00	0.00	2.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	BI	JTR	JV	KG	KGC	KHG	KHP	KJN	KJNT	KJS	KL	KLC	KLP	KMP	KMPV
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.53	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	0.00	4.77	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16	0.00	4.10	0.00	0.00	0.00	3.50	0.00
5	6.08	0.00	0.00	0.00	0.00	0.00	0.00	2.32	0.00	0.00	0.00	0.00	0.00	2.85	0.00
6	0.00	0.00	0.00	2.71	0.00	0.00	0.00	2.99	1.76	0.00	0.00	0.00	0.00	2.59	2.61
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	0.00	0.00	0.00	0.00	1.78	2.86
8	0.00	0.00	0.00	0.00	2.31	0.00	2.34	0.00	0.00	0.00	2.13	0.00	0.00	2.15	2.01
9	0.00	0.00	0.00	0.00	2.65	0.00	2.66	0.00	0.00	0.00	2.19	0.00	1.63	2.62	2.81
10	0.00	0.00	0.00	0.00	0.00	2.68	7.42	4.75	0.00	3.40	2.51	2.40	0.00	0.00	0.00
11	0.00	0.00	2.52	0.00	0.00	0.00	0.00	0.00	0.00	3.18	2.78	2.74	0.00	0.00	0.00
12	0.00	5.50	0.00	0.00	0.00	2.12	0.00	2.46	0.00	4.77	2.60	0.00	0.00	0.00	0.00
501	0.00	0.00	2.81	0.00	0.00	0.00	0.00	0.00	0.00	4.66	0.00	0.00	0.00	0.00	0.00
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503	0.00	0.00	0.00	3.02	0.00	0.00	2.50	0.00	0.00	0.00	2.55	2.66	0.00	0.00	0.00
504	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	2.24	0.00	0.00	0.00	0.00	0.00	0.00

COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR ETH/%K

	PMCV	PTG	PTGD	PTGN	PTGS	PTPH	PTQD	PTSC	PTV	QAL	QG	QU	QV	TCB	TCP
1	0.00	2.91	3.40	3.87	0.00	3.18	2.82	3.66	0.00	4.12	0.00	3.55	0.00	0.00	0.00
2	0.00	2.85	0.00	2.96	0.00	0.00	2.65	2.55	0.00	3.02	2.94	3.81	3.24	0.00	0.00
3	0.00	4.20	0.00	3.50	0.00	5.04	3.36	2.86	3.47	2.92	0.00	3.80	4.41	0.00	3.58
4	0.00	0.00	0.00	2.99	0.00	4.04	0.00	3.27	0.00	3.51	0.00	4.66	0.00	0.00	3.70
5	0.00	0.00	0.00	2.93	5.62	5.14	0.00	2.68	0.00	2.55	3.88	3.87	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	5.18	4.30	0.00	3.73	3.51	2.89	3.63	3.43	0.00	0.00	0.00
7	5.94	0.00	0.00	0.00	0.00	6.04	0.00	0.00	0.00	3.25	0.00	4.69	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	6.12	0.00	0.00	0.00	2.90	6.41	4.41	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	6.23	0.00	0.00	0.00	2.19	0.00	3.98	5.35	0.00	0.00
10	2.97	0.00	2.27	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	3.51	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	3.65	0.00	0.00	0.00	0.00	0.00	3.27	0.00	3.60	0.00
12	0.00	0.00	2.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.81	0.00	0.00	3.16	0.00
501	0.00	0.00	0.00	0.00	4.53	5.16	0.00	0.00	5.16	0.00	4.37	4.15	4.71	0.00	0.00
502	0.00	0.00	0.00	3.41	0.00	4.73	0.00	3.65	0.00	4.06	2.92	4.20	5.97	0.00	0.00
503	0.00	2.73	0.00	3.10	0.00	0.00	2.65	2.58	0.00	2.87	0.00	3.00	0.00	0.00	0.00
504	0.00	0.00	2.48	0.00	0.00	0.00	0.00	0.00	0.00	3.05	0.00	0.00	0.00	0.00	0.00

	TD	TG	TGD	THV	TIM	TKBI	TKC	TKCF	TKG	TPCF	TQM	TRPS	WA
1	3.00	3.10	3.66	0.00	0.00	0.00	2.89	0.00	3.64	0.00	0.00	0.00	3.72
2	4.67	3.02	3.67	0.00	0.00	0.00	5.68	0.00	0.00	0.00	0.00	0.00	4.13
3	0.00	3.18	0.00	0.00	0.00	0.00	3.26	0.00	0.00	0.00	0.00	0.00	2.74
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66
5	0.00	2.38	0.00	0.00	0.00	0.00	5.08	0.00	3.23	0.00	0.00	0.00	0.00
6	0.00	2.58	0.00	0.00	0.00	0.00	5.31	0.00	3.14	2.23	0.00	0.00	3.04
7	0.00	2.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.98	0.00
8	7.29	2.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.82	0.00
9	12.28	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.95	0.00
10	0.00	6.30	0.00	0.00	0.00	0.00	0.00	0.00	2.65	0.00	0.00	0.00	2.84
11	0.00	0.00	0.00	3.63	3.77	0.00	0.00	4.03	3.17	0.00	0.00	3.79	0.00
12	0.00	3.90	0.00	2.94	0.00	2.66	0.00	0.00	2.80	0.00	0.00	0.00	0.00
501	0.00	0.00	0.00	0.00	0.00	0.00	4.16	0.00	6.14	0.00	0.00	0.00	4.01
502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00	0.00	0.00	3.18
503	0.00	2.89	3.13	0.00	0.00	0.00	0.00	0.00	2.63	0.00	2.81	0.00	0.00
504	0.00	0.00	1720.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

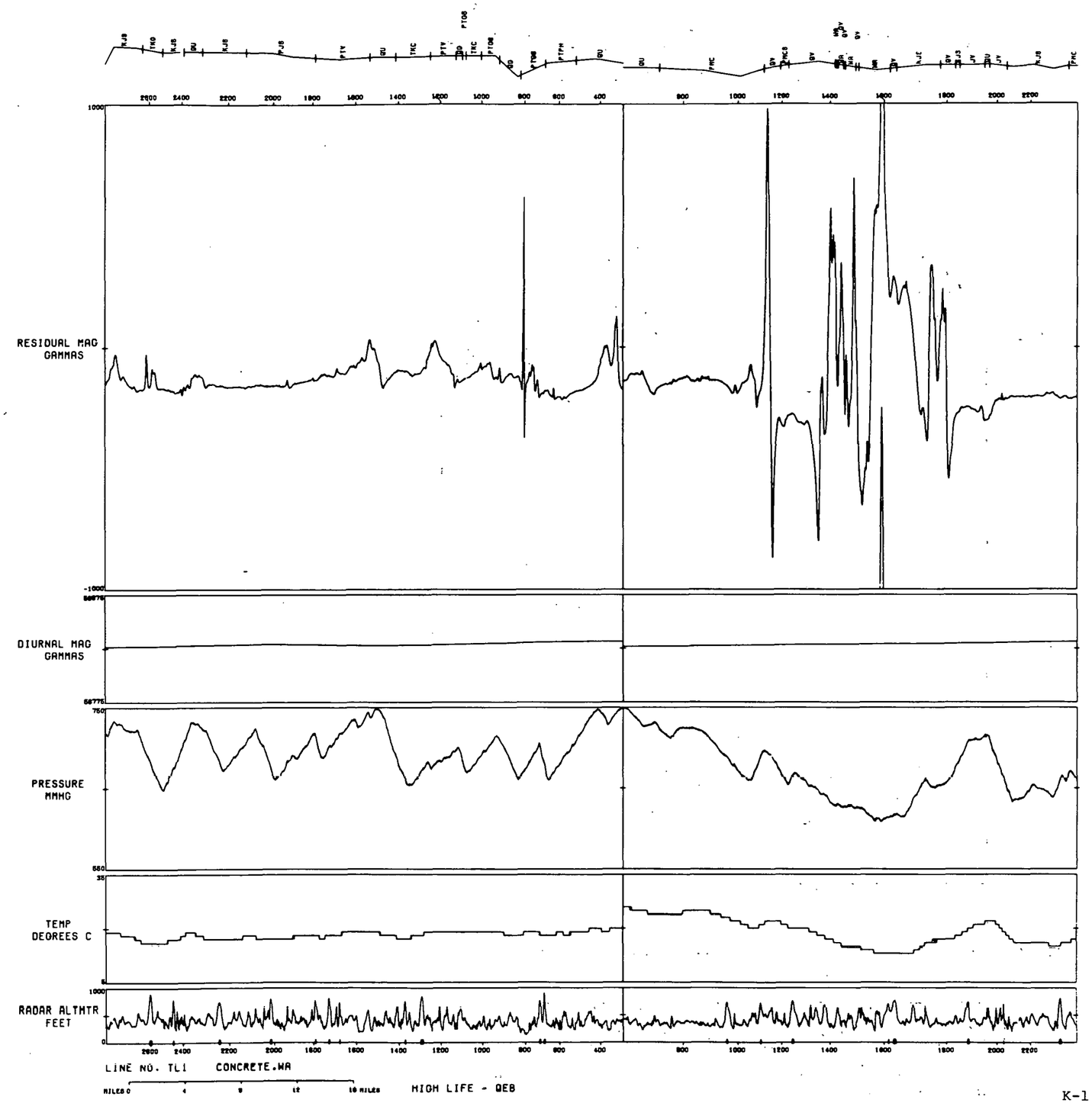
COMPUTER LINES 1 THRU 12 REFER TO PROFILELINES 1 THRU 12.

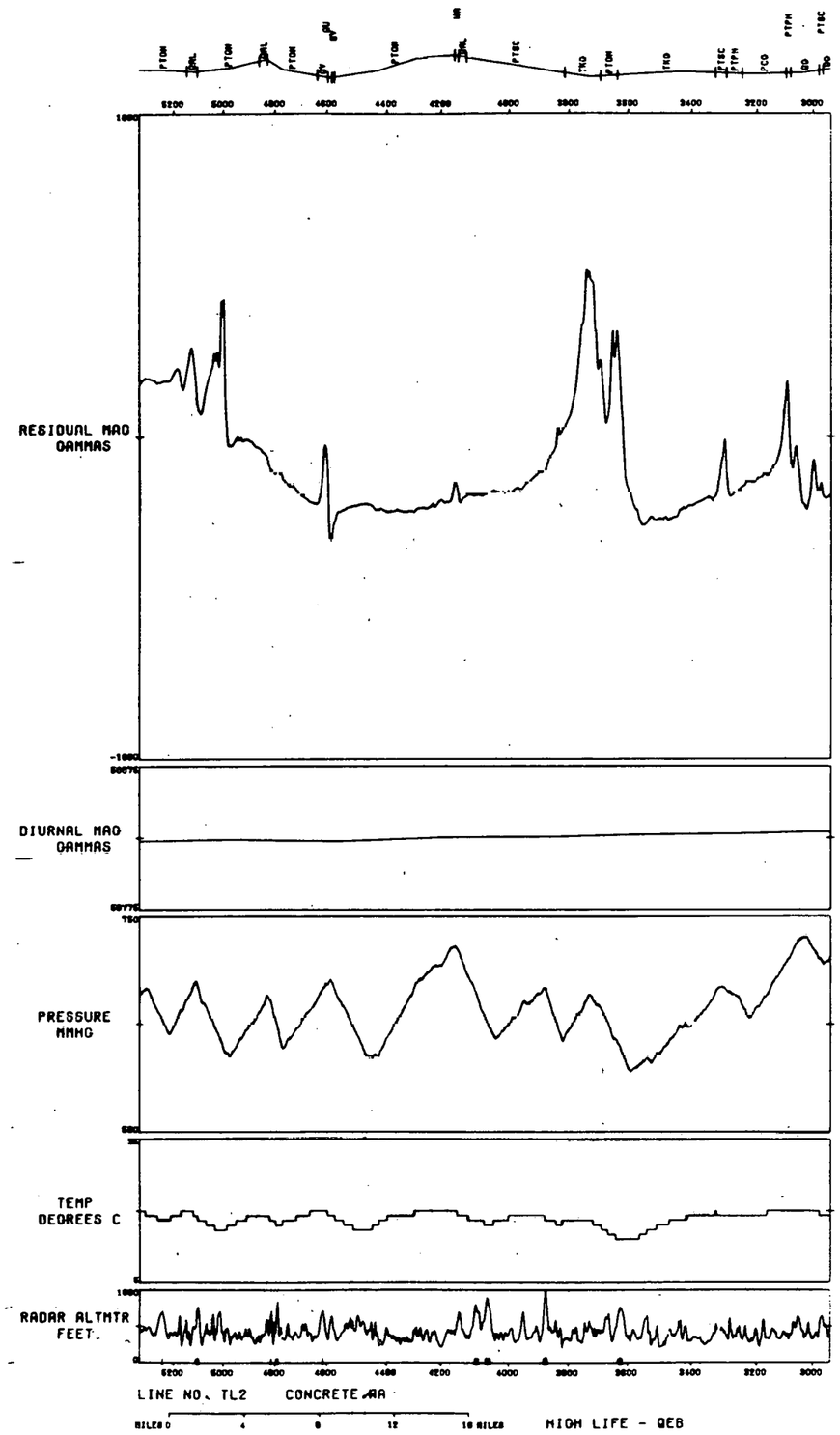
COMPUTER LINES 501 THRU 504 REFER TO NORTH - SOUTH TIE LINES 1 THRU 4.

GEOLOGIC UNIT AVERAGE VALUE AS A

FUNCTION OF MAP LINE FOR ETH/%K

APPENDIX K - MAGNETIC AND ANCILLARY PROFILES


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. TL1 CONCRETE.WA
MILES 0 4 8 12 16 MILES
HIGH LIFE - QEB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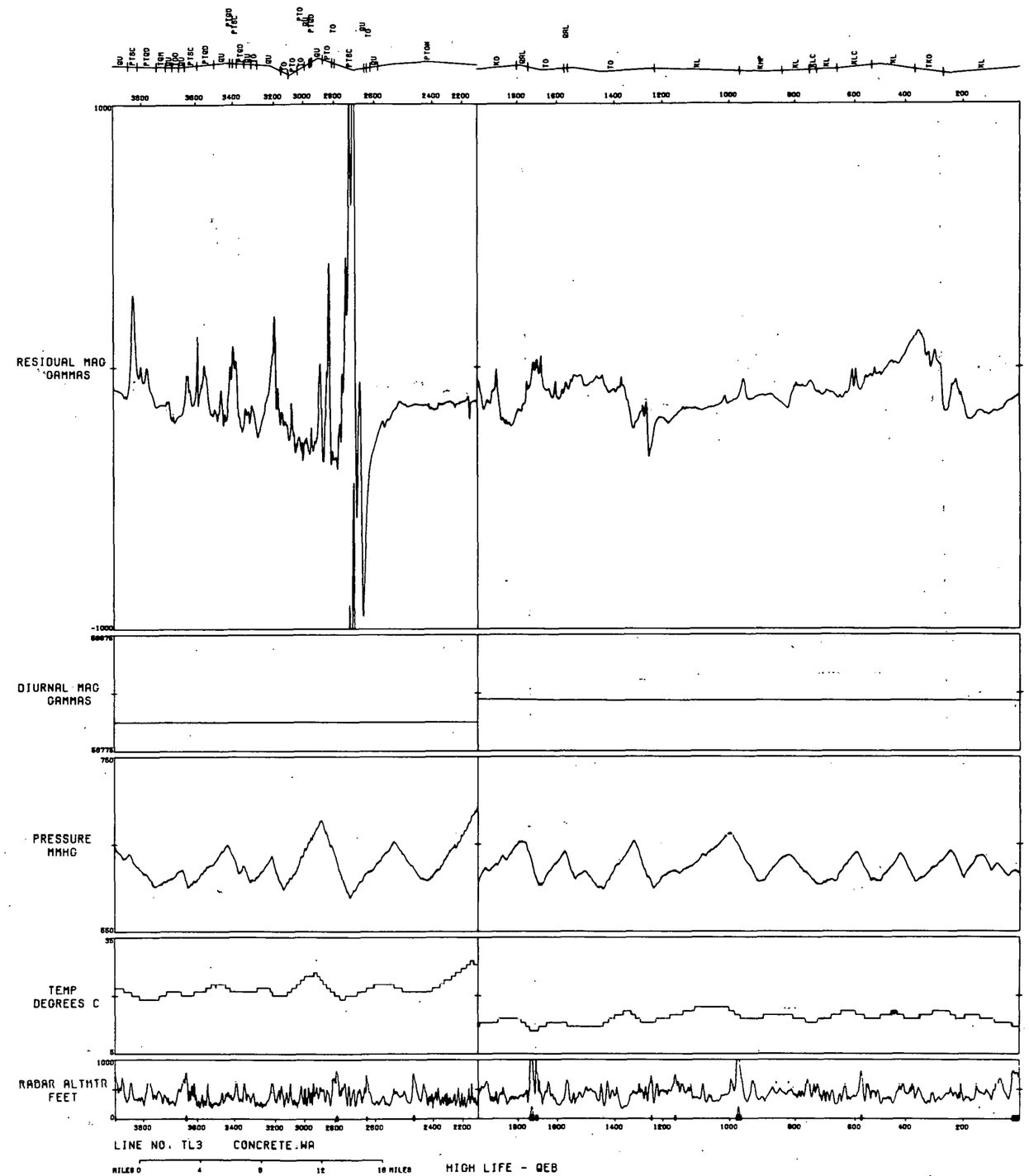
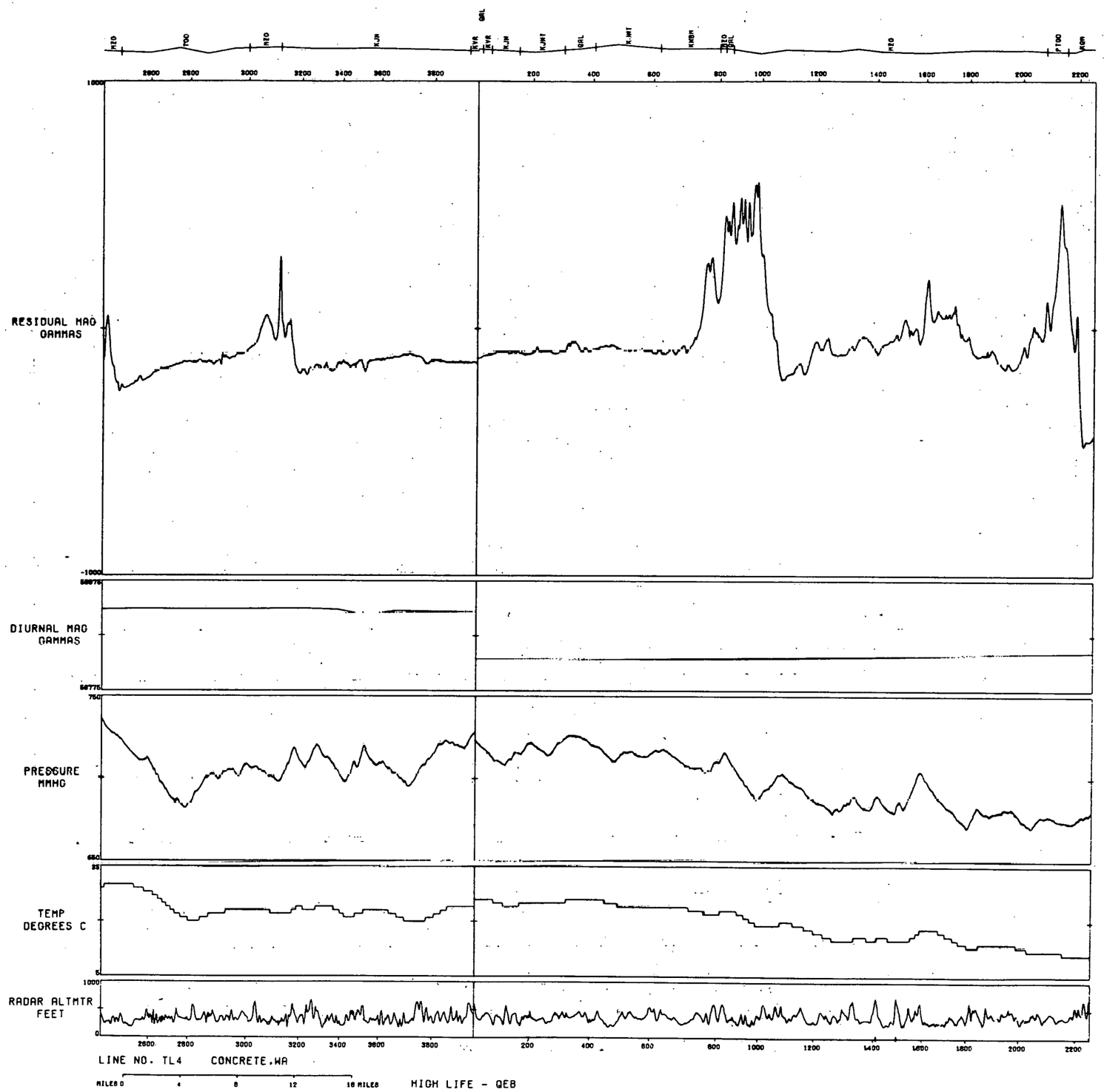
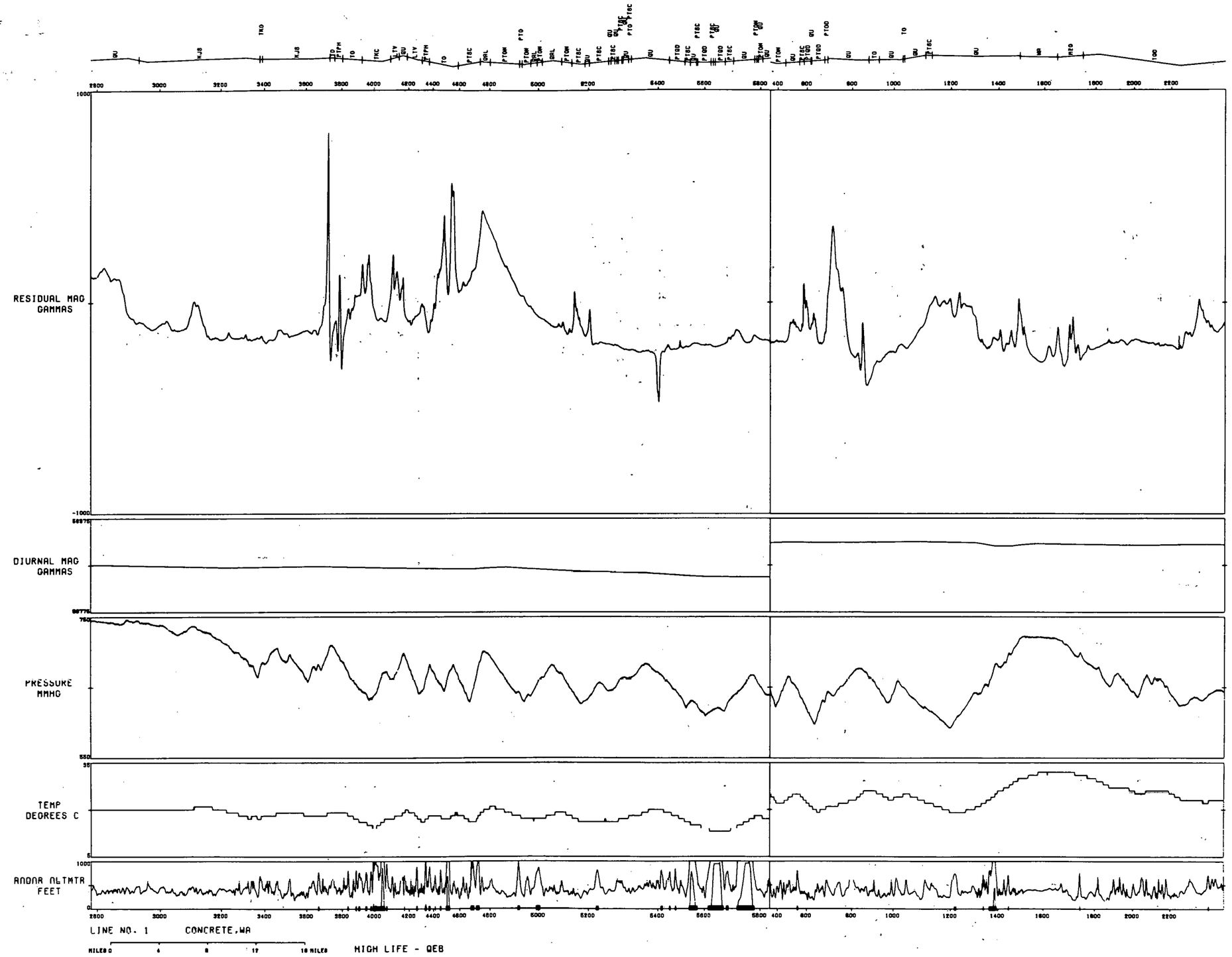
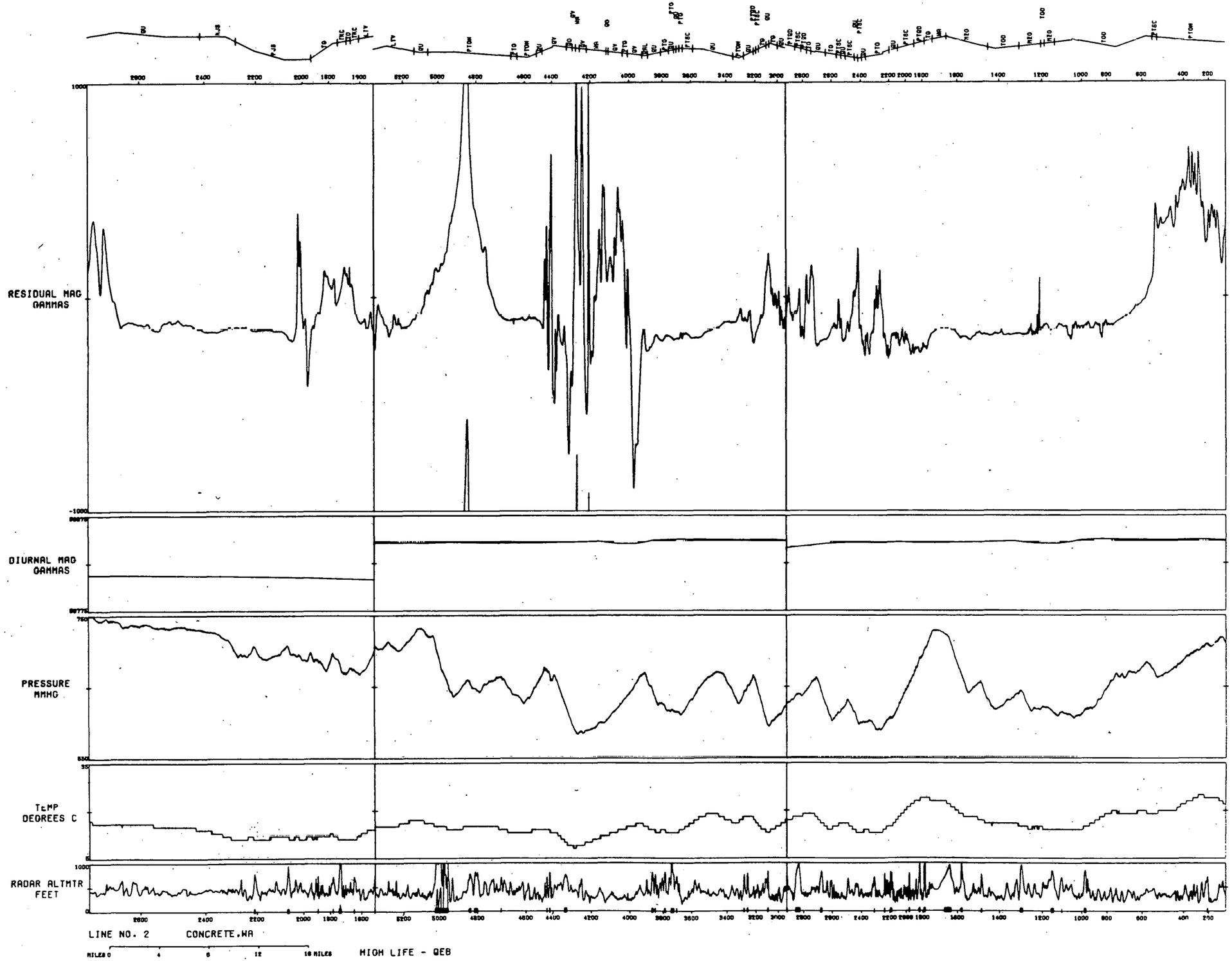
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. TL2
CONCRETE AA
MIDM LIFE - QEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. TL3 CONCRETE.WA
HIGH LIFE - QEB


RESIDUAL MAG GAMMAS
DIURNAL MAG GAMMAS
PRESSURE MMHG
TEMP DEGREES C
RADAR ALTMTR FEET
LINE NO. TL4 CONCRETE.WA
MILES 0 4 8 12 16 MILES
HIGH LIFE - QEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 1
CONCRETE,WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - QEB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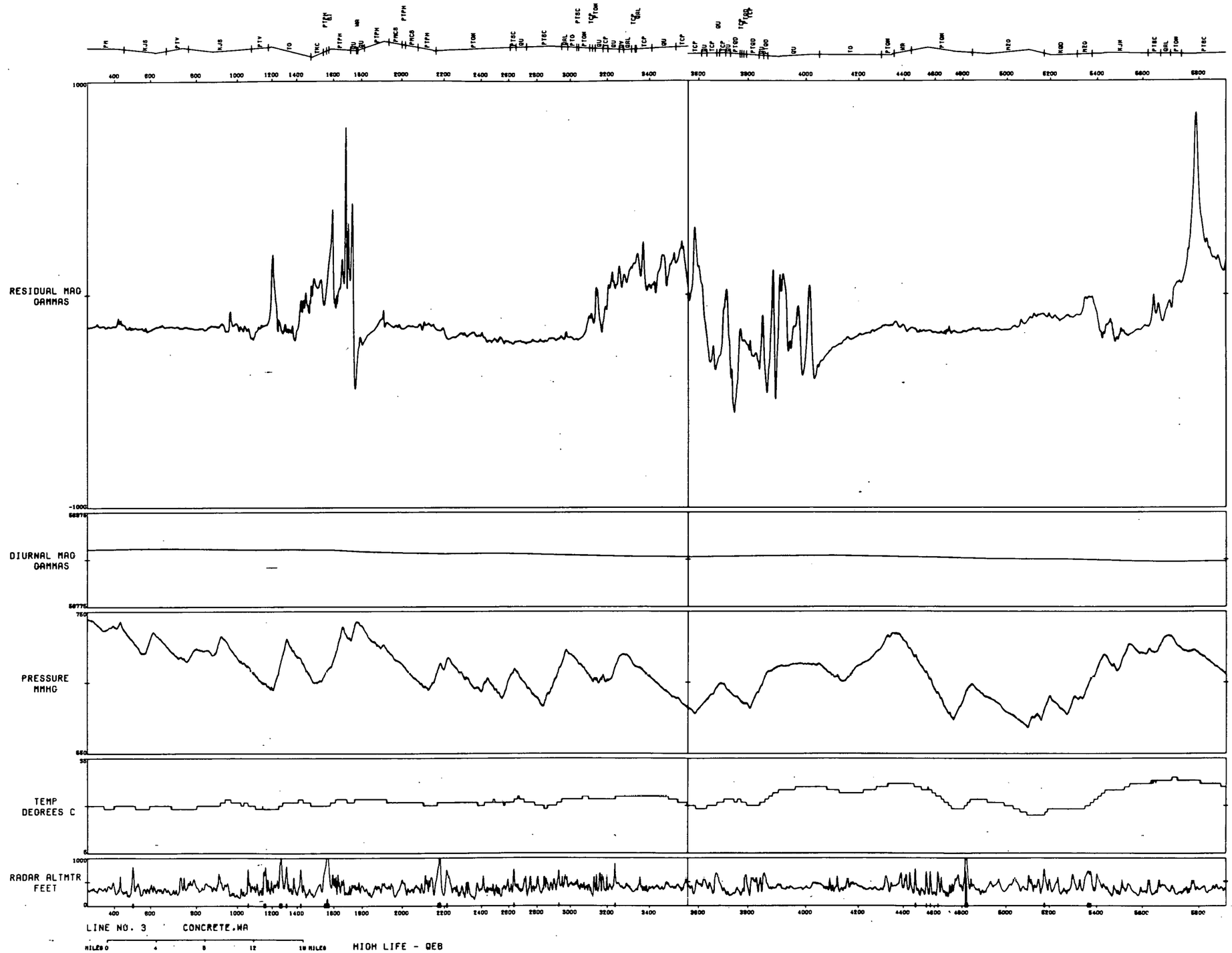
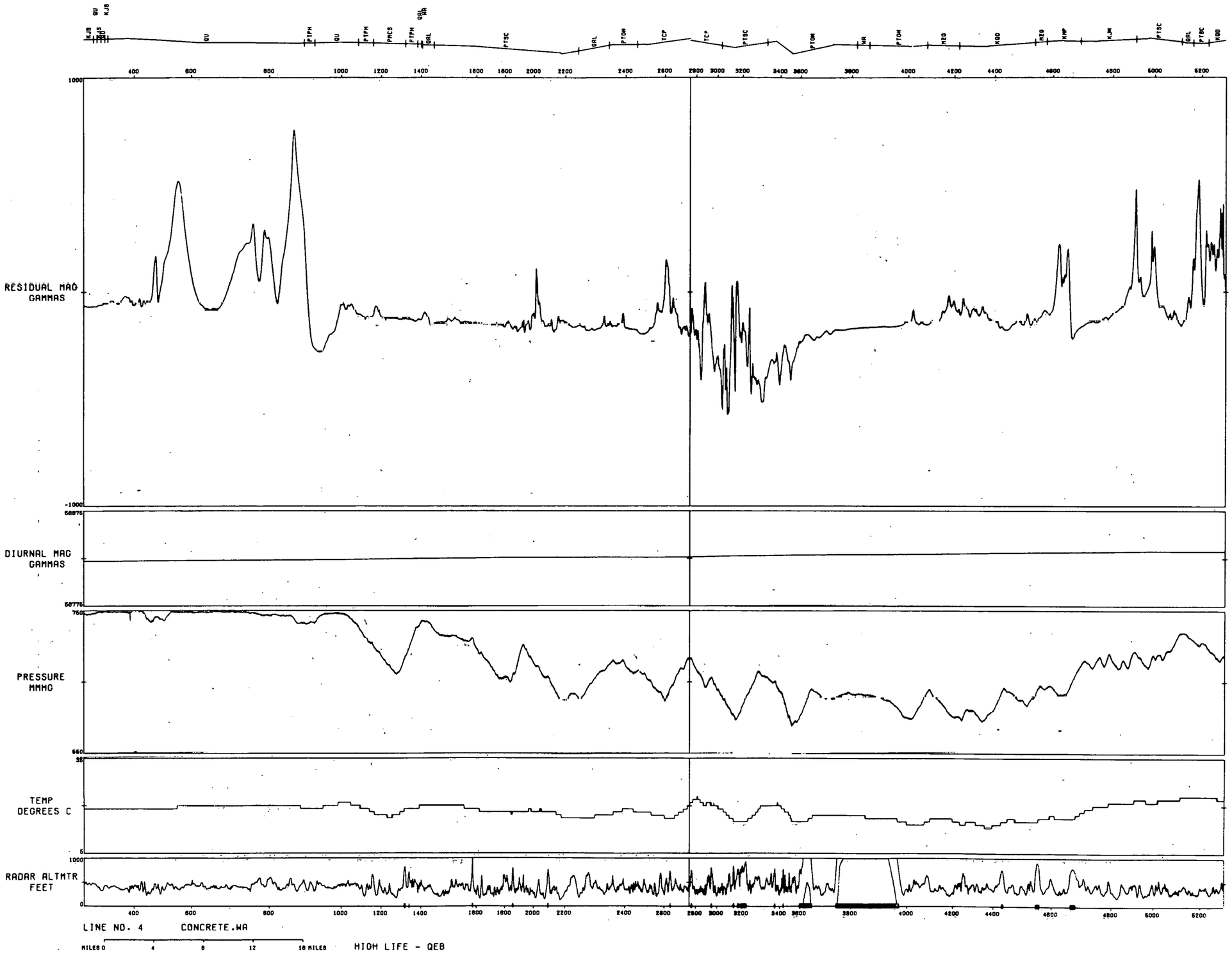
DIURNAL MAG GAMMAS
PRESSURE MMHG
TEMP DEGREES C
RADAR ALTMTR FEET
LINE NO. 2
CONCRETE.WA
MILES 0 4 8 12 16 MILES
HIGH LIFE - QEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 3
CONCRETE.WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - GEB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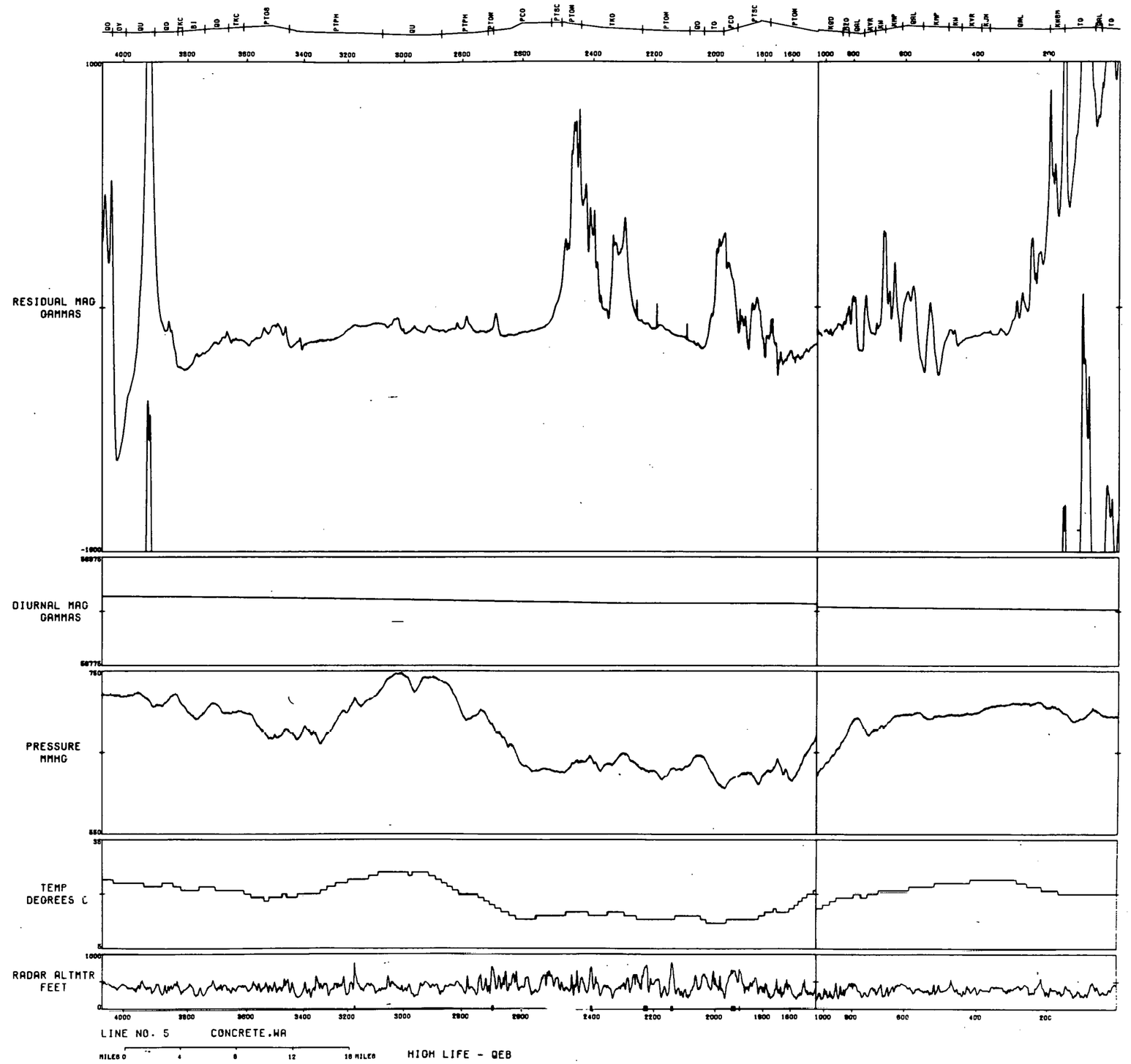
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 4
CONCRETE.WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - QEB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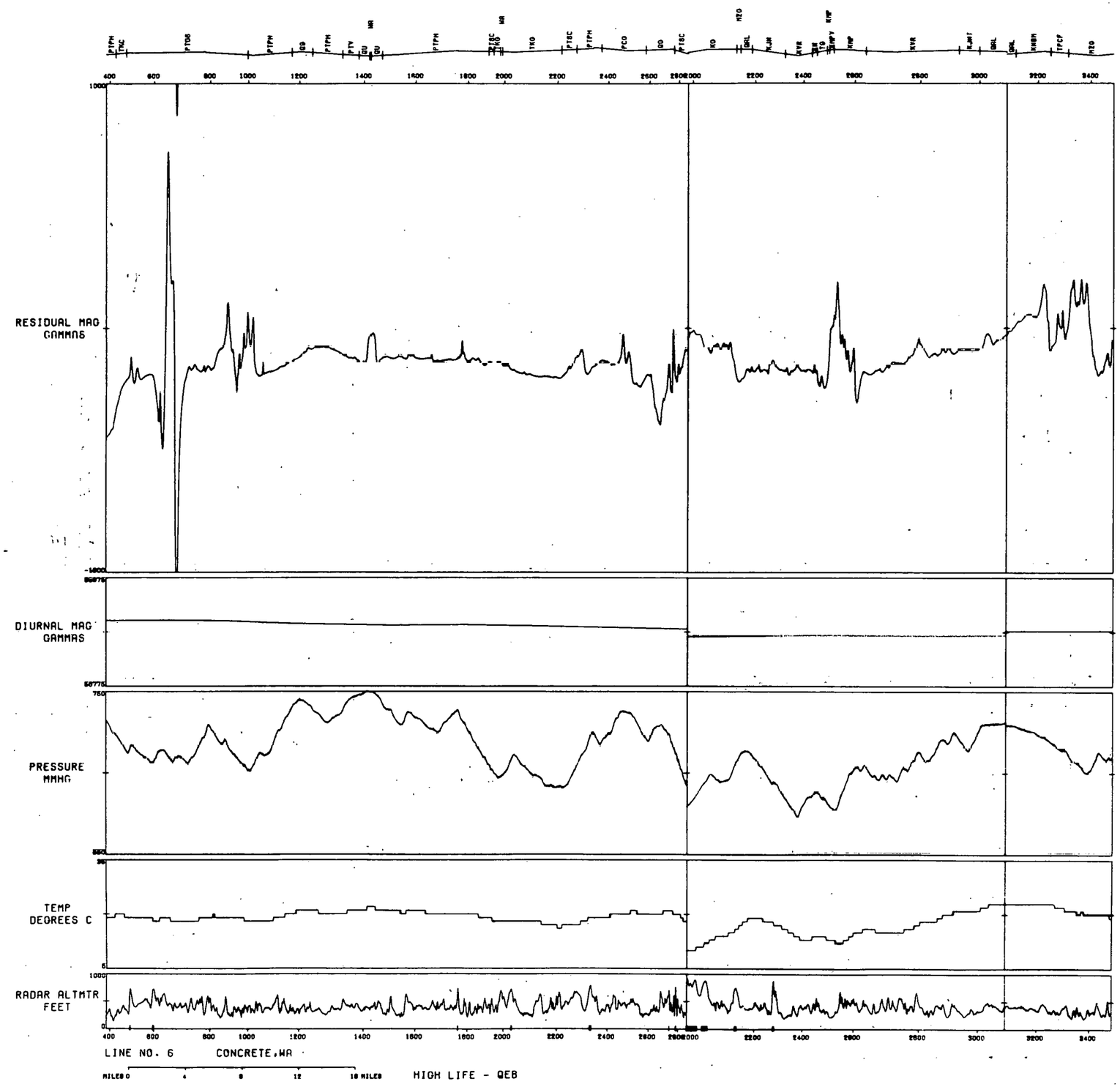
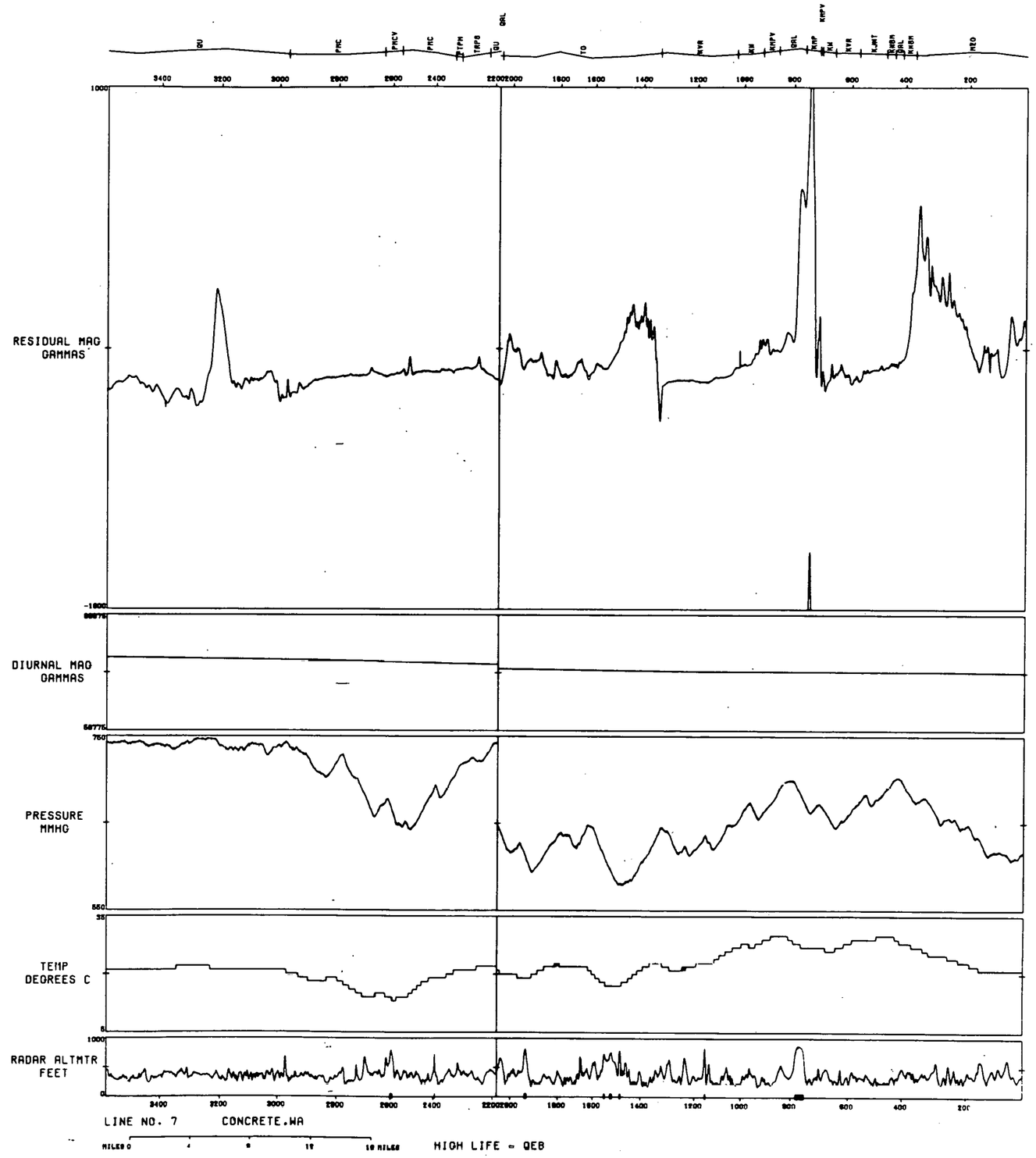
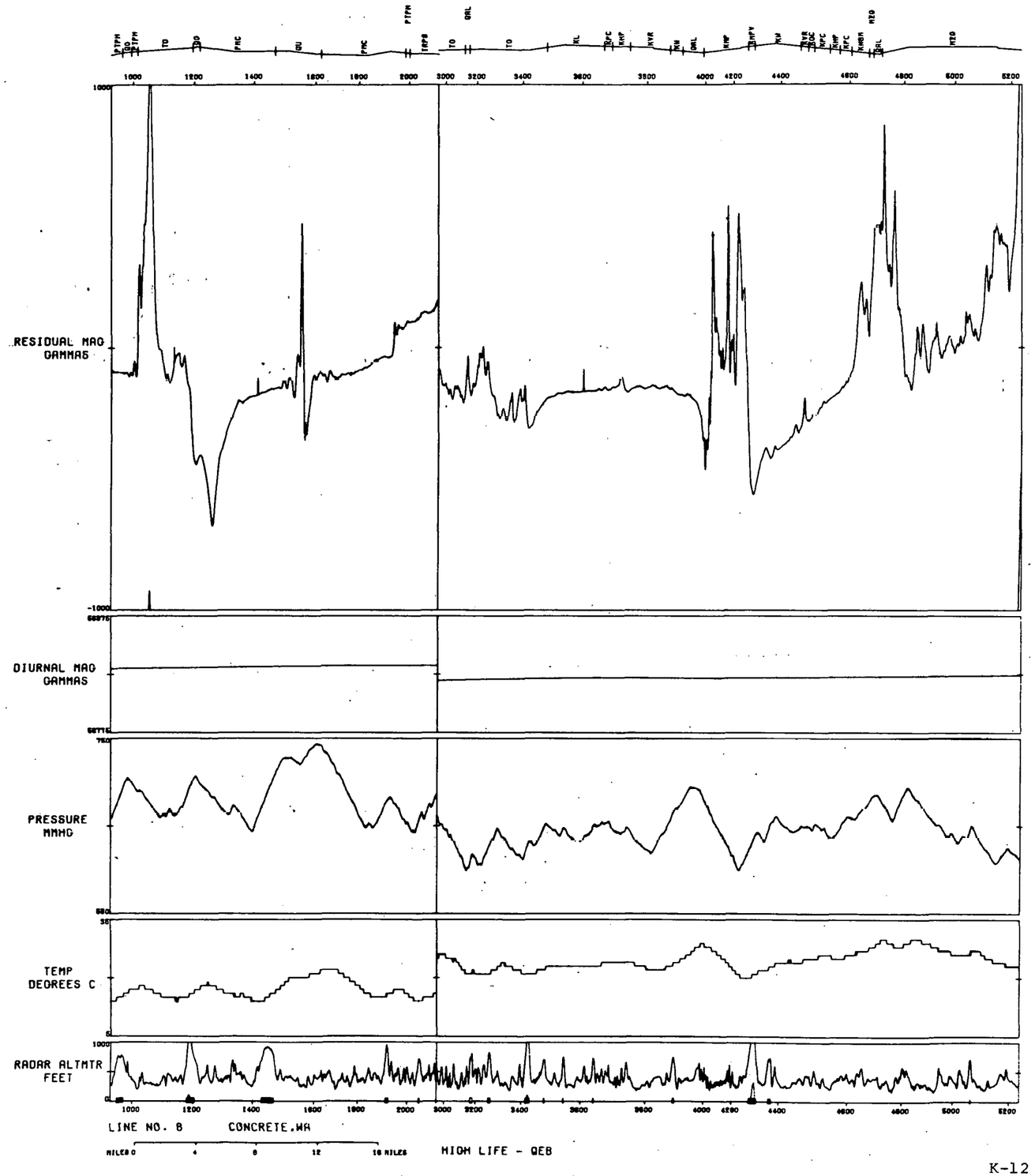
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 5
CONCRETE.WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - QEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 6
CONCRETE,WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - QEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 7
CONCRETE.WA
HIGH LIFE - QEB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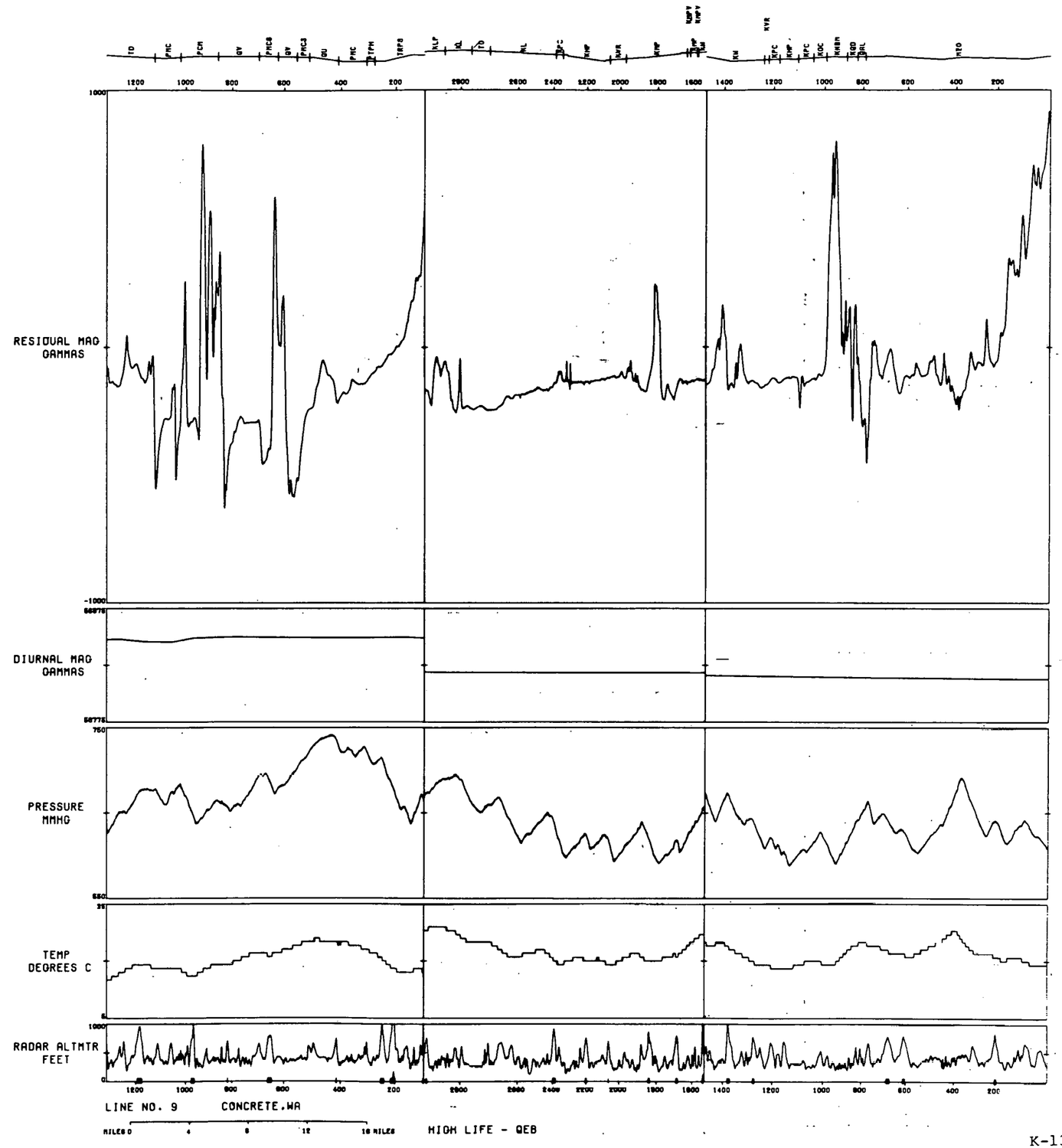
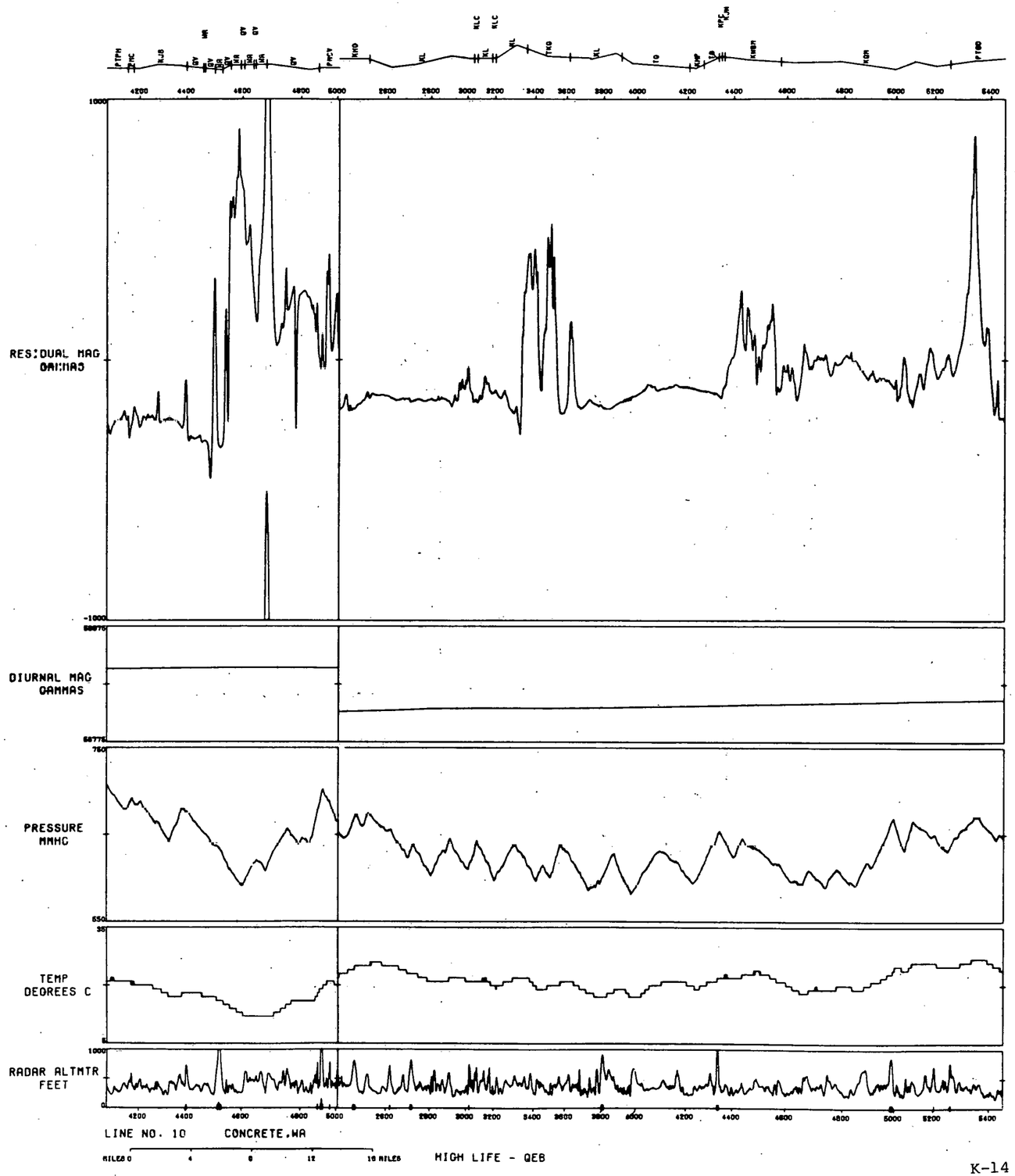
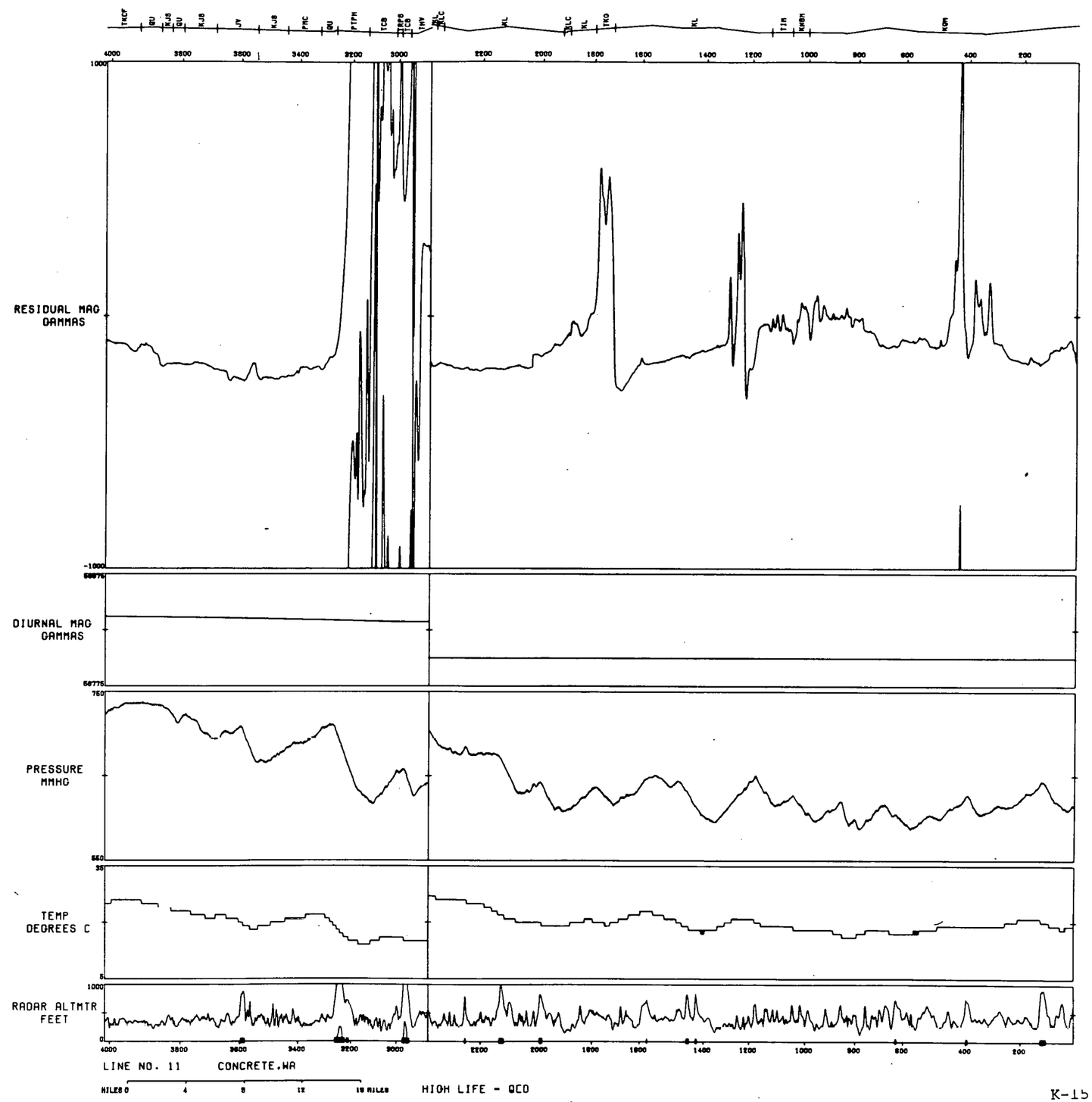
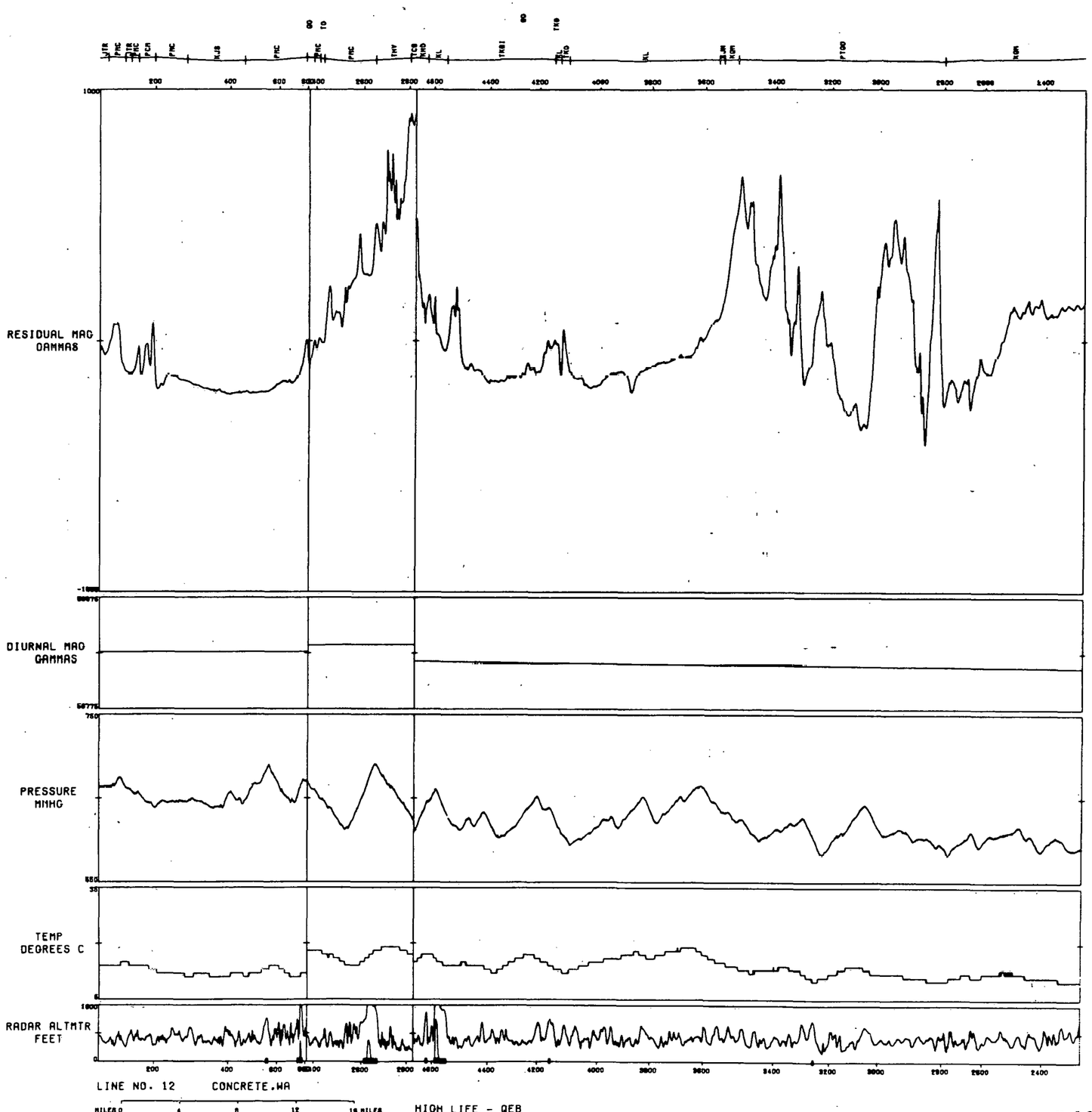
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 8
CONCRETE.WA
MIGH LIFE - GEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 9
CONCRETE.WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - QEB


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 10
CONCRETE.WA
MILES 0
4
8
12
16 MILES
HIGH LIFE - QEB



HIGH LIFE - QCD


RESIDUAL MAG
GAMMAS
DIURNAL MAG
GAMMAS
PRESSURE
MMHG
TEMP
DEGREES C
RADAR ALTMTR
FEET
LINE NO. 12
CONCRETE.WA
MIOM LIFE - QEB

APPENDIX L - TEST LINE DATA

PRE-FLIGHT AND POST-FLIGHT TEST LINE DATA

CONCRETE QUADRANGLE

	8/6/80	8/7/80	8/8/80	8/9/80	8/11/80	8/13/80	8/20/80
Pre TL	14.46	14.66	14.37	14.57	14.16	14.89	14.53
Post TL	14.83	14.59	14.72	13.93	14.28	14.57	14.84
Pre Bi	6.41	6.60	6.39	6.22	6.06	6.42	6.62
Post Bi	6.27	6.59	6.74	6.17	6.31	6.31	6.51
Pre K	68.73	72.99	69.83	65.48	64.49	67.87	69.29
Post K	64.48	67.34	66.41	63.26	66.66	65.41	66.31
Pre TC	617.80	613.30	627.16	630.63	629.07	648.43	656.39
Post TC	626.76	644.05	638.03	619.84	638.21	636.29	642.17