K/UR-125

NATIONAL URANIUM RESOURCE EVALUATION PROGRAM

HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE BASIC DATA FOR AMARILLO NTMS QUADRANGLE, TEXAS

Uranium Resource Evaluation Project

May 31, 1979

UNION CARBIDE

OAK RIDGE GASEOUS DIFFUSION PLANT
OAK RIDGE, TENNESSEE

prepared for the U.S. DEPARTMENT OF ENERGY *under*
U.S. GOVERNMENT *Contract W-7405 eng 26*

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Union Carbide Corporation, Nuclear Division
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Uranium Resource Evaluation Project
J. W. Arendt, Project Manager

Geology and Geochemistry
T. R. Butz, Project Geologist/Geochemist
S. C. Minkin, Field Geology Program
D. A. Rutledge, Field Geology Supervisor

Analytical Chemistry, Reconnaissance Geochemistry, and Report Preparation
G. W. Cagle, Project Chemist
J. D. Joyner, Technical Editor
J. Switek, Coordinating Geologist

Portions of the description of the geology of the Amarillo Quadrangle
were provided by Joseph C. Cepeda.

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Savannah River Operations Office
P. O. Box A
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24. R. S. Swingle
NURE Program
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CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PLATES

(In Back Pocket)

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HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE BASIC DATA FOR AMARILLO NTMS QUADRANGLE, TEXAS

INTRODUCTION

The National Uranium Resource Evaluation (NURE) Program was established by the U. S. Atomic Energy Commission, now the U. S. Department of Energy (DOE), in the spring of 1973 to assess uranium resources and to identify favorable areas for detailed uranium exploration throughout the United States. The principal objectives of the NURE Program are: (1) to provide a comprehensive in-depth assessment of the nation's uranium resources for national energy planning, and (2) to identify areas favorable for uranium resources. A NURE Program report covering uranium resource assessment in 116 National Topographic Map Series (NTMS) 1° x 2° quadrangles, which contain 100% of the currently estimated uranium resources, is targeted for 1980. The complete resource assessment of the 272 highest-priority quadrangles is scheduled for completion in 1983, and the first comprehensive assessment report of the entire United States is scheduled for completion in 1985. This program, which is being administered by DOE, is expected to increase the activity of commercial exploration for uranium in the United States.

The NURE Program consists of five parts:

1. Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) Program,
2. Aerial Radiometric and Magnetic Survey,
3. Surface Geologic Investigations,
4. Drilling for Geologic Information, and
5. Geophysical Technology Development.

The objective of the HSSR Program is to provide information to be used in accomplishing the overall NURE Program objectives. This is accomplished by a reconnaissance of surface water, groundwater, stream sediment, and lake sediment. The survey is being conducted by three Government-owned laboratories. Union Carbide Corporation, Nuclear Division (UCC-ND), under contract with DOE, is conducting its survey in 154 NTMS 1° x 2° quadrangles which cover approximately 2,500,000 km^2 (1,000,000 mi^2) of the Central United States (see Figure 1). This area includes most of the states of Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Minnesota, Wisconsin, Michigan, Indiana, Illinois, and Iowa, as well as parts of Louisiana, Mississippi, Alabama, Florida, Georgia, Arkansas, Missouri, New Mexico, and Ohio. Described herein is a portion of the work done by UCC-ND in the Amarillo NTMS Quadrangle, Texas.

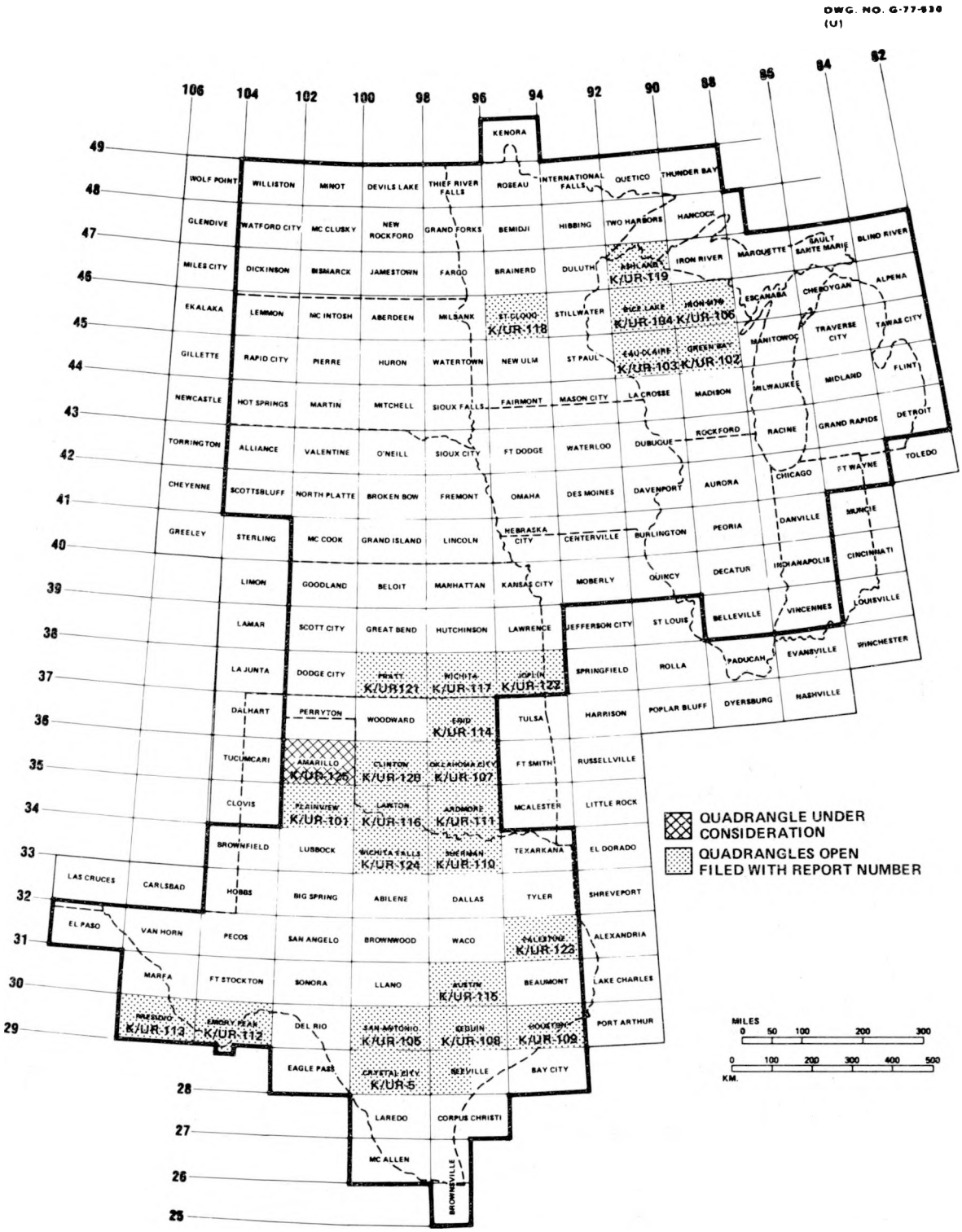

Figure 1

INDEX MAP SHOWING THE ORGDP AREA OF RESPONSIBILITY FOR THE HSSR SURVEY, THE AMARILLO QUADRANGLE AND QUADRANGLES FOR WHICH BASIC DATA REPORTS HAVE BEEN OPEN FILED

GEOLOGY

LOCATION AND GEOLOGIC SETTING

The Amarillo Quadrangle covers a surface area of approximately 20,100 km^2 (7,770 mi^2) between lat. 35° and 36° N. and long. 100° and 102° W. The survey area, outlined on the generalized geologic map of Texas shown in Figure 2, includes all, or parts, of Moore, Hutchinson, Roberts, Hemphill, Potter, Carson, Gray, Wheeler, Randall, Armstrong, Donley, and Collingsworth Counties. A generalized geologic map, along with a stratigraphic column listing geologic codes used in this report, is presented in Figure 3 and Plate 7.

Approximately 90% of the Amarillo Quadrangle is in the southern High Plains Province, while the southeastern corner of the area is in the Osage Plains section of the Central Lowland Province. Most of the quadrangle is covered by Cenozoic age deposits, except where the Canadian River and tributaries to the Red River have dissected the high plains and exposed the underlying Triassic and Permian strata. A thin veneer of Pleistocene and Recent playa deposits and windblown sand covers about one third of the area (Barnes, 1969).

LITHOLOGY AND ENVIRONMENTS OF DEPOSITION

The oldest formations exposed in the Amarillo Quadrangle are the Permian Blaine and Quartermaster Formations. These units crop out along the Canadian River in the vicinity of Lake Meredith and in the southeastern corner of the quadrangle in valleys of tributaries to the Red River. The Blaine Formation consists of interbedded gypsum, shale, siltstone, and dolomite. Dolomite units range up to a few meters in thickness. The maximum exposed thickness is 91 m (300 ft) (Barnes, 1969). The Quartermaster Formation includes the Whitehorse Sandstone and the Cloud Chief gypsum. The Alibates dolomite, consisting of an upper and lower dolomite unit separated by shale, is a marker horizon in the Upper Permian strata (Texas Board of Water Engineers, 1960).

The Triassic Dockum Group in this area is composed of the Tecovas Formation and the overlying Trujillo Formation. These units crop out along the western margin of the quadrangle in the Canadian River valley and in Palo Duro Canyon, and they are truncated eastward. Both units consist of sand, silt, shale, and conglomerate, and contain petrified wood. The Dockum Group, which has a maximum thickness of about 76 m (250 ft) (Barnes, 1969), is a mixture of channel sands, point bars, overbank, and floodplain deposits (Jones, 1974).

The Cenozoic stratigraphy of the quadrangle consists of a nearly continuous blanket of the Pliocene Ogallala Formation which unconformably overlies the Permian and Triassic rocks and is composed of sands, silts, clays, and light-colored gravels which were deposited by streams flowing from the west. Caliche is found near the top of the Ogallala in the western part of the area and forms distinct beds in the eastern part of the quadrangle (Texas Board of Water Engineers, 1960).

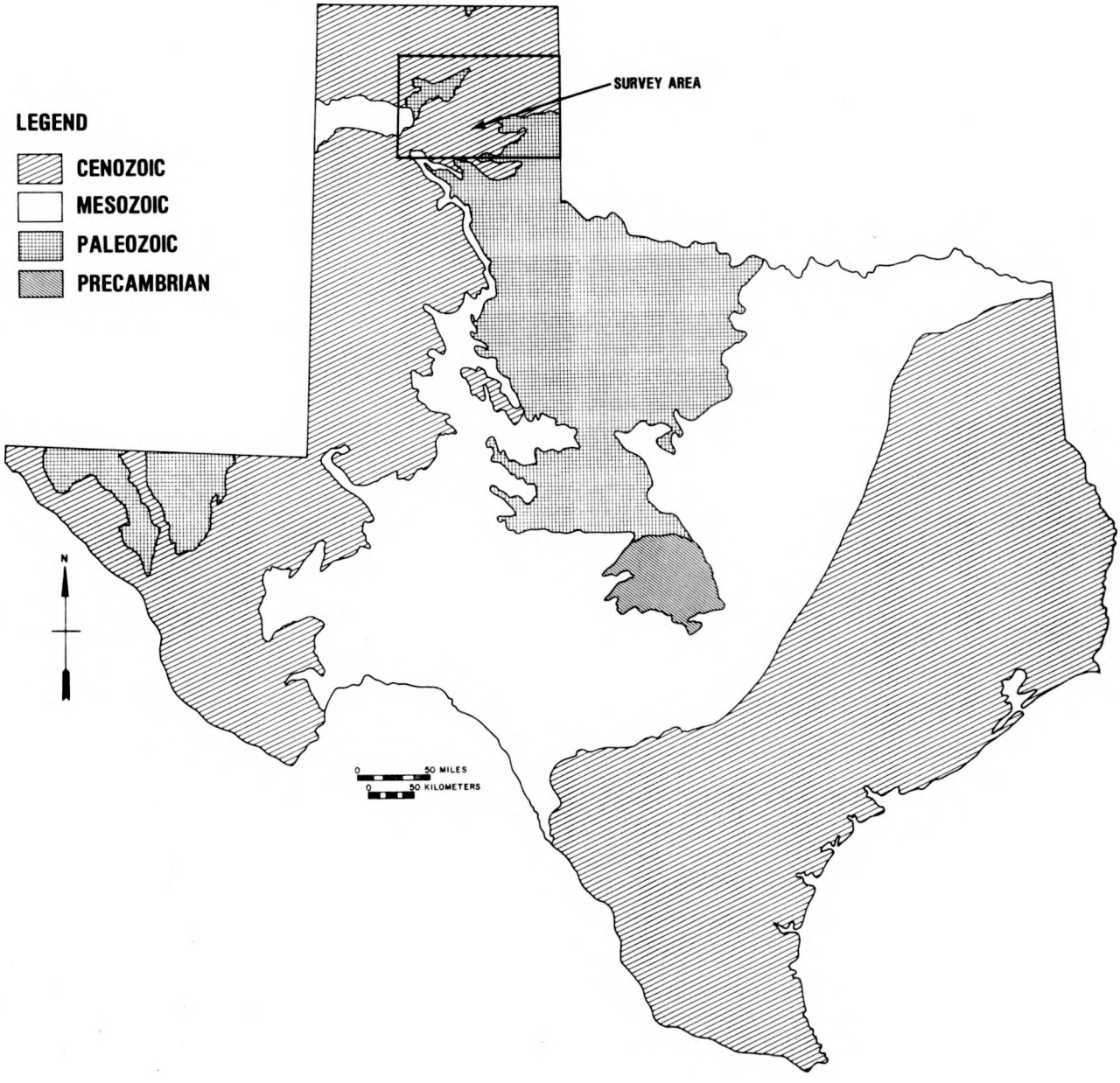

Figure 2

GENERALIZED GEOLOGIC MAP OF TEXAS
(AFTER KING, ET AL, 1974)

STRATIGRAPHIC COLUMN FOR THE AMARILLO QUADRANGLE

ERA	SYSTEM	SERIES	GEOLOGIC MAP CODE	GEOLOGIC MEMBER CODE	GEOLOGIC MEMBER	MAXIMUM THICKNESS METERS	FEET
CENOZOIC	QUATERNARY	RECENT PLEISTOCENE	QD	QAL	ALLUVIUM		
				QWS	WINDBLOWN SAND		
				QPFT	FLUVIATILE TERRACE DEPOSITS		
		PLEISTOCENE	QPCS	QPCS	WINDBLOWN COVER SAND	8	25
	TERTIARY	PLIOCENE	TPO	TPO	OGALLALA FORMATION	167	550
MESOZOIC	TRIASSIC		TRD	TRD	DOCKUM GROUP	76	250
PALEOZOIC	PERMIAN		PGWC	PGWC	QUATERMASTER FORMATION, CLOUD CHIEF GYPSUM & WHITEHORSE SANDSTONE	198	650
			PGEB	PGEB	BLAINE FORMATION	91	300

SOURCE OF GEOLOGY:

1. BARNES, V. E.; GEOLOGIC ATLAS OF TEXAS, AMARILLO SHEET (1969).

LEGEND FOR FIGURE 3

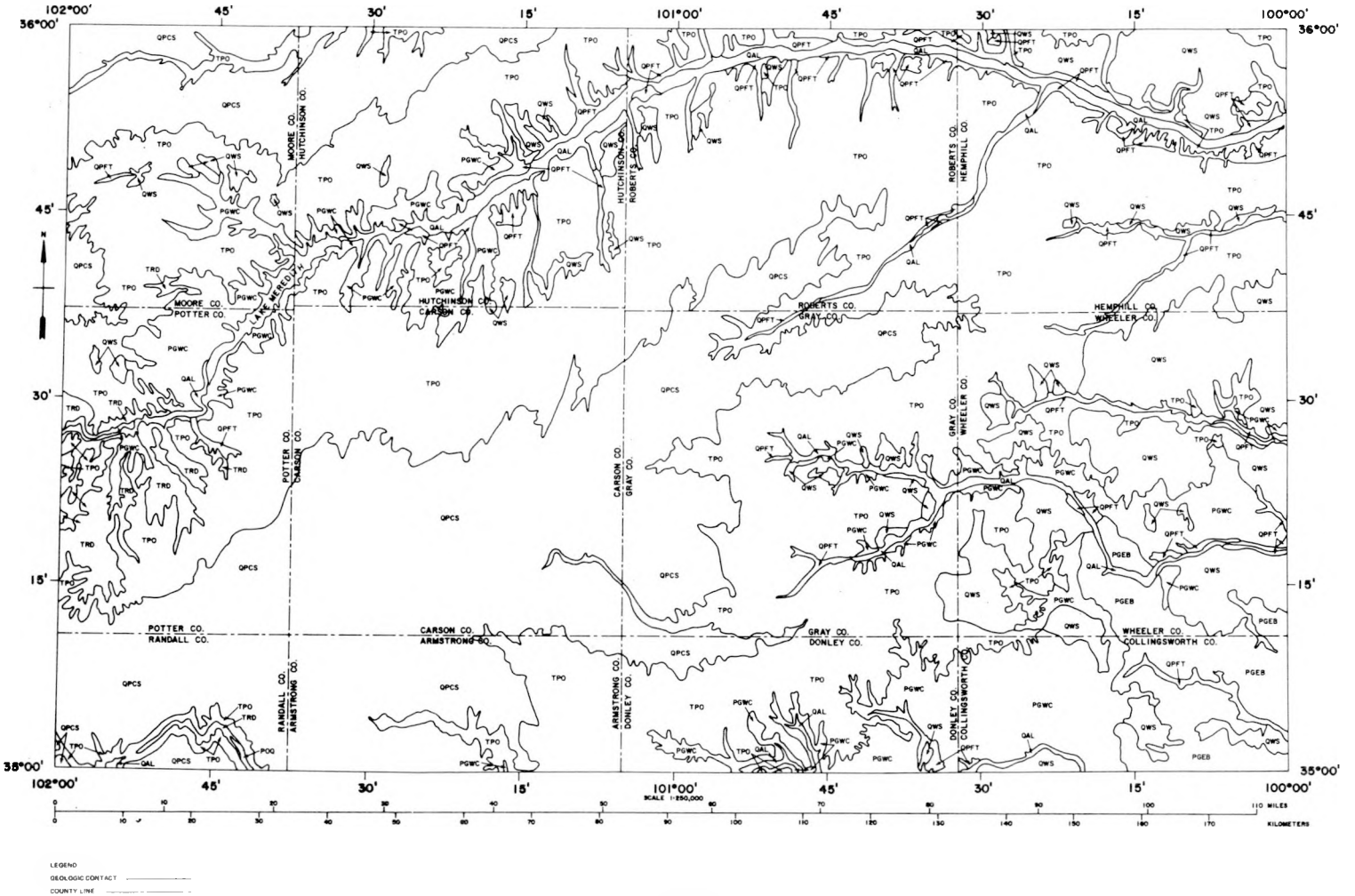

Figure 3

GENERALIZED GEOLOGIC MAP OF THE AMARILLO QUADRANGLE

The lithology varies both laterally and vertically. Silt, sand, clay, and gravel are distributed irregularly throughout the unit, but gravels are more abundant in the lower portions. The unit, which has a maximum thickness of about 200 m (650 ft), tends to thin towards the west.

Quaternary deposits cover much of the land surface in the quadrangle but are thin, discontinuous, and of three types: playa lake or pond deposits, stream valley deposits, and windblown sand deposits (Evans and Meade, 1945). The lake or playa deposits are generally impermeable clays which retard the infiltration of surface water. The sand and gravel of stream terraces and aeolian deposits are usually <30 m (100 ft) thick, but in places along the Canadian River the valley fill is almost 38 m (125 ft) thick (Evans and Meade, 1945).

STRUCTURE

The area was a stable sedimentary basin from Middle Cambrian to Middle Pennsylvanian time. An episode of mountain-building during Late Pennsylvanian-Middle Permian time produced the Amarillo Uplift, a structural high which extends across Potter, Carson, Gray, and Wheeler Counties. The Anadarko Basin to the northeast and the Palo Duro Basin to the southwest (Birsa, 1977) were also formed at this time. The Wichita and Ouachita Uplifts to the east of the survey area and the formation of the Midland Basin to the southwest caused a general westward tilting of the region, resulting in the shoreline migrating slowly westward and southward. An oscillating shoreline during the Lower Permian resulted in the deposition of lagoonal sediments (Baker, et al, 1963). Further restriction of the seas in Middle and Late Permian time caused deposition of a thick sequence of evaporites and red beds. The seas retreated completely at the end of the Paleozoic.

The area remained above sea level during the Triassic and probably the Jurassic era as well. During Late Triassic, continental sediments more than 100 m thick were deposited on the eroded surface of the Permian beds (Baker, et al, 1963). In the Early Cretaceous time, the land was once again submerged and some sandstone and limestone units may have been deposited, but these were eroded during Late Cretaceous. During the Cenozoic, erosion of older units and deposition of continental sediments derived from the rising mountains to the west and northwest occurred (Cronin, et al, 1963). Some lake sediments were also accumulated (Frye and Leonard, 1957).

HYDROLOGY

The Permian beds in the eastern part of the quadrangle yield small amounts of fresh water locally, but in most places only saline water is present (Texas Board of Water Engineers, 1960). Some water is obtained from the Dockum Group in the western part of the quadrangle, but individual water-bearing units are discontinuous.

The principal aquifer is the Ogallala Formation, which is recharged primarily by precipitation. The sandhills in northern Hemphill County and small drainageways cutting into the Ogallala appear to be favorable areas for recharge into the aquifer.

In most places, the water table is unconfined. Groundwater within the unit moves at the rate of a few inches per day toward the east. Along the Canadian River, some of the water being discharged by springs or seeping from Permian strata has apparently moved down through the Ogallala into the Permian. Most of the fresh water in the Permian rocks is believed to have been derived from the overlying Ogallala (Texas Board of Water Engineers, 1960).

Water samples from 33 municipal wells in the Canadian River Basin are reported to have dissolved solids contents ranging from 246 to 866 ppm (Texas Board Water Engineers, 1960). Some of the waters analyzed were very hard and contained undesirable concentrations of iron, silicon, and fluoride.

URANIUM OCCURRENCES

No economic occurrences of radioactive minerals have been found in the quadrangle. Secondary uranium mineralization has been noted within the Dockum Group elsewhere in Texas (Southern Interstate Nuclear Board, 1969). Deposits appear to have been formed by circulation of groundwater through conglomeratic sandstones, mostly channel sand in the lower part of the Dockum Group. The common association of uranium with concentrations of plant debris suggest that the carbonaceous material fixed the uranium (Southern Interstate Nuclear Board, 1969). Similar processes operating within clastic units of Permian or Pennsylvanian age may have produced uranium mineralization in these units.

SAMPLE COLLECTION

CHRONOLOGY OF THE SURVEY

Sampling in the Amarillo Quadrangle began in August 1978 and was completed in December 1978. Laboratory analyses, as well as compilation and verification of all field and laboratory data, were completed by May 1979. The final field and laboratory data base used to illustrate the statistical and areal distribution of uranium and uranium-related parameters for this report was completed in May 1979.

FIELD PROCEDURES

Stream sediment and well water sampling was done by the UCC-ND staff. A total of 1,116 groundwater and 644 stream sediment samples were collected within the boundaries of the Amarillo Quadrangle. Spring

and well water samples are reported together as groundwater. Plates 1 and 4 are overlays at a scale of 1:250,000 showing sample locations for groundwater sites and stream sediment sites, respectively. Drainage basins are drawn on Plate 4 to indicate the area represented by the stream sediment samples.

Detailed information regarding techniques in sample collection, recording site data, field equipment, and field measurements may be found in the following reports: "Hydrogeochemical and Stream Sediment Reconnaissance Procedures of the Uranium Resource Evaluation Project" (Arendt, et al, In Press), "Procedures Manual for Groundwater Reconnaissance Sampling" (Uranium Resource Evaluation Project, March 1978), and "Procedures Manual for Stream Sediment Reconnaissance Sampling" (Uranium Resource Evaluation Project, May 1978). Field observations were recorded on the field form shown in Table C-2 and are included in the microfiche in Appendix C.

CONTAMINATION

Precautions were taken to avoid the possibility of collecting contaminated samples. Wells which were affected by any chlorination, water-softening, or filtering devices were not sampled if a sample could not be taken before the water passed through such devices. Any well that had not been pumped recently was allowed to run long enough to flush the system. The fact that it had no recent use was noted on the field form. Since the possibility for contamination is high in dug wells, these are noted on the field form. Any wells that the samplers felt were possibly contaminated were checked as such on the field forms. Sediment samples were collected upstream from road crossings wherever possible. Visible signs of contamination or the presence of cultivated areas, or oil fields upstream from a sample site were noted on the field form.

Wheat, grain, sorghum, and cotton are the main crops grown in the survey area. Fertilization is done in the spring with average applications of 30 lb/acre of 0-46 -0 phosphate or 16-20-0 nitrogen-phosphate fertilizer. A small amount of desiccant is used to dry cotton for harvesting. Only 10 to 15% of the area is under cultivation so that contamination by fertilizer is of limited concern. Up to 60% of the quadrangle is ranch land.

The Panhandle oil and gas field dissects the quadrangle from the northwest to the southeast corner. There is a possibility of contamination from leaking of hydrocarbon-bearing strata and by post and present production and exploration activities for oil and gas. Several oil refineries are in operation in the quadrangle, especially in the Borger area. Copper and zinc smelters are in operation in the Amarillo area.

CHEMICAL ANALYSIS

All samples collected in the field geology program were returned to the URE Project laboratory in Oak Ridge, Tennessee for preparation and analysis. The elements determined and the analytical techniques used along with the appropriate detection limits are given in Table 1. These detection limits are considered the best average during normal operation; however, some variables have values reported below these limits. All water samples were received in 250-ml polyethylene bottles and were filtered through 0.45-μm cellulose acetate paper. Stream sediment samples were dried overnight at 85°C and sieved to collect the <150-μm fraction. Part of the sediment sample was dissolved in 10 ml of 1:1 nitric-hydrofluoric acid. The analytical procedures which were used have been described by Cagle (1977) and Arendt, et al (In Press). All observed data from all samples are included in the microfiche in Appendix C.

QUALITY CONTROL

MEASUREMENTS CONTROL

The procedures used to analyze URE Project reconnaissance samples require that calibration standards, check samples, and blanks be run along with normal samples to ensure the validity of the reported results. A measurements control program provides information concerning precision and reliability of these measurements. Control samples of two water batches and two sediment batches are submitted anonymously along with routine samples on a daily basis. A statistical summary of results reported on control samples, which were analyzed along with the samples included in this survey, is given in Table 2. Results of uranium analysis of water and sediment control samples obtained from the Ames Laboratory as part of the Multilaboratory Analytical Quality Control for the HSSR Program are reported by D'Silva, et al (1979).

PRINCIPAL COMPONENT ERROR ANALYSIS

A principal component analysis of data from well water and stream sediment samples was used to produce an ordered list of samples using the eigenvalue statistics as described by Kane, et al (1977), where the most extreme samples were listed first. Additional unusual samples were identified if single-element measurements were outside a three standard deviation confidence interval around the mean. The laboratory and field data from the unusual samples identified by this procedure were reviewed. Eight well water samples (018431, 018433, 018865, 018961, 019632, 019641, 019642, and 019646) and six stream sediment samples (018246, 018575, 019195, 019517, 023601, and 023802) which appeared to be the most unusual were submitted for reanalysis. The original results were compared to the results from reanalysis. Of

Table 1

DETECTION LIMITS OF VARIABLES DETERMINED IN WATER AND SEDIMENT SAMPLES

Variable	Method	Detection Limits Sediment (ppm)	Detection Limits Water (ppb)
U-FL	Fluorometry	0.25	0.2
U-MS	Mass Spectrometry-Isotope Dilution	--	0.02
U-NT	Neutron Activation-Delayed Neutron Count	0.02	--
As	Atomic Absorption	0.1	0.5
Se	Atomic Absorption	0.1	0.2
Ag	Plasma Source Emission Spectrometry	2	2
Al	Plasma Source Emission Spectrometry	0.05(a)	10
B	Plasma Source Emission Spectrometry	10	8
Ba	Plasma Source Emission Spectrometry	2	2
Be	Plasma Source Emission Spectrometry	1	1
Ca	Plasma Source Emission Spectrometry	0.05(a)	0.1(b)
Ce	Plasma Source Emission Spectrometry	10	30
Co	Plasma Source Emission Spectrometry	4	2
Cr	Plasma Source Emission Spectrometry	1	4
Cu	Plasma Source Emission Spectrometry	2	2
Fe	Plasma Source Emission Spectrometry	0.05(a)	10
K	Plasma Source Emission Spectrometry	0.05(a)	0.1(b)
Li	Plasma Source Emission Spectrometry	1	4
Mg	Plasma Source Emission Spectrometry	0.05(a)	0.1(b)
Mn	Plasma Source Emission Spectrometry	4	2
Mo	Plasma Source Emission Spectrometry	4	4
Na	Plasma Source Emission Spectrometry	0.05(a)	0.1(b)
Nb	Plasma Source Emission Spectrometry	4	--
Ni	Plasma Source Emission Spectrometry	2	4
P	Plasma Source Emission Spectrometry	5	40
Sc	Plasma Source Emission Spectrometry	1	1
Si	Plasma Source Emission Spectrometry	--	0.1(b)
Sr	Plasma Source Emission Spectrometry	1	2
Th	Plasma Source Emission Spectrometry	2	--
Ti	Plasma Source Emission Spectrometry	10	2
V	Plasma Source Emission Spectrometry	2	4
Y	Plasma Source Emission Spectrometry	1	1
Zn	Plasma Source Emission Spectrometry	2	4
Zr	Plasma Source Emission Spectrometry	2	2
SO_4	Spectrophotometry	--	5(b)
Cl	Spectrophotometry	--	10(b)

(a)Detection limits expressed in percent.

(b)Detection limits expressed in ppm.

Table 2

SUMMARY OF THE MEASUREMENTS CONTROL OBTAINED WITH SAMPLES FROM THE AMARILLO QUADRANGLE

		Measurements Control Results for Water							
		Batch L-3				Batch H-3			
Element	Method	No. of Samples	Mean (ppb)	Standard Deviation (ppb)	Coefficient of Variation	No. of Samples	Mean (ppb)	Standard Deviation (ppb)	Coefficient of Variation
U	FL(a)	25	0.61	0.150	0.24	22	10.35	1.379	0.13
As	AA(b)	27	3.9	0.82	0.21	22	0.6	0.38	0.67
Se	AA	26	1.1	0.27	0.23	21	0.6	0.21	0.35
Al	PS(c)	27	91	11.6	0.13	21	352	26.6	0.08
B	PS	28	2,276	107.2	0.05	21	64	3.9	0.06
Ba	PS	26	136	3.1	0.02	20	30	0.9	0.03
Ca	PS	28	10.2	0.53	0.05	21	93.8	3.08	0.03
Co	PS	27	16	6.0	0.36	20	89	6.1	0.07
Cr	PS	28	101	8.7	0.09	21	20	3.3	0.16
Cu	PS	28	66	19.3	0.29	21	198	17.7	0.09
Fe	PS	27	107	7.7	0.07	21	971	42.8	0.04
Li	PS	28	18	1.7	0.09	20	100	10.7	0.11
Mg	PS	28	9.7	0.49	0.05	20	67	3.13	0.05
Mn	PS	28	20	1.1	0.06	21	98	4.5	0.05
Mo	PS	28	43	4.3	0.10	21	9	4.5	0.45
Na	PS	27	2.0	0.23	0.11	20	47.3	4.65	0.10
Ni	PS	27	201	7.4	0.04	20	38	3.1	0.08
P	PS	28	114	14.0	0.12	19	495	27.9	0.06
Sc	PS	27	63	2.1	0.03	21	11	0.7	0.06
Sr	PS	28	5.21	1.371	0.26	20	44.50	2.212	0.05
Ti	PS	28	100	4.8	0.05	21	39	2.0	0.05
V	PS	28	9	1.8	0.19	21	44	2.3	0.05
Y	PS	28	9	0.5	0.05	20	46	1.7	0.04
Zn	PS	28	497	28.7	0.06	21	81	30.2	0.37

		Measurements Control Results for Stream Sediments							
		Batch R-2				Batch S-2			
Element	Method	No. of Samples	Mean (ppm)	Standard Deviation (ppm)	Coefficient of Variation	No. of Samples	Mean (ppm)	Standard Deviation (ppm)	Coefficient of Variation
U	FL	30	3.51	0.557	0.16	30	9.39	1.368	0.15
U	NT(d)	30	5.23	0.168	0.03	28	10.65	0.255	0.02
As	AA	27	6.0	1.04	0.17	32	10.7	1.34	0.12
Se	AA	27	0.7	0.46	0.70	31	0.8	0.44	0.56
Al	PS	31	4.13	0.393	0.10	31	5.46	0.333	0.06
Ba	PS	30	336	19.3	0.06	31	361	18.1	0.05
Be	PS	31	2	0.9	0.38	31	3	0.9	0.28
Ca	PS	28	0.24	0.017	0.07	30	0.33	0.023	0.07
Ce	PS	22	80.59	9.006	0.11	21	105.24	11.802	0.11
Co	PS	31	20	4.2	0.21	31	29	6.0	0.21
Cr	PS	31	41	3.9	0.09	30	59	3.1	0.05
Cu	PS	30	14	1.5	0.10	28	46	8.3	0.18
Fe	PS	30	2.40	0.157	0.07	31	3.19	0.191	0.06
K	PS	31	1.11	0.115	0.10	30	1.84	0.165	0.09
Li	PS	31	33	3.4	0.10	31	33	2.4	0.07
Mg	PS	30	0.38	0.024	0.06	31	0.52	0.025	0.05
Mn	PS	30	998	61.1	0.06	31	746	39.9	0.05
Mo	PS	31	4	1.5	0.35	31	27	2.2	0.08
Na	PS	31	0.26	0.028	0.11	31	0.21	0.019	0.09
Nb	PS	31	8	1.5	0.17	31	10	1.2	0.12
Ni	PS	30	28	2.0	0.07	31	55	3.1	0.06
P	PS	30	454	27.2	0.06	31	755	48.3	0.06
Sc	PS	30	8	0.6	0.07	31	11	0.7	0.06
Sr	PS	30	53.80	3.010	0.06	31	79.74	4.266	0.05
Th	PS	31	7	1.9	0.25	31	10	2.2	0.22
Ti	PS	30	2,578	199	0.08	31	2,924	203.7	0.07
V	PS	30	79	4.4	0.05	31	157	7.8	0.05
Y	PS	30	19	1.1	0.06	31	29	1.9	0.06
Zn	PS	29	73	6.3	0.09	31	89	8.2	0.09
Zr	PS	30	113	5.6	0.05	31	113	5.9	0.05

(a)Fluorometric analyses.
(b)Atomic absorption.
(c)Plasma source emission spectroscopy.
(d)Neutron activation, delayed neutron count.

the more than 300 individual analyses that were compared, the only results which were considered to be in error in the original analysis and thus require corrections were one value each for arsenic, selenium, and sulfate in groundwater and one uranium value in stream sediments. This low error rate for the unusual samples indicates a high level of reliability for the laboratory measurements.

GEOCHEMICAL RESULTS

GEOCHEMICAL DISTRIBUTIONS IN GROUNDWATER

The sample site locations for groundwater samples collected in the Amarillo Quadrangle are shown on Plate 1 at the 1:250,000 scale. Symbol plots for uranium and specific conductance are presented at this same scale on Plates 2 and 3 and at the 1:1,000,000 scale in Figures A-1b and A-2b, respectively. A map of the major producing horizons sampled and the samples noted as having hydrogen sulfide odor at the time of sampling is presented in Figure 4. The number of groundwater samples collected from each of the major producing units is presented in Table 3.

Observed data for the variables uranium, specific conductance, arsenic, boron, calcium, chloride, sodium, vanadium, and sulfate are listed in Table A-3. The figures in Appendix A present log frequency, lognormal probability, percentile and areal symbol plots for these variables plus 1000 x uranium/sulfate, potassium, lithium, magnesium, manganese, and total alkalinity.

Uranium

The geochemical distribution of uranium in groundwater of the Amarillo Quadrangle (Plate 2 and Figure A-1b) indicates that uranium concentrations above 8.59 ppb (the 85th percentile) are produced primarily from aquifers of Permian and Triassic age. A major area of high concentrations of uranium in groundwaters occurs in the southeast corner of the quadrangle in Collingsworth, Donley and Wheeler Counties. Most waters sampled here were produced from the Quartermaster Formation and Whitehorse Sandstone, but eight of the high uranium waters came from the Blaine Formation. A second trend of high uranium groundwaters extends in a northeastern-southwestern direction through Carson, Hutchinson, Moore, and Potter Counties. The waters are produced from Permian aquifers over most of this trend, but from the Triassic Dockum Group in southwest Potter County.

A third southwest-trending group of high uranium groundwaters, produced from the Ogallala Formation, extends from eastern Carson County to Armstrong and Randall Counties in the southwestern corner of the quadrangle.

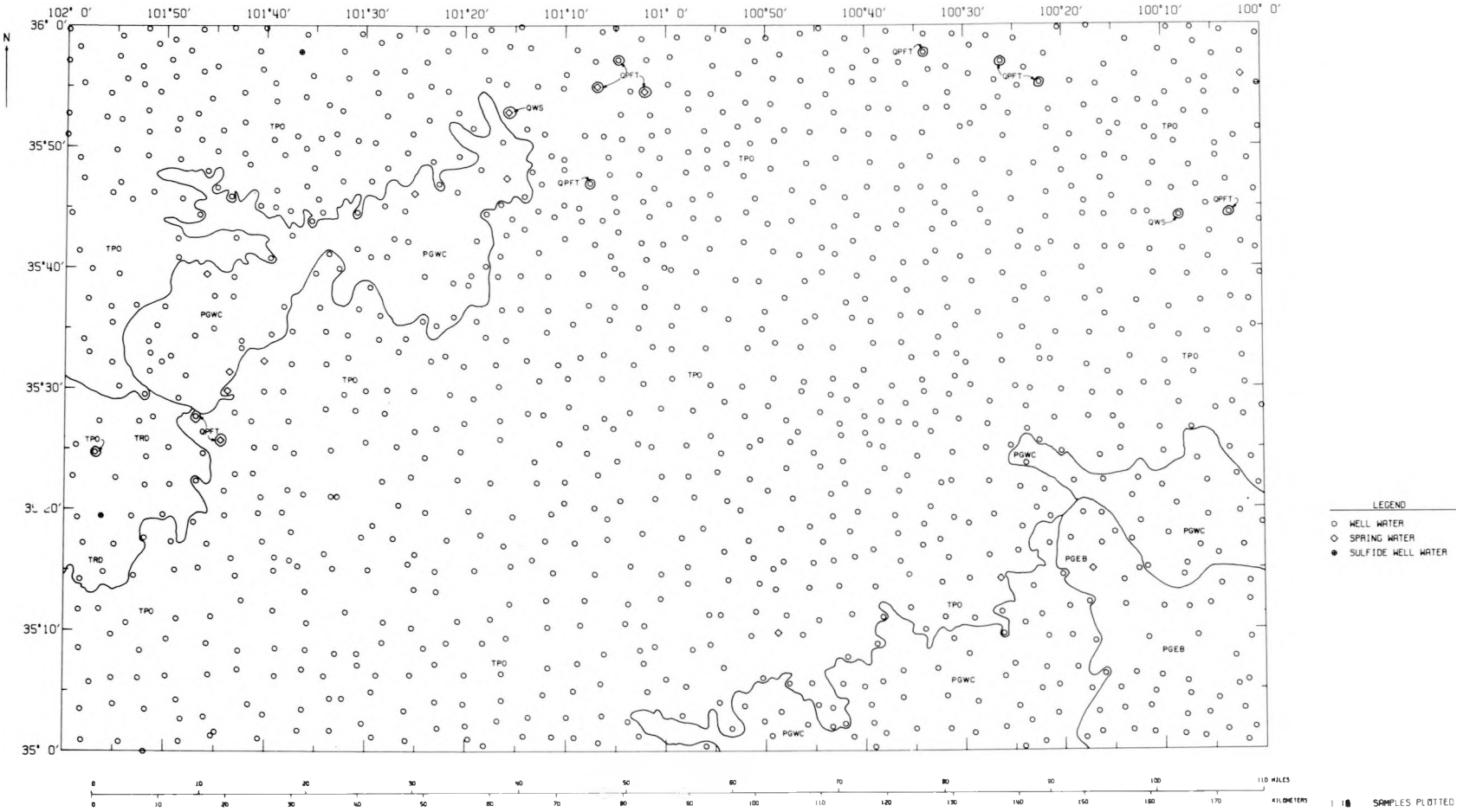

Figure 4

PRODUCING HORIZON MAP FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

Table 3

DISTRIBUTION OF SAMPLES BY GEOLOGIC UNIT FROM THE AMARILLO QUADRANGLE

Geologic Unit	Geologic Unit Code	No. of Groundwater Samples	No. of Sediment Samples
Windblown Sand	QWS	2	30
Fluviatile Terrace Deposits	QPFT	10	5
Windblown Cover Sand	QPCS	-	12
Ogallala Formation	TPO	925	421
Dockum Group	TRD	19	9
Quartermaster Formation, Cloud Chief Gypsum, and Whitehorse Sandstone	PGWC	117	69
Blaine Formation	PGEB	43	34
Total		1,116	580

The percentile plot (Figure A-1a) shows that the groundwaters with the highest background uranium concentrations (50th through 85th percentiles) occur in the Permian Quartermaster, Cloud Chief and Whitehorse Sandstones, and Triassic Dockum Group.

Groundwaters containing less than 1.50 ppb uranium (15th percentile) occur in a southwest-trending belt in the Ogallala Formation from Hemphill County in the northeastern corner through Wheeler, Gray, and Donley Counties. Another trend of low uranium concentrations in groundwaters produced from the Ogallala Formation runs through Roberts and Hutchinson Counties in the north central area.

The correlation matrix (Table A-2) indicates a significant positive correlation coefficient of >0.45 for both Pearson and Spearman correlations between uranium and boron, potassium, lithium, magnesium, sodium, strontium, and sulfate. There is a significant negative correlation between uranium and barium.

Specific Conductance

The geochemical plots (Plate 3 and Figure A-2b) for specific conductance in groundwaters of the Amarillo Quadrangle indicate that waters with conductance values higher than 1,480 µmhos/cm (85th percentile) are produced primarily from Permian and Triassic aquifers. There are two anomalous areas that correspond to Permian-Triassic producing horizons as outlined in Figure 4. These occur in the southeastern corner of the quadrangle in Collingsworth, Donley, and Wheeler Counties and in the west central area in Hutchinson, Moore, and Potter Counties. The belts correspond geographically with the trends of high uranium values in these areas. There is a southeast-trending belt of groundwaters with high specific conductance values that cuts diagonally across the center of the quadrangle almost from the northwestern to the southeastern corners. This trend parallels the Panhandle oil and gas field.

The percentile plot (Figure A-2a) shows that the waters produced from the Permian and Triassic units have the highest specific conductance background levels. The Permian units contain bedded evaporites that may influence groundwater geochemistry. The Dockum aquifers are in hydrologic connection with the Permian because of infilling of sink holes during Triassic and subsequent times.

Groundwaters with specific conductance values below 500 µmhos/cm (15th percentile) are produced primarily from the Ogallala Formation and the Quaternary deposits. The majority of these waters are in the north central part of the quadrangle.

The correlation matrix shows a significant positive correlation of specific conductance with boron, calcium, chloride, magnesium, sodium, strontium, sulfate, and a significant negative correlation with barium.

Related Variables

The geochemical distribution of elements in the Amarillo Quadrangle is strongly controlled by the geology of the aquifers and the locations of oil and gas fields. Areas of groundwaters produced from Permian and Triassic aquifers shown in Figure 4 are clearly defined in the geochemical plots for uranium, specific conductance, boron, calcium, chloride, manganese, magnesium, sodium, and sulfate. The related elements reflect the bedded evaporites present in the Permian section. In addition, these areas are commonly linked by a northwest-trending belt of high values for specific conductance, calcium, chloride, manganese, sodium, and sulfate which are related to the Panhandle oil and gas field.

The relatively high background values for uranium in waters produced from Permian aquifers is a regional phenomenon that has been noted in all the quadrangles of the northern Texas-Oklahoma region. Examples of this were seen in the Clinton (URE Project, March 1979), Lawton (URE Project, December 1978), Plainview (URE Project, June 1978) and Wichita Falls (URE Project, May 1979) Quadrangles. The 85th percentile value for uranium in groundwater is relatively low in the Amarillo Quadrangle, as compared to that in the quadrangles noted earlier, probably reflecting the smaller proportion of Permian waters being sampled. The 15th percentile value is relatively high compared to the Wichita Falls and Clinton Quadrangle. Thus indicating the Ogallala Formation groundwaters have higher background uranium values than those of the Lower Paleozoic units in the other quadrangles. The Permian sediments in this area are derived from uranium-rich alkalic granitic rocks, similar to those at Bokan Mountain, Alaska (Murphy, 1978), which are contained in the core of the Wichita Arch. The arkosic materials in the Permian units may represent a leachable source of uranium throughout the Texas Panhandle-Oklahoma area.

Groundwaters from the Triassic Dockum Group appear very similar to those from the Permian units. Uranium in these waters is associated with high lithium, vanadium, and total alkalinity, in addition to those mentioned earlier for the Permian units. The geochemistry of these waters may reflect connate waters, infiltration of water from Permian units, or oil-field waters.

The Ogallala waters are chemically distinct from the Permian-Triassic waters. High uranium groundwaters in the southwestern corner of the quadrangle also appear to contain high arsenic, boron, potassium, lithium, vanadium, and total alkalinity.

This association suggests high uranium values are less likely to be related to brines from oil and gas fields but may indicate potential for mineralization. The fluvial deposits of the Ogallala and Dockum Group may provide suitable hosts for uranium mineralization where hydrocarbons from oil and gas fields are available as reductants. The

large volume of natural gas present in the Panhandle gas field provides potential for this situation.

Summary of Groundwater Data

There are three trends of high uranium groundwaters in the Amarillo Quadrangle. The waters for two of them are produced from Permian and Triassic aquifers. In the western part of the quadrangle, a trend corresponding to the extent of the Permian and Triassic aquifers passes through Hutchinson, Moore, and Potter Counties. In the southeast, waters from Permian rocks are high in uranium. In the southwestern corner, high uranium groundwaters are produced from the Ogallala Formation. In the Permian and Triassic trends, uranium is associated with evaporite and salinity indicators. Waters from the Ogallala Formation are generally less mineralized. In the southeast corner of the quadrangle, high uranium values in the Ogallala Formation are accompanied by high values of arsenic, total alkalinity, and vanadium, as well as by boron, potassium, and lithium, indicating a favorability for the presence of uranium mineralization.

GEOCHEMICAL DISTRIBUTIONS IN STREAM SEDIMENTS

The sample site locations for stream sediments collected in the Amarillo Quadrangle are shown on Plate 4 at the 1:250,000 scale. The symbol plot for the hot-acid-soluble uranium as determined by fluorometric analysis (U-FL) and thorium is presented at this scale in Plates 5 and 6, respectively, and at the 1:1,000,000 scale in Figures B-1b and B-4b, respectively. The stream sediment data subset used to generate Tables B-1 and B-2 and the figures in Appendix B includes all stream sediment samples collected from basins in the Amarillo Quadrangle that average approximately 25 km^2 (10 mi^2). Samples which were collected from basins larger than 50 km^2 (Phase G) were not included. The number of stream sediment samples (580) in this subset which were collected from the major stratigraphic units of the survey area are presented in Table 3. Results from all stream sediment samples collected from the Amarillo Quadrangle are included in Table B-3 and in the microfiche in Appendix C.

Observed data for the variables hot-acid-soluble uranium (U-FL), total uranium as determined by neutron activation (U-NT), U-FL/U-NT, thorium, arsenic, barium, iron, manganese, and zirconium are listed in Table B-3. The figures in Appendix B represent log frequency, log-normal probability, percentile, and areal symbol plots for these same variables, plus chromium, magnesium, niobium, strontium, titanium, vanadium, and yttrium.

Uranium

The areal distribution of U-FL (Plate 5 and Figure B-1b) and U-NT (Figure B-2b) indicates that stream sediments with uranium concentra-

tions above the 85th percentile (1.95 ppm) occur in belts paralleling the major drainage systems in the Amarillo Quadrangle. The most obvious example is the belt along the Canadian River in the north, but trends also occur along Washita Creek in Hemphill County and along the North Fork of the Red River in Wheeler and Gray Counties. Most of the stream sediments in these trends were derived from the Ogallala Formation with some contributions from Permian and Triassic rocks. The areal distribution of U-FL/U-NT (Figure B-4b) does not closely match uranium patterns. The U-FL/U-NT values are greater than 0.71 in the southeastern corner of the quadrangle, along the North Fork of the Red River, and along the Canadian River in Potter and Moore Counties where the sediments are derived from Permian rocks. Isolated high U-FL/U-NT values occur along the main uranium trends along the Canadian River in the northeast, but there is no strong pattern.

The correlation matrix (Table B-2) shows a significant positive correlation coefficient of 0.40 for both Pearson and Spearman correlations between U-FL and U-NT, cerium, iron, manganese, niobium, titanium, vanadium, yttrium, and zirconium.

The percentile plot for U-FL (Figure B-1a) indicates a markedly uniform distribution of U-FL for all geologic units. The same plot for U-NT (Figure B-2a) shows the Ogallala Formation and the Quaternary deposits to have slightly higher background distributions of U-NT than the Permian formations. The Ogallala consists of fluvial deposits carried from the mountains to the west and northwest and most of the Quaternary deposits in this area may be derived from the Ogallala. The percentile plot for U-FL/U-NT (Figure B-4a) shows the sediments from Permian formations to have a relatively high range which may reflect uranium contained in iron oxides in the redbeds. The background concentrations of both U-FL and U-NT are low with 85th percentiles of 1.9 and 4.0 and maximum values of 6.9 and 20.7, respectively.

Thorium

The areal distribution of thorium in stream sediments from the Amarillo Quadrangle is shown in Figure B-3a and the geologic distribution is shown in Figure B-3a (percentile plot). The percentile plot shows a similar distribution for thorium in all geologic units. The highest background distribution of thorium is found in sediments from the Quaternary sand deposits. Most of the sediments with high thorium values are found along the major drainage systems.

The correlation matrix (Table B-2) indicates significant positive correlation coefficients of >4.0 for both Pearson and Spearman correlations between thorium and cerium, cobalt, chromium, iron, niobium, scandium, vanadium, yttrium, and zinc.

Related Variables

Variables that appear to be associated with uranium in the trends along the major drainages include arsenic, barium, chromium, iron, magnesium, manganese, niobium, strontium, titanium, vanadium, yttrium, and zirconium. The association of elements is indicative of residual and heavy minerals probably derived from a reworking of the Ogallala Formation and in some cases the Triassic and Permian formations.

Summary of Stream Sediment Data

The data indicate that most uranium in stream sediments in the Amarillo Quadrangle occurs as resistate and heavy minerals derived predominantly from the Ogallala Formation and its Quaternary derivatives.

Plates no longer available

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APPENDIX A

GROUNDWATER

APPENDIX A

GROUNDWATER

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES, Continued

LIST OF FIGURES, Continued

Table A-1

STATISTICAL SUMMARY FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

ELEMENT	NO. SAMPLES ANALYZED: MEASURABLE VALUES	BELOW DETECTION LIMIT	DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION: MEAN	LN TRANSFORMATION: S. D.	ROBUST: MEAN	ROBUST: S. D.
U	1112		<0.20	<0.20	102.70	5.81	4.44	1.47	6.545	1.126	1.40	0.85	1.39	0.86
SP	1116			245	9482	1050	708	514	1007.7	1.0	6.71	0.63	6.66	0.66
U/SP	1115			0.05	4700.00	163.46	6.90	1.80	392.560	2.402	2.63	2.23	2.56	2.03
U/B	1116			0.25	332.78	52.27	48.82	46.32	28.172	0.539	3.81	0.61	3.84	0.52
U/SO	1115			1.26	3376.00	362.36	243.07	14.44	407.728	1.125	5.15	1.52	5.24	1.58
AG	257	859	<2	<2	10403	192	<2	<2	971.1	5.1	1.37	1.69		
AL	164	952	<10	<10	204	23	<10	<10	23.2	1.0	2.96	0.59		
AS	1023	93	<0.5	<0.5	16.8	1.9	1.5	1.3	1.44	0.74	0.49	0.57	0.39	0.67
B	1116			11	2506	138	80	48	202.3	1.5	4.48	0.87	4.45	0.89
BA	1116			5	2016	171	132	10	170.9	1.0	4.63	1.16	4.67	1.24
BE	14	1102	<1	<1	4	1	<1	<1	1.0	0.6	0.31	0.52		
CA	1116			3.8	839.8	93.3	46.8	46.1	130.27	1.40	4.06	0.79	4.02	0.86
CO	175	941	<2	<2	8	2	<2	<2	1.0	0.4	0.90	0.30		
CR	181	935	<4	<4	29	5	<4	<4	2.8	0.5	1.67	0.33		
CU	210	906	<2	<2	124	7	<2	<2	13.1	1.7	1.51	0.83		
FE	398	718	<10	<10	63	22	<10	<10	9.6	0.4	3.04	0.43		
K	1116			0.1	77.7	3.8	3.3	2.4	3.08	0.80	1.16	0.63	1.18	0.58
LI	1116			3	368	46	35	10	40.1	0.9	3.50	0.87	3.50	0.88
MG	1116			0.6	426.0	28.4	20.7	19.8	32.74	1.15	2.98	0.82	2.97	0.87
MN	441	675	<2	<2	952	13	<2	<2	56.6	4.3	1.60	1.04		
MO	441	675	<4	<4	58	6	<4	<4	4.5	0.7	1.79	0.39		
NA	1116			1.1	653.7	39.5	19.4	13.9	66.11	1.67	3.13	0.91	3.08	0.92
NI	141	975	<4	<4	9	4	<4	<4	1.1	0.2	1.57	0.20		
P	3	1113	<40	<40	156	81	<40	<40	64.5	0.8	4.21	0.73		
SC	106	1010	<1	<1	5	1	<1	<1	0.7	0.5	0.19	0.36		
SE	757	359	<0.2	<0.2	4.1	0.4	0.3	<0.2	0.26	0.61	-0.96	0.44	-1.27	0.70
SI	1116			0.9	39.5	13.2	11.9	11.5	5.07	0.39	2.51	0.36	2.51	0.36
SR	1116			42	21523	1328	822	861	1886.9	1.4	6.70	0.90	6.67	1.00
TI	143	973	<2	<2	21	6	<2	<2	3.0	0.5	1.69	0.53		
V	880	236	<4	<4	56	10	7	6	5.9	0.6	2.20	0.49	1.98	0.64
Y	217	899	<1	<1	4	1	<1	<1	0.3	0.3	0.02	0.14		
ZN	1030	86	<4	<4	2294	96	28	7	200.3	2.1	3.61	1.32	3.38	1.47
ZR	202	914	<2	<2	8	2	<2	<2	0.8	0.3	0.67	0.26		
T-AK	1115			48	551	210	210	196	48.6	0.2	5.32	0.26	5.34	0.22
M-AK	1115			48	550	210	210	221	48.4	0.2	5.32	0.26	5.33	0.23
P-AK	1116			0	48	0	0	0	3.0	9.4				
CL	727	388	<10	<10	2888	75	15	<10	194.3	2.6	3.51	1.03	2.71	1.48
NA/C	1115			0.05	49.58	2.05	1.36	0.64	2.669	1.300	0.29	0.94	0.29	0.91
PH	1108			3.3	9.7	7.3	7.3	7.5	0.58	0.08				
SO4	995	120	<5	<5	2676	188	15	7	448.1	2.4	3.41	1.65	2.83	2.16

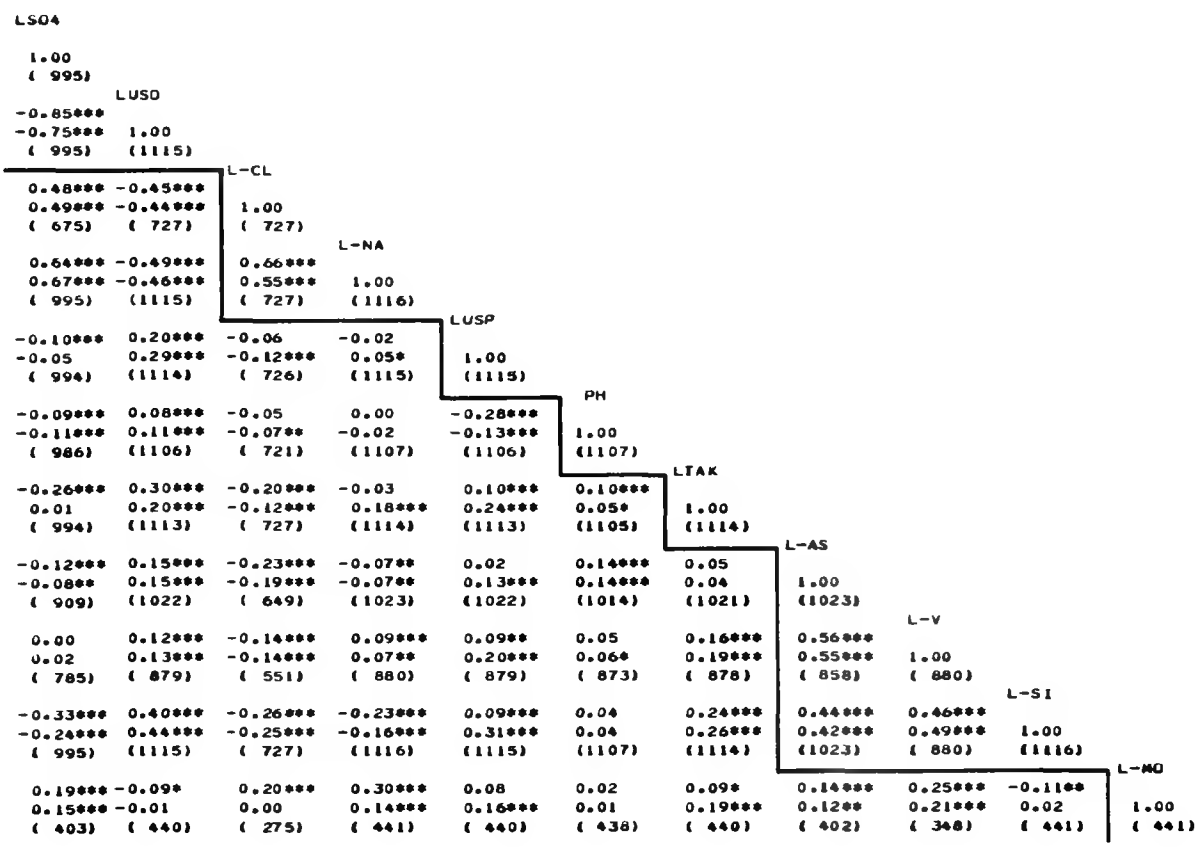
NOTE: Refer to Table 1, Page 21 and Table C-1, Page C-4 for concentration units and symbol definitions.

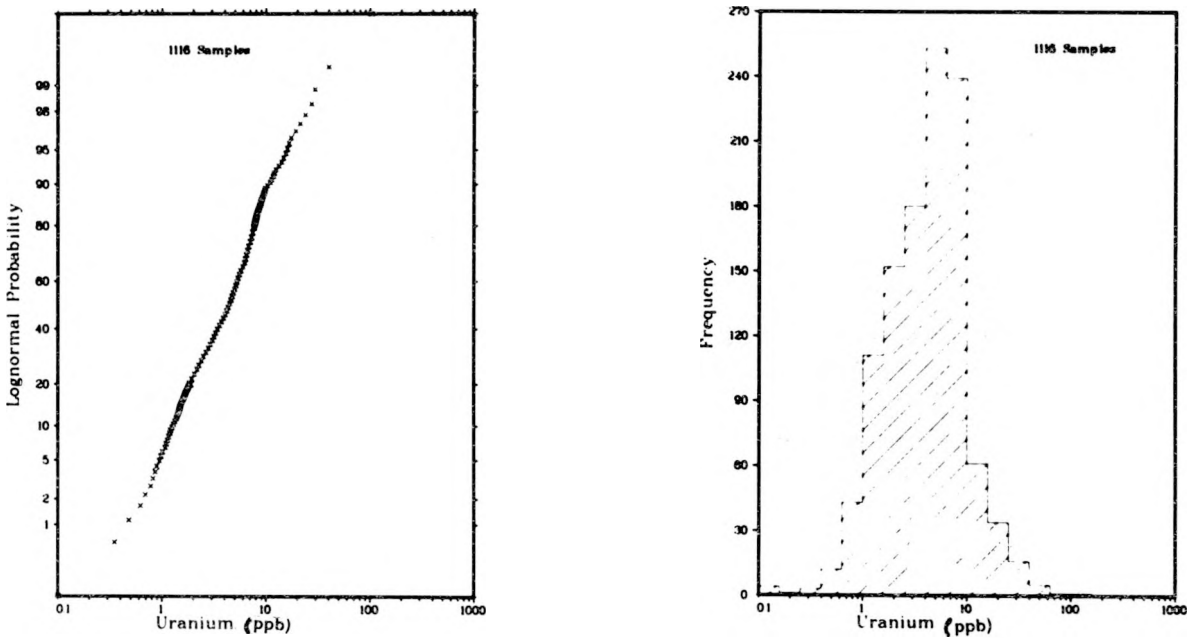
Table A-2

CORRELATION MATRIX FOR GROUNDWATER
OF THE AMARILLO QUADRANGLE

	L-U	L-LI	L-BA	L-B	L-SR	L-MG	L-K	L-ZN	L-SE	L-SP	L-CA
L-U	1.00 (1112)										
L-LI	0.75*** 0.76*** (1112)	1.00 (1116)									
L-BA	-0.63*** -0.66*** (1112)	-0.57*** -0.60*** (1116)	1.00 (1116)								
L-B	0.79*** 0.81*** (1112)	0.77*** 0.81*** (1116)	-0.81*** -0.83*** (1116)	1.00 (1116)							
L-SR	0.69*** 0.72*** (1112)	0.73*** 0.81*** (1116)	-0.71*** -0.64*** (1116)	0.76*** 0.77*** (1116)	1.00 (1116)						
L-MG	0.72*** 0.73*** (1112)	0.79*** 0.84*** (1116)	-0.70*** -0.67*** (1116)	0.77*** 0.79*** (1116)	0.94*** 0.95*** (1116)	1.00 (1116)					
L-K	0.49*** 0.54*** (1112)	0.65*** 0.63*** (1116)	-0.25*** -0.34*** (1116)	0.49*** 0.54*** (1116)	0.42*** 0.53*** (1116)	0.49*** 0.54*** (1116)	1.00 (1116)				
L-ZN	0.19*** 0.17*** (1027)	0.17*** 0.15*** (1030)	-0.19*** -0.18*** (1030)	0.21*** 0.19*** (1030)	0.21*** 0.19*** (1030)	0.20*** 0.18*** (1030)	0.13*** 0.14*** (1030)	1.00 (1030)			
L-SE	0.09** 0.05 (753)	0.10*** 0.07* (757)	-0.07* -0.04 (757)	0.11*** 0.07** (757)	0.06 0.05 (757)	0.07* 0.06* (757)	0.06 0.04 (757)	0.04 0.05 (688)	1.00 (757)		
L-SP	0.33*** 0.26*** (1111)	0.28*** 0.21*** (1115)	-0.62*** -0.43*** (1115)	0.55*** 0.43*** (1115)	0.64*** 0.38*** (1115)	0.57*** 0.39*** (1115)	-0.04 -0.08*** (1115)	0.14*** 0.11*** (1029)	0.05 0.05 (756)	1.00 (1115)	
L-CA	0.18*** -0.11*** (1112)	0.16*** -0.09*** (1116)	-0.52*** -0.03 (1116)	0.34*** -0.01 (1116)	0.64*** 0.17*** (1116)	0.56*** 0.16*** (1116)	-0.18*** -0.41*** (1116)	0.13*** 0.07** (1030)	0.01 0.05 (757)	0.77*** 0.48*** (1115)	1.00 (1116)
LSO4	0.45*** 0.44*** (991)	0.38*** 0.39*** (995)	-0.84*** -0.74*** (995)	0.66*** 0.63*** (995)	0.72*** 0.52*** (995)	0.67*** 0.54*** (995)	-0.04 -0.01 (995)	0.16*** 0.11*** (927)	0.04 0.05 (674)	0.79*** 0.56*** (994)	0.78*** 0.37*** (995)
LUSO	-0.01 0.06** (1111)	-0.08*** -0.00 (1115)	0.62*** 0.42*** (1115)	-0.34*** -0.22*** (1115)	-0.41*** -0.15*** (1115)	-0.37*** -0.18*** (1115)	0.22*** 0.30*** (1115)	-0.08*** -0.02 (1029)	-0.08** -0.10*** (757)	-0.64*** -0.43*** (1114)	-0.73*** -0.52*** (1115)
L-CL	0.20*** 0.19*** (724)	0.25*** 0.22*** (727)	-0.32*** -0.28*** (727)	0.36*** 0.30*** (727)	0.43*** 0.37*** (727)	0.43*** 0.36*** (727)	0.07* -0.02 (727)	0.11*** 0.09** (681)	0.08* 0.10** (494)	0.58*** 0.51*** (726)	0.47*** 0.46*** (727)
L-NA	0.48*** 0.49*** (1112)	0.42*** 0.42*** (1116)	-0.67*** -0.68*** (1116)	0.70*** 0.67*** (1116)	0.48*** 0.43*** (1116)	0.48*** 0.45*** (1116)	0.16*** 0.16*** (1116)	0.16*** 0.13*** (1030)	0.08** 0.05 (757)	0.60*** 0.49*** (1115)	0.38*** 0.17*** (1116)
LUSP	0.25*** 0.48*** (1111)	0.21*** 0.38*** (1115)	-0.03 -0.15*** (1115)	0.08*** 0.25*** (1115)	0.09*** 0.27*** (1115)	0.12*** 0.26*** (1115)	0.23*** 0.40*** (1115)	0.01 0.06** (1029)	-0.04 -0.03 (756)	-0.35*** -0.47*** (1115)	-0.19*** -0.33*** (1115)
PH	-0.04 -0.03 (1103)	-0.02 -0.04 (1107)	0.06* 0.06* (1107)	0.01 -0.03 (1107)	-0.11*** -0.13*** (1107)	-0.09*** -0.11*** (1107)	-0.00 0.02 (1107)	-0.05* -0.03 (1021)	0.00 -0.02 (749)	0.00 0.00 (1106)	-0.13*** -0.16*** (1107)
LTAK	0.08** 0.31*** (1110)	0.12*** 0.29*** (1114)	0.16*** -0.11*** (1114)	-0.01 0.26*** (1114)	-0.16*** 0.15*** (1114)	-0.09*** 0.18*** (1114)	0.16*** 0.31*** (1114)	-0.09*** -0.02 (1028)	0.08** 0.05 (757)	-0.18*** 0.01 (1113)	-0.36*** -0.24*** (1114)
L-AS	0.10*** 0.11*** (1020)	0.19*** 0.18*** (1023)	0.01 -0.01 (1023)	0.10*** 0.09*** (1023)	-0.03 0.02 (1023)	0.01 0.05 (1023)	0.06* 0.05 (1023)	-0.02 -0.02 (943)	0.03 -0.00 (707)	-0.15*** -0.13*** (1022)	-0.24*** -0.22*** (1023)
L-V	0.29*** 0.29*** (878)	0.43*** 0.42*** (880)	-0.18*** -0.17*** (880)	0.33*** 0.29*** (880)	0.19*** 0.25*** (880)	0.22*** 0.25*** (880)	0.17*** 0.16*** (880)	-0.00 0.01 (819)	0.02 -0.02 (606)	-0.05 -0.07** (879)	-0.21*** -0.25*** (880)
L-SI	0.19*** 0.29*** (1112)	0.36*** 0.40*** (1116)	0.15*** 0.04 (1116)	0.00 0.13*** (1116)	0.02 0.19*** (1116)	0.11*** 0.23*** (1116)	0.27*** 0.37*** (1116)	-0.05 -0.01 (1030)	-0.01 -0.02 (757)	-0.29*** -0.24*** (1115)	-0.32*** -0.34*** (1116)
L-MO	0.30*** 0.27*** (439)	0.32*** 0.29*** (441)	-0.27*** -0.22*** (441)	0.40*** 0.27*** (441)	0.12** 0.12** (441)	0.15*** 0.16*** (441)	0.21*** 0.20*** (441)	0.07 0.03 (415)	0.11* 0.03 (305)	0.14*** -0.03 (440)	-0.12** -0.23*** (441)

NOTE: (1) Pearson correlation/Spearman correlation/(sample size). If either element has a concentration below the laboratory detection limits, it is omitted from the pairwise computations.
(2) Significance levels: *-10%, **-5%, ***-1%.





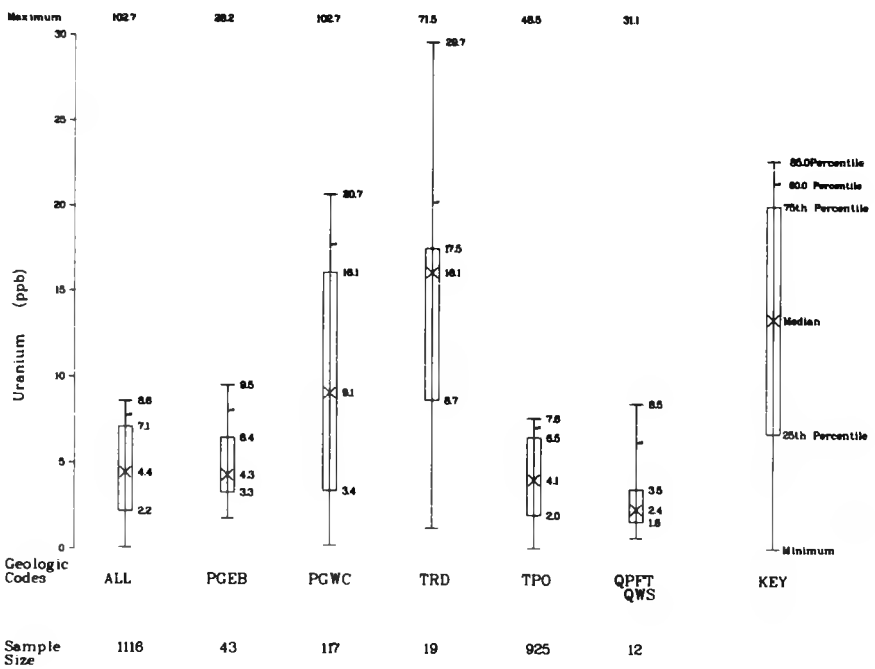


Figure A-1a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR URANIUM (PPB)
IN GROUNDWATER OF THE AMARILLO QUADRANGLE

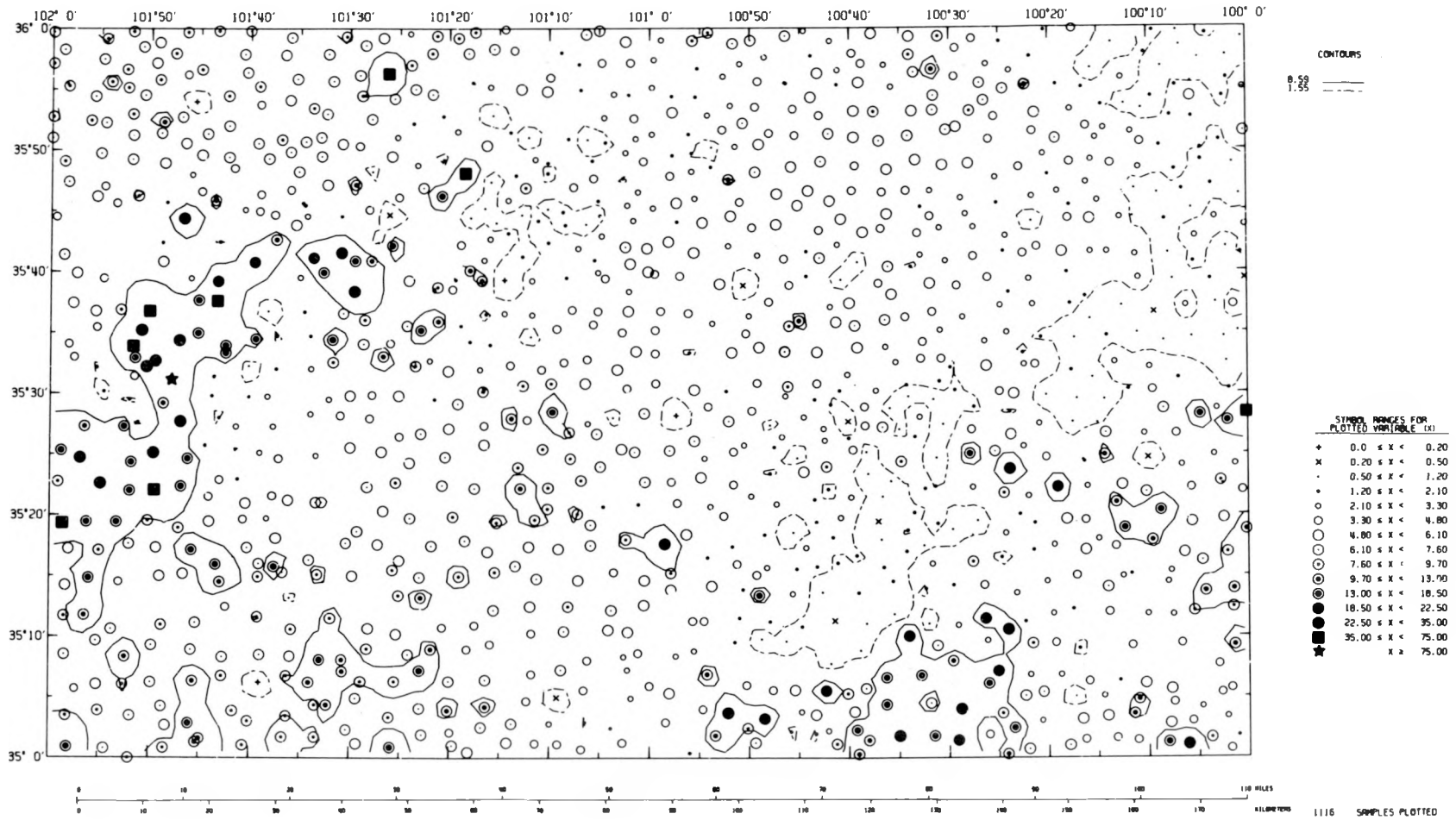
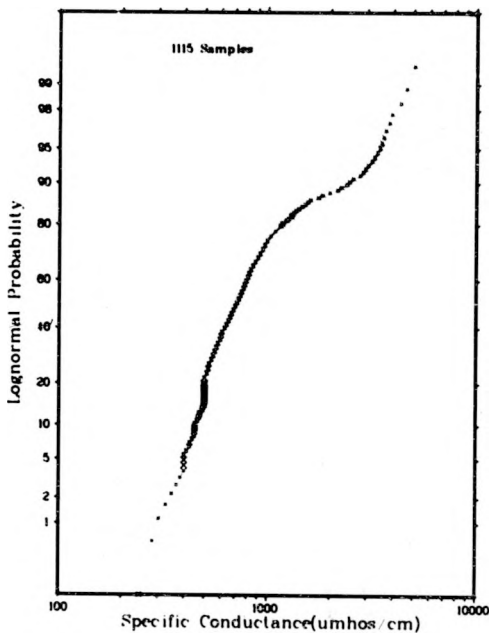
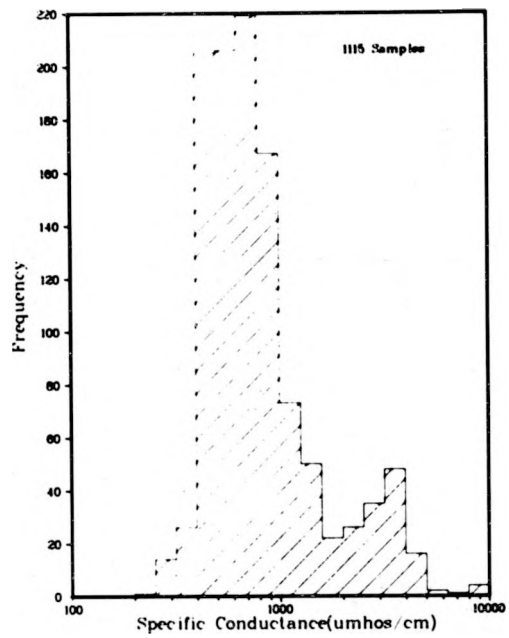


Figure A-1b

GEOCHEMICAL DISTRIBUTION OF URANIUM (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE





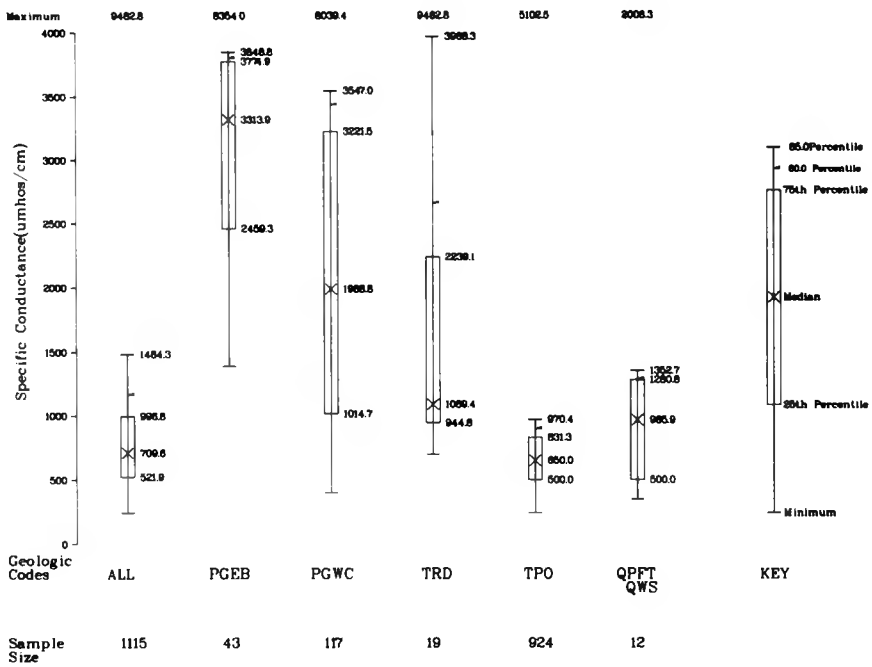


Figure A-2a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR SPECIFIC CONDUCTANCE (μMHOS/CM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

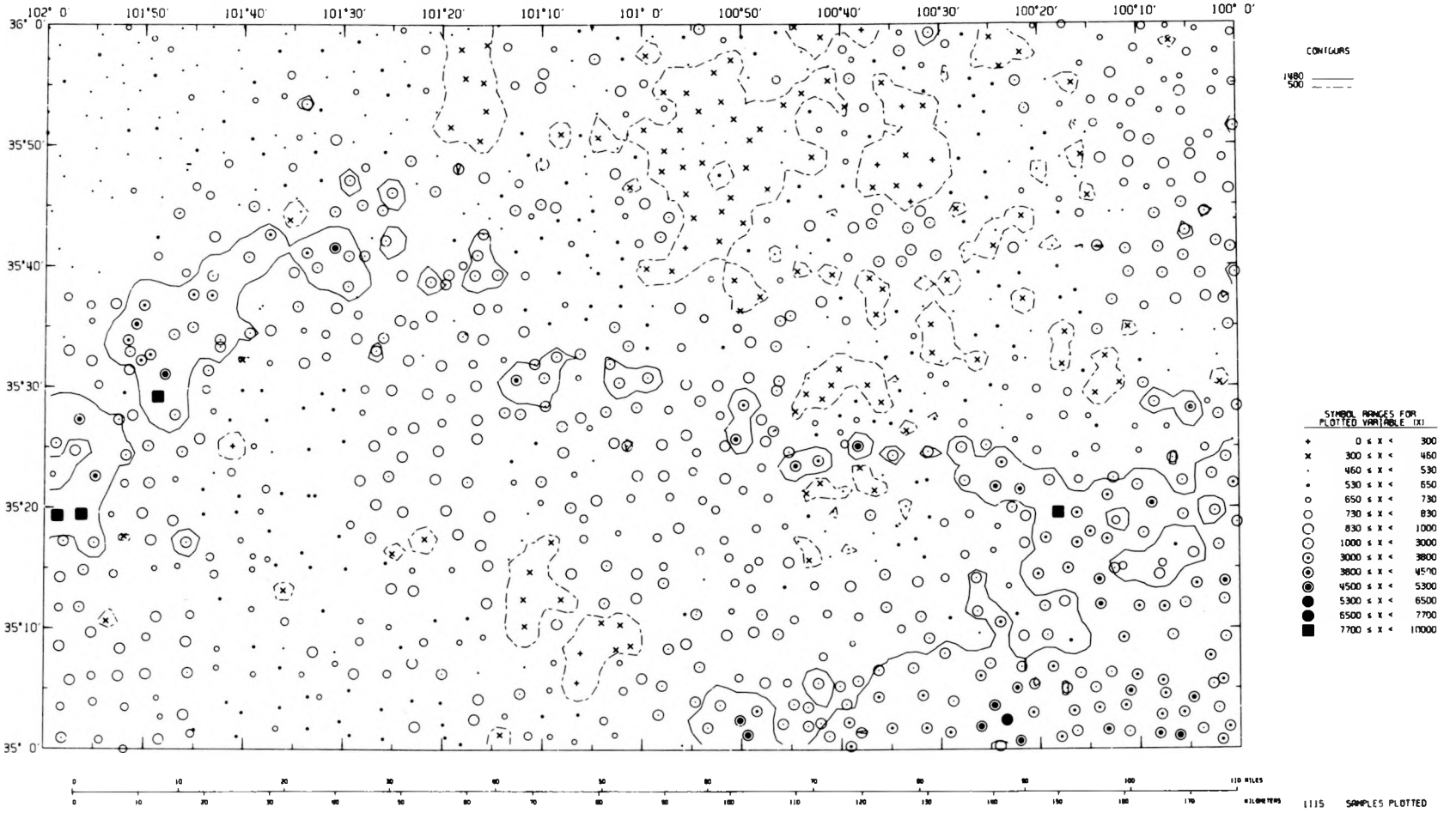
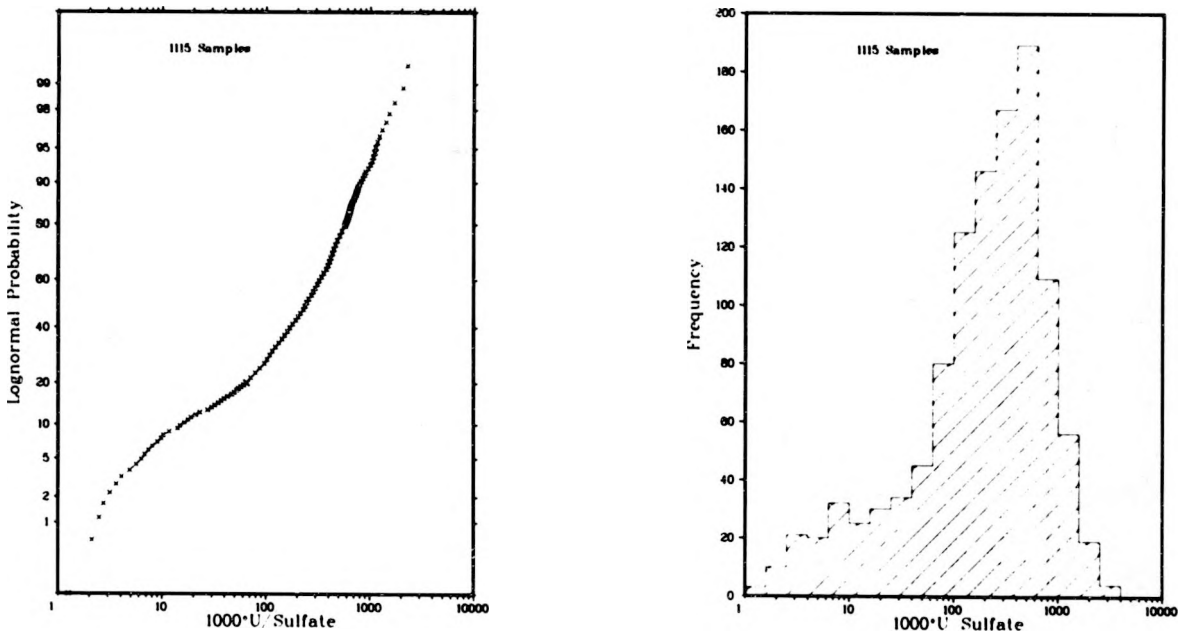


Figure A-2b

GEOCHEMICAL DISTRIBUTION OF SPECIFIC CONDUCTANCE (μMHOS/CM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE



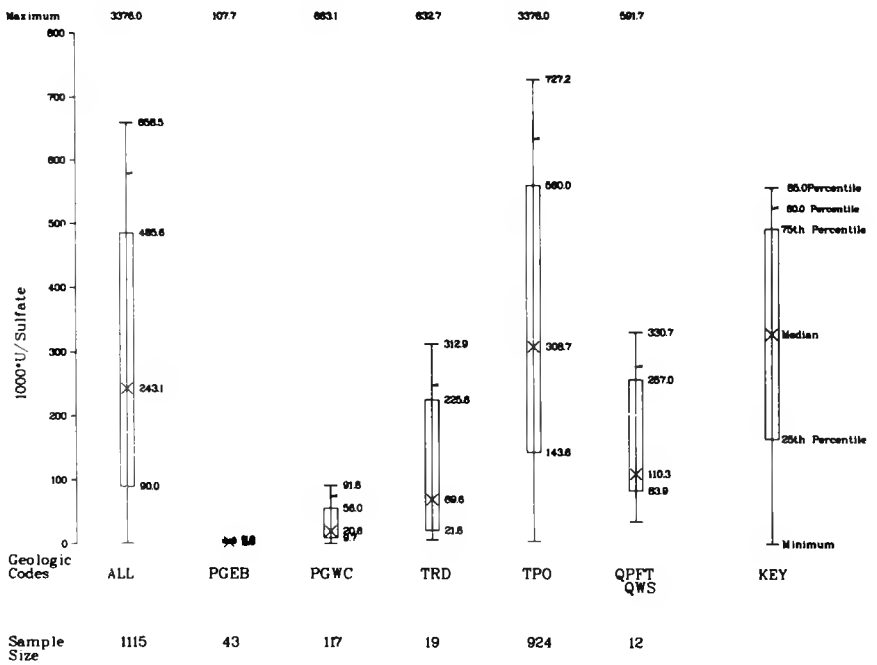


Figure A-3a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR 1,000·URANIUM/SULFATE IN GROUNDWATER OF THE AMARILLO QUADRANGLE

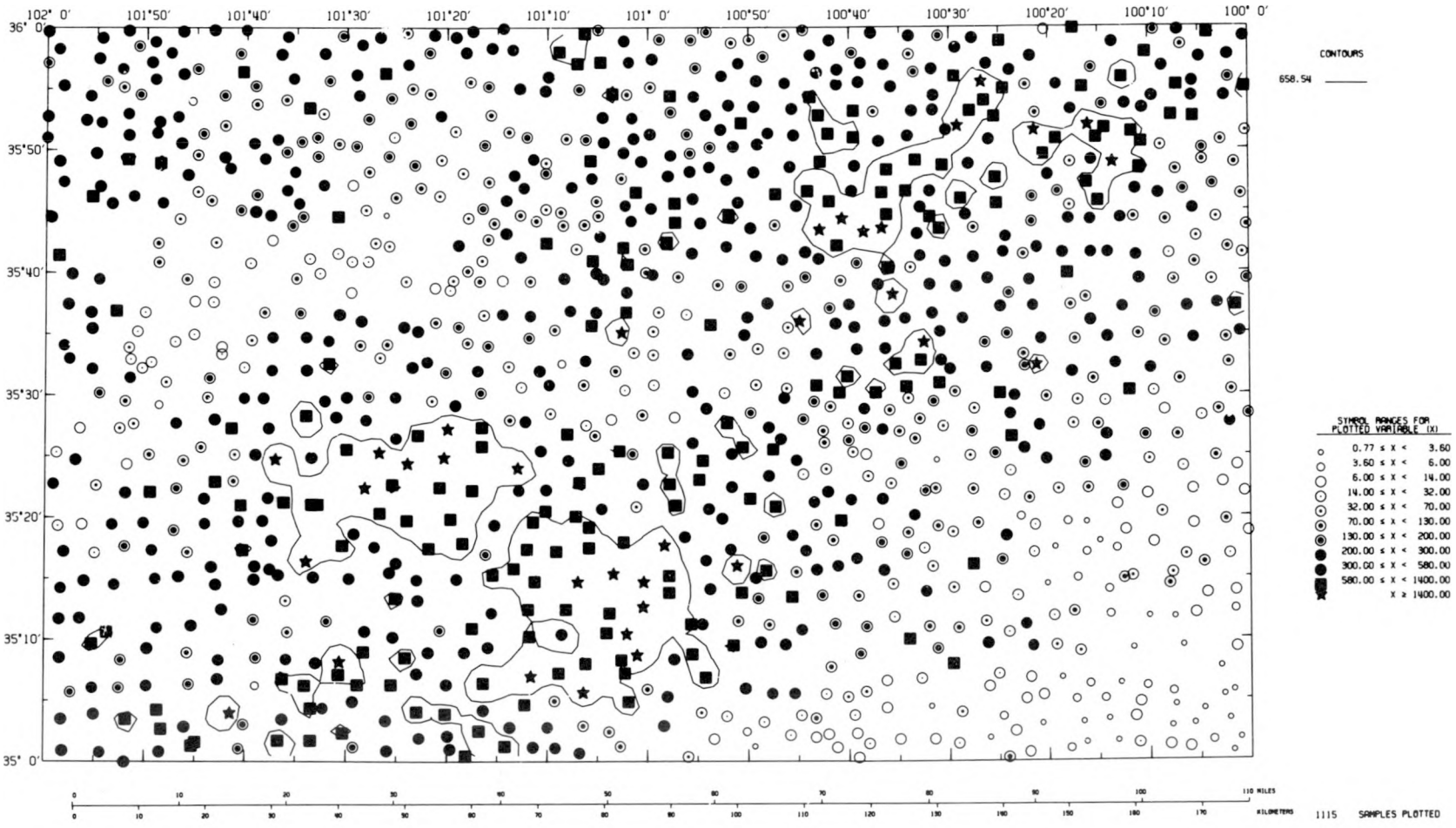
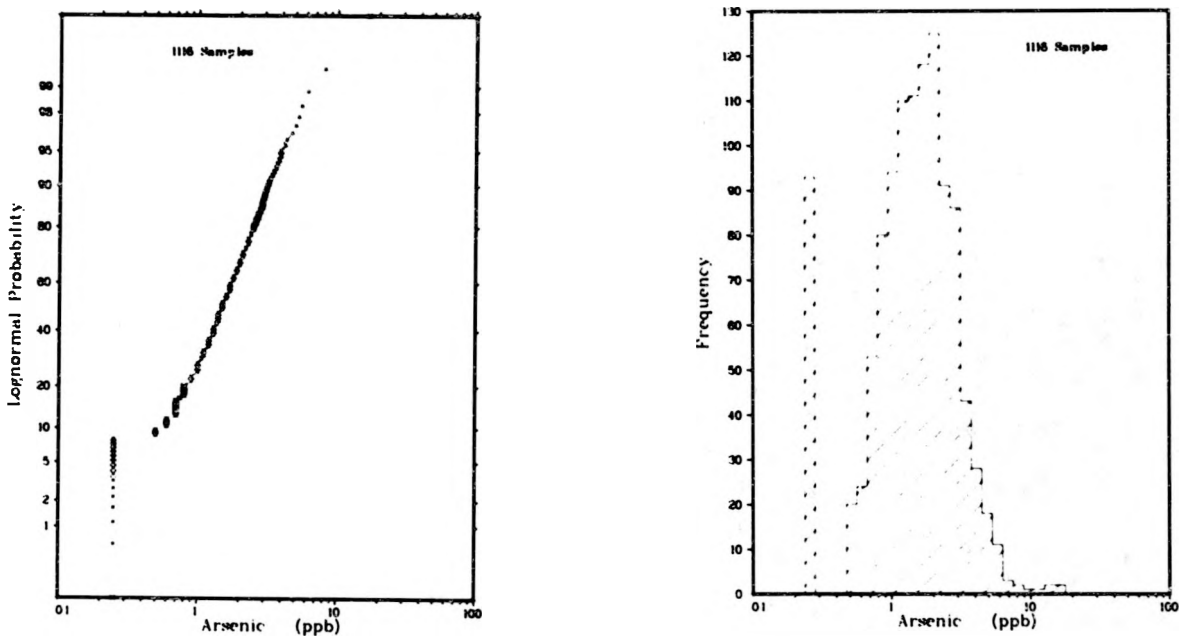


Figure A-3b

GEOCHEMICAL DISTRIBUTION OF 1,000·URANIUM/SULFATE IN GROUNDWATER OF THE AMARILLO QUADRANGLE



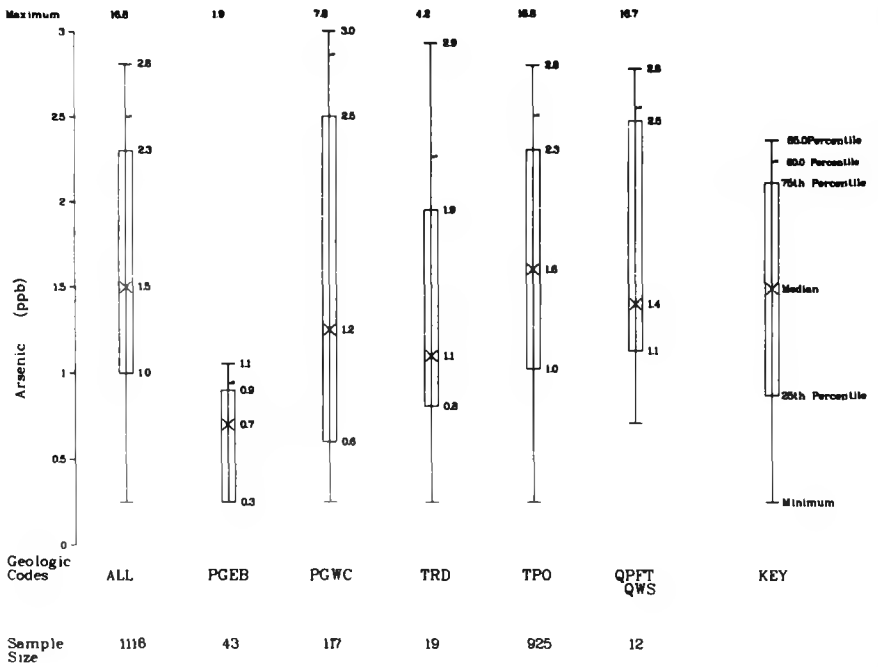


Figure A-4a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR ARSENIC (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

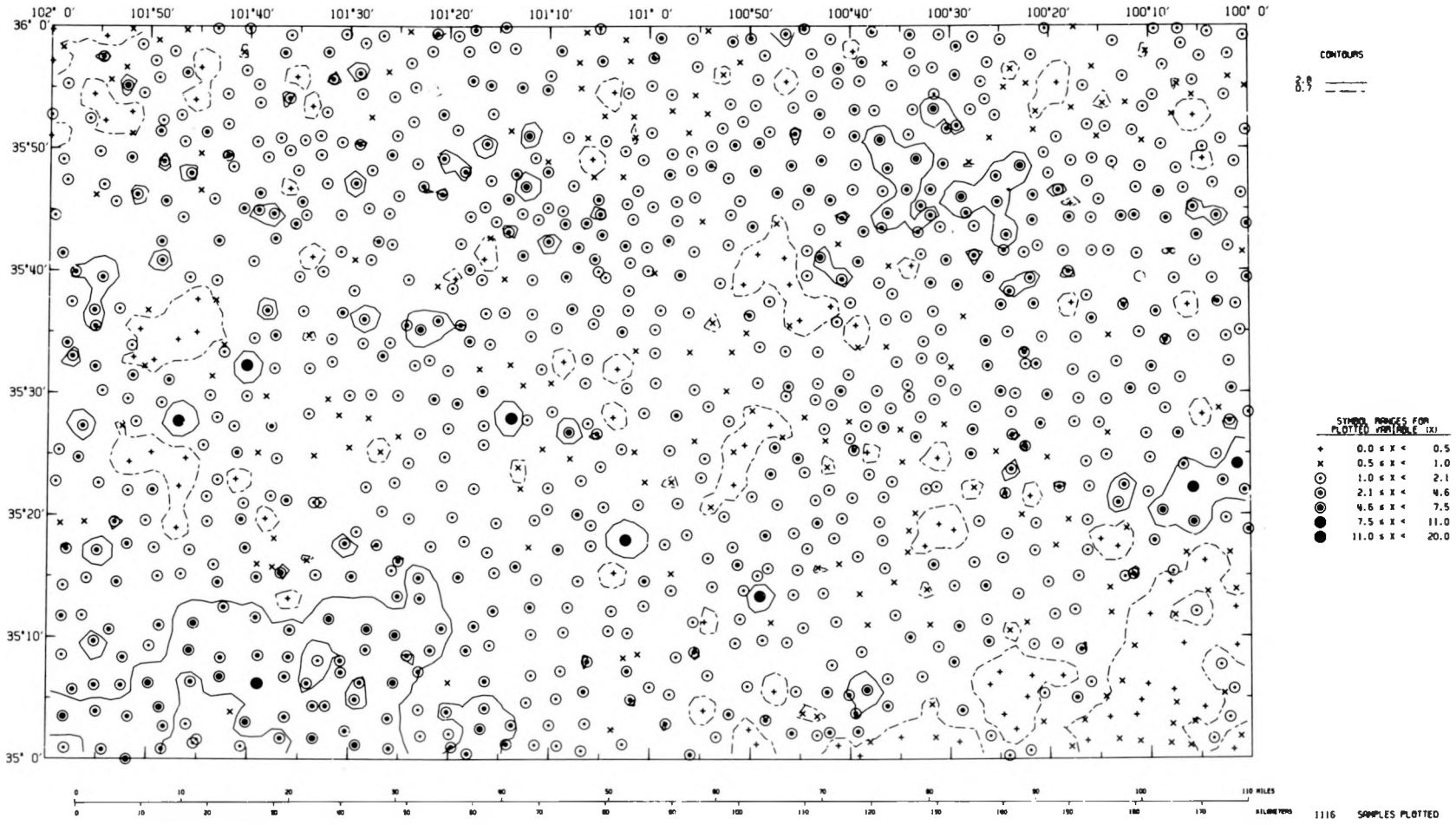
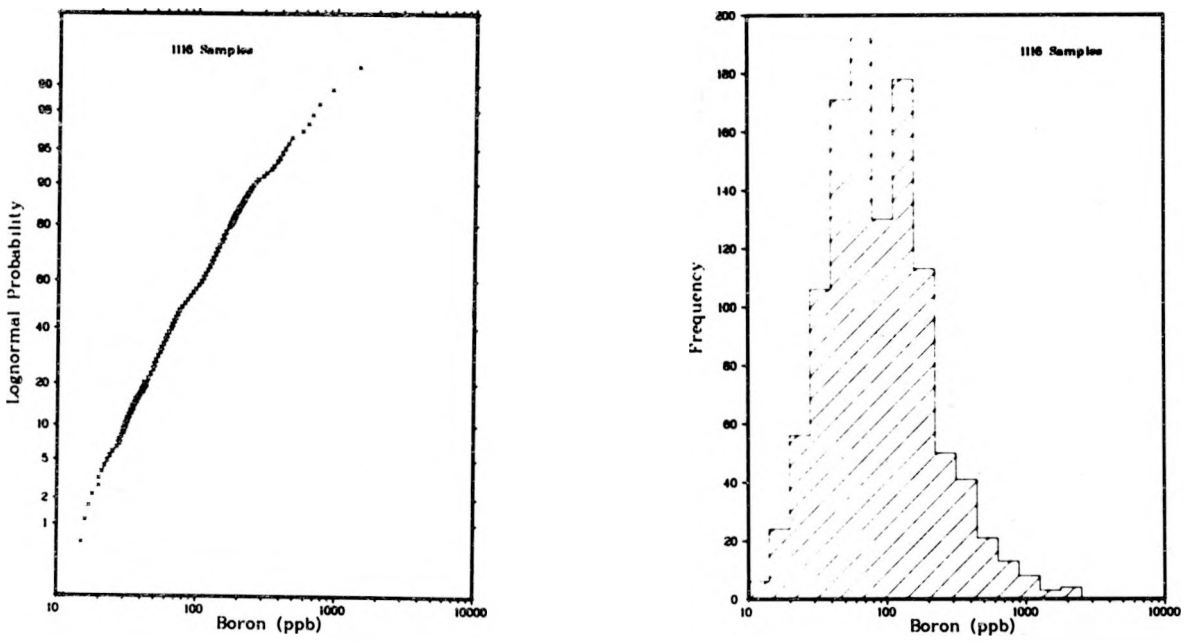


Figure A-4b

GEOCHEMICAL DISTRIBUTION OF ARSENIC (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE



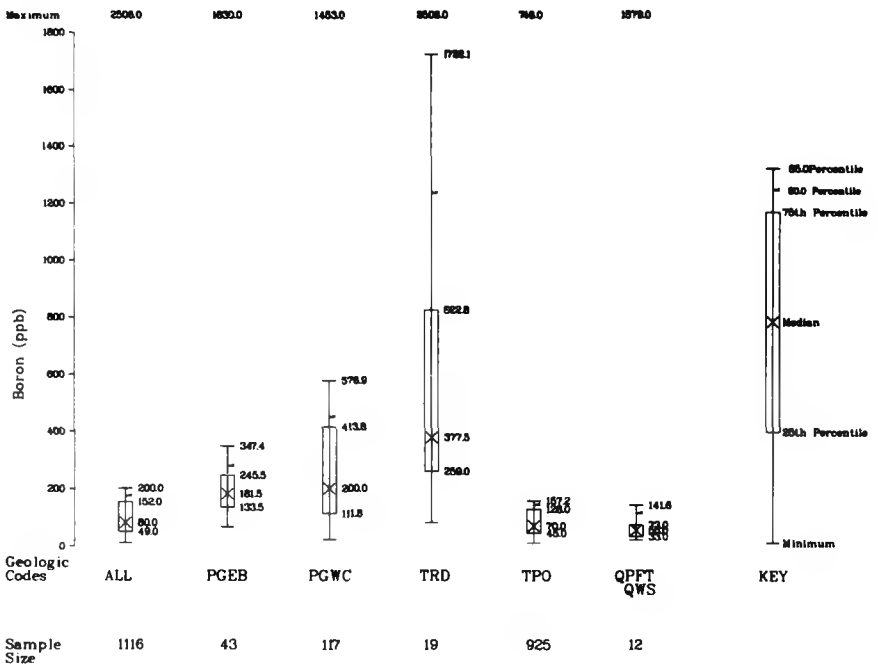


Figure A-5a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR BORON (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

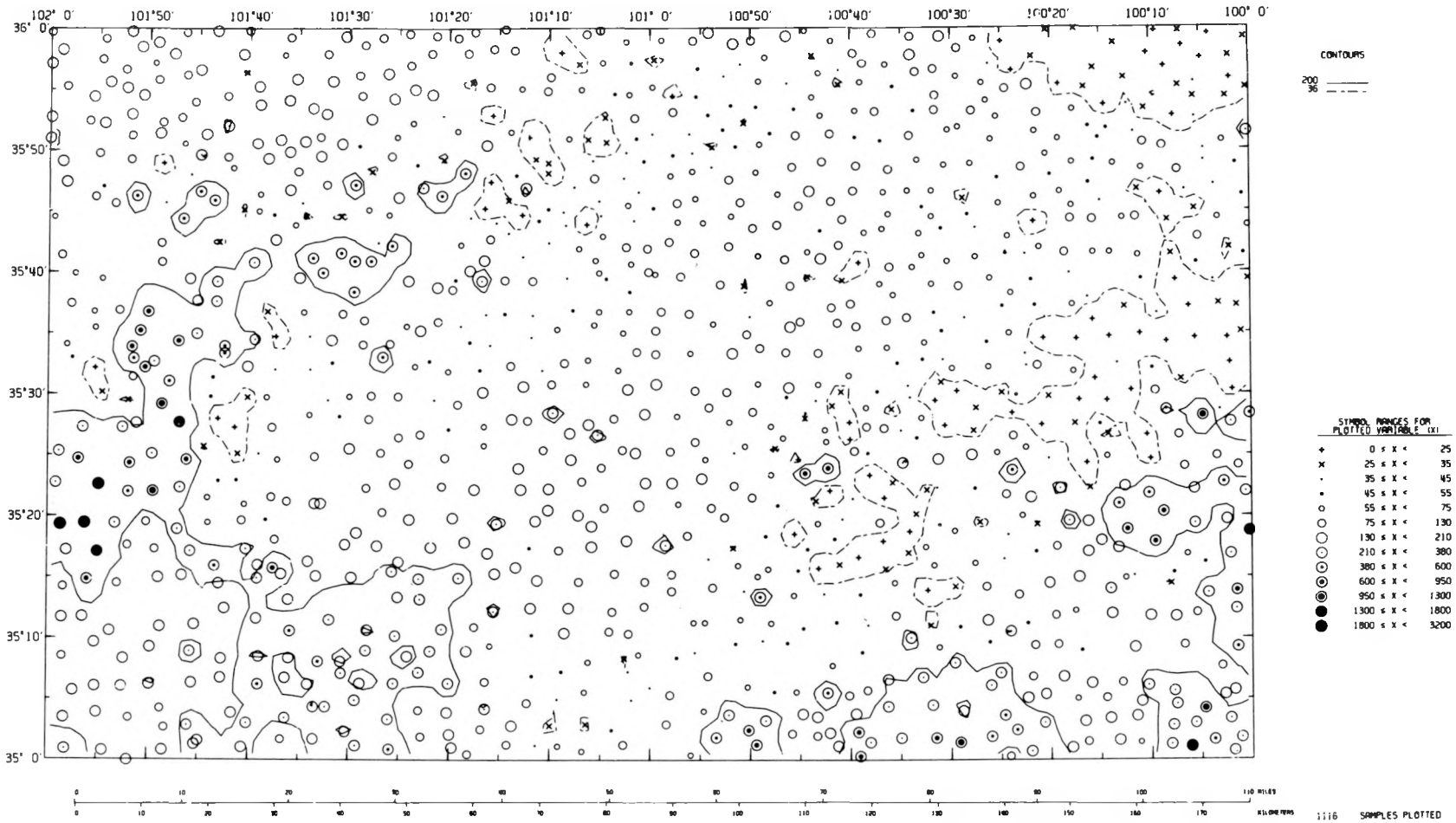
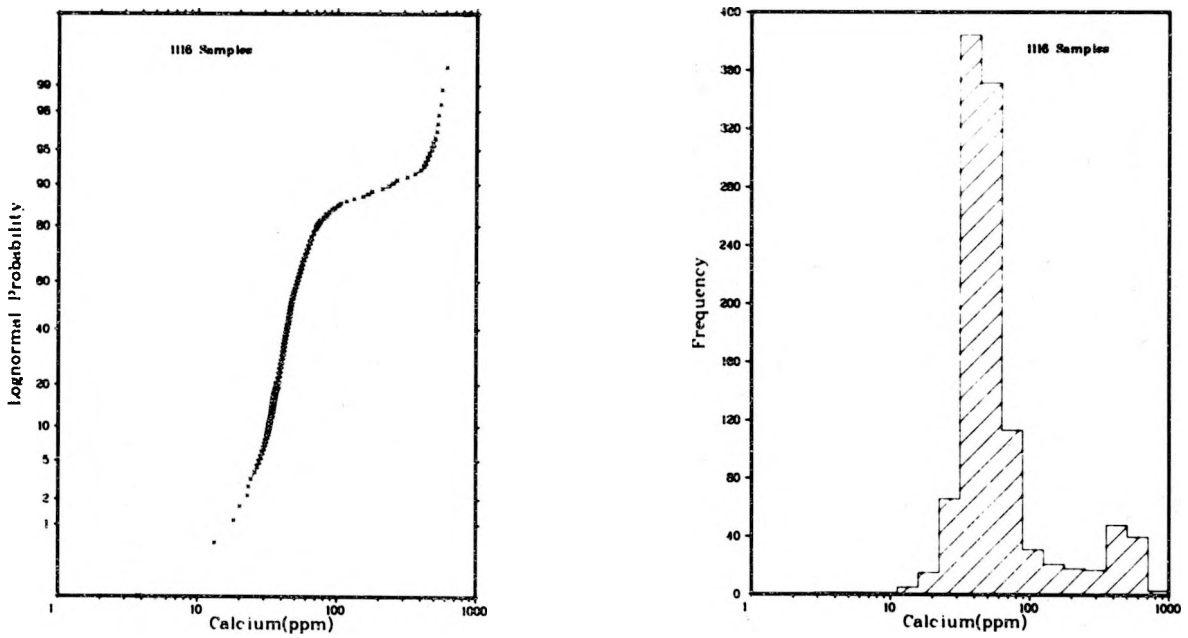


Figure A-5b

GEOCHEMICAL DISTRIBUTION OF BORON (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE



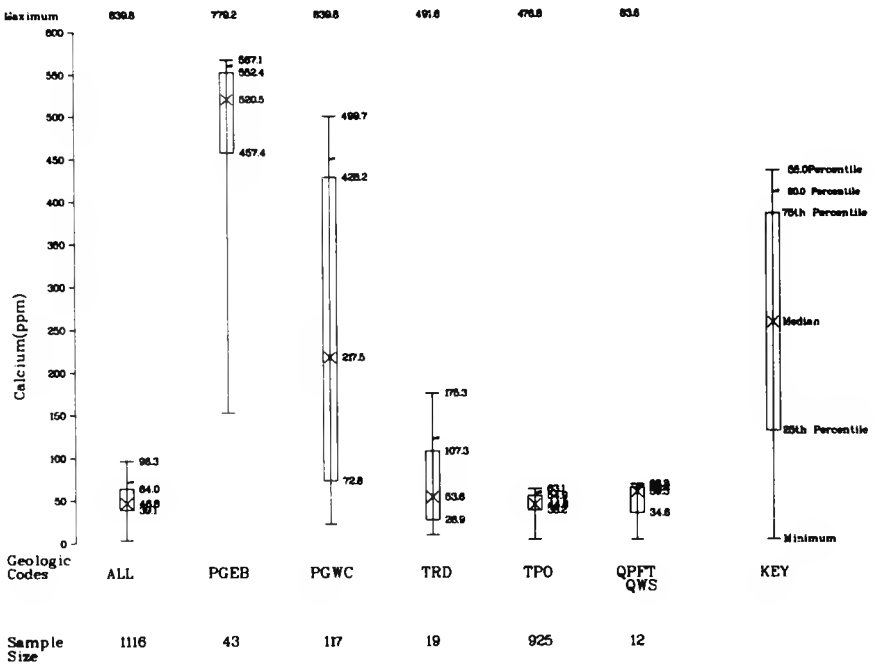


Figure A-6a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR CALCIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

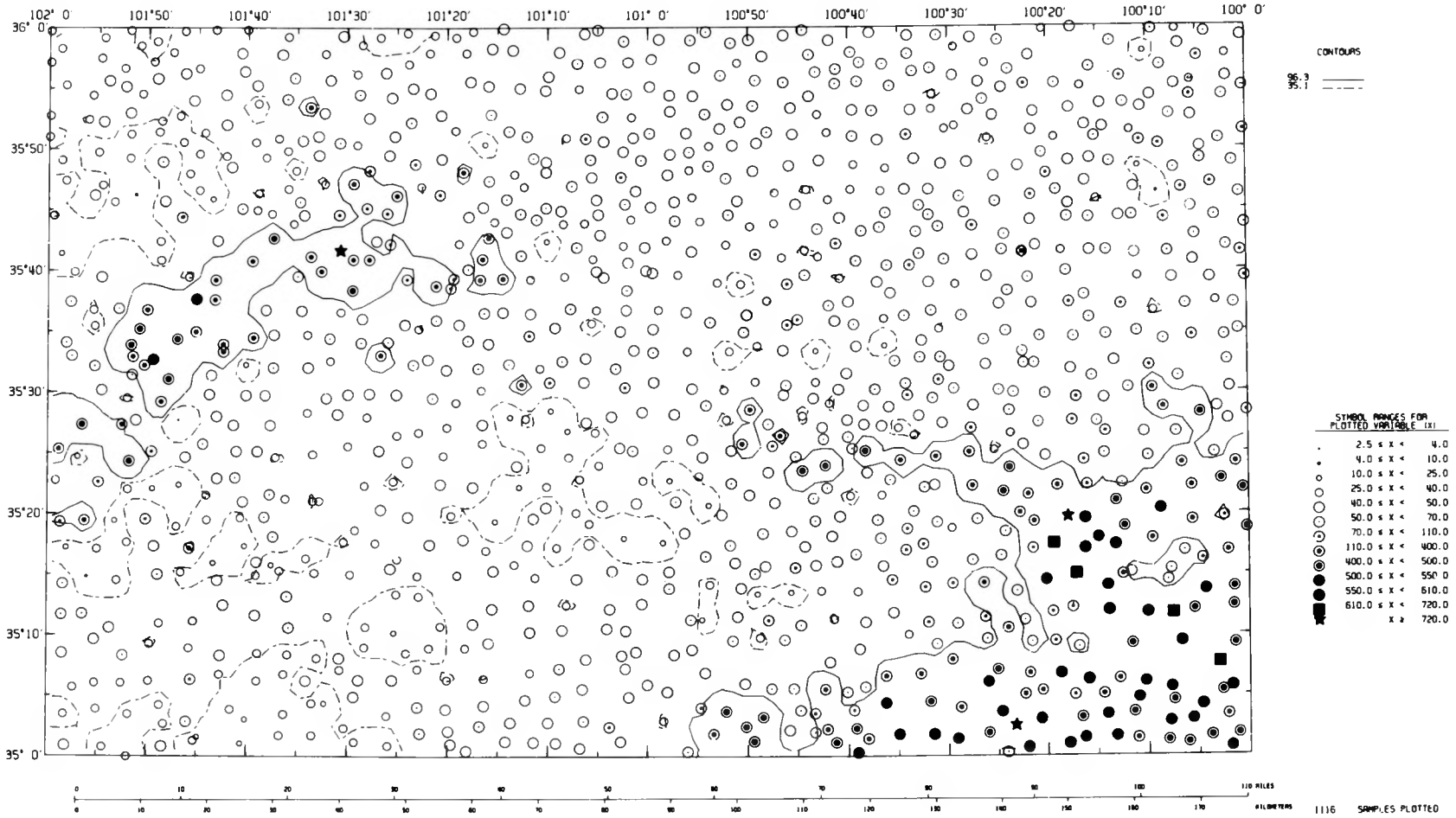
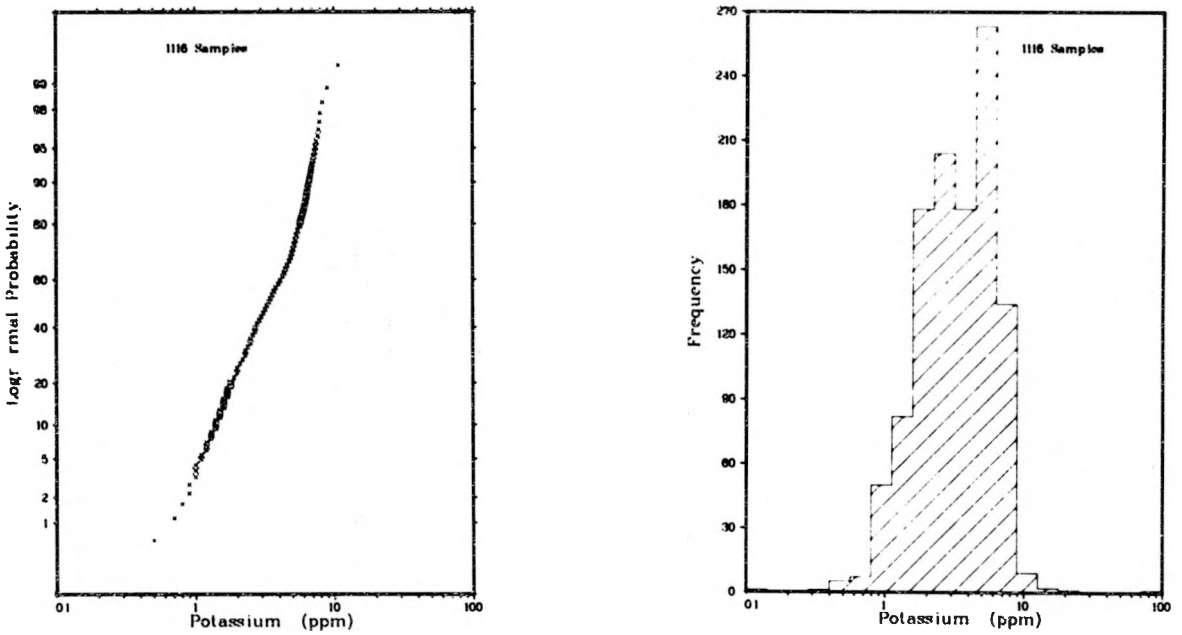


Figure A-6b

GEOCHEMICAL DISTRIBUTION OF CALCIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE



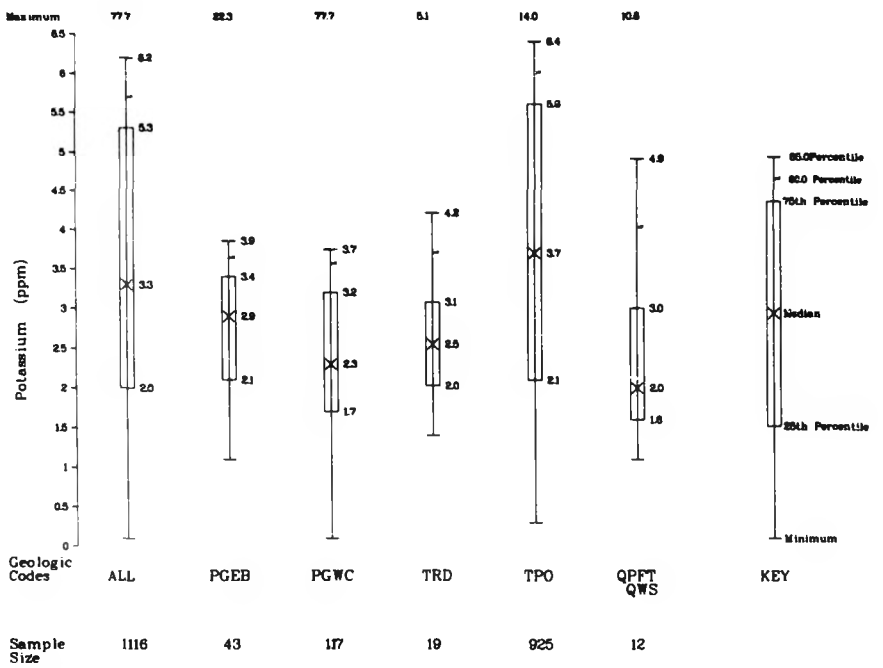


Figure A-7a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR POTASSIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

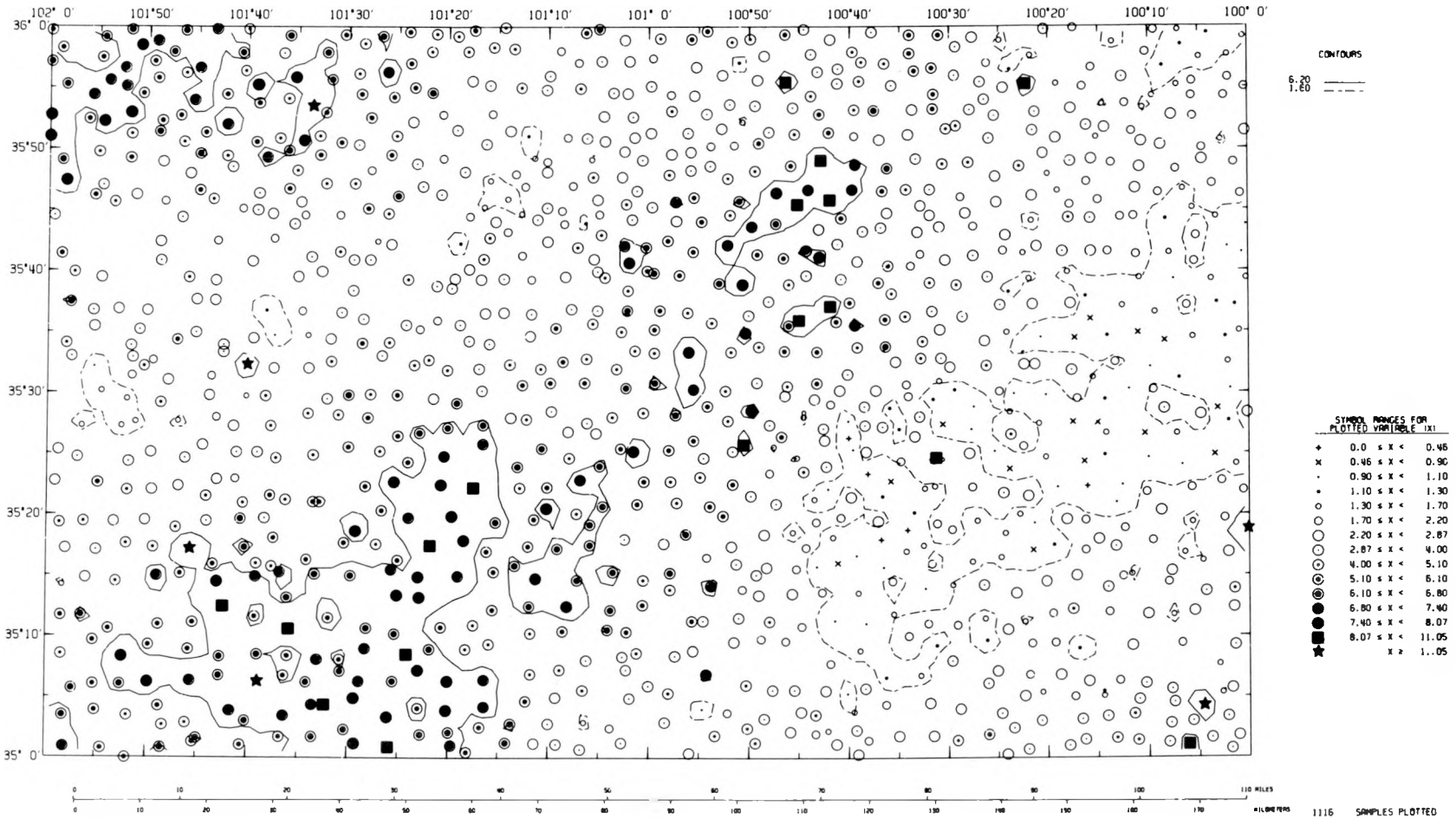


Figure A-7b

GEOCHEMICAL DISTRIBUTION OF POTASSIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

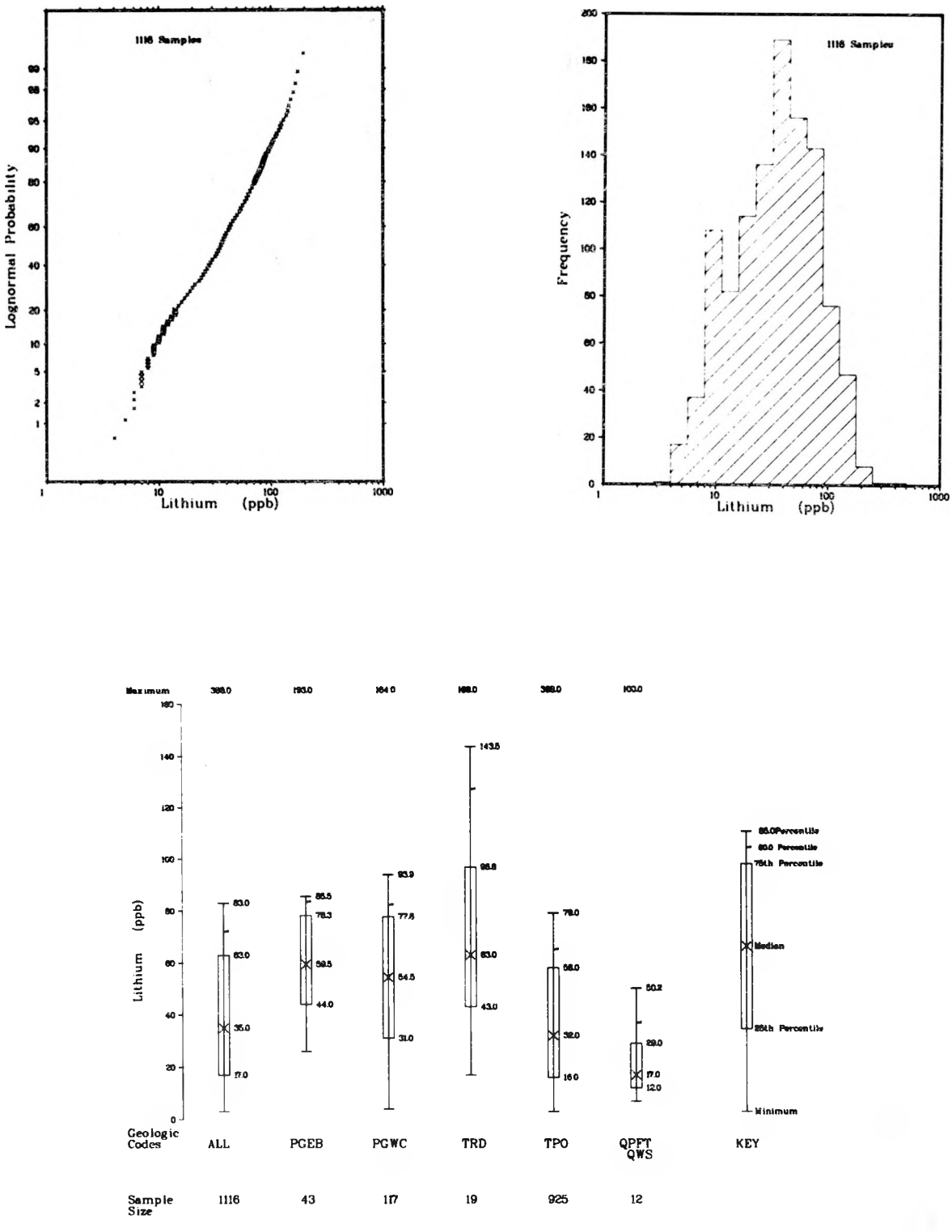


Figure A-8a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR LITHIUM (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

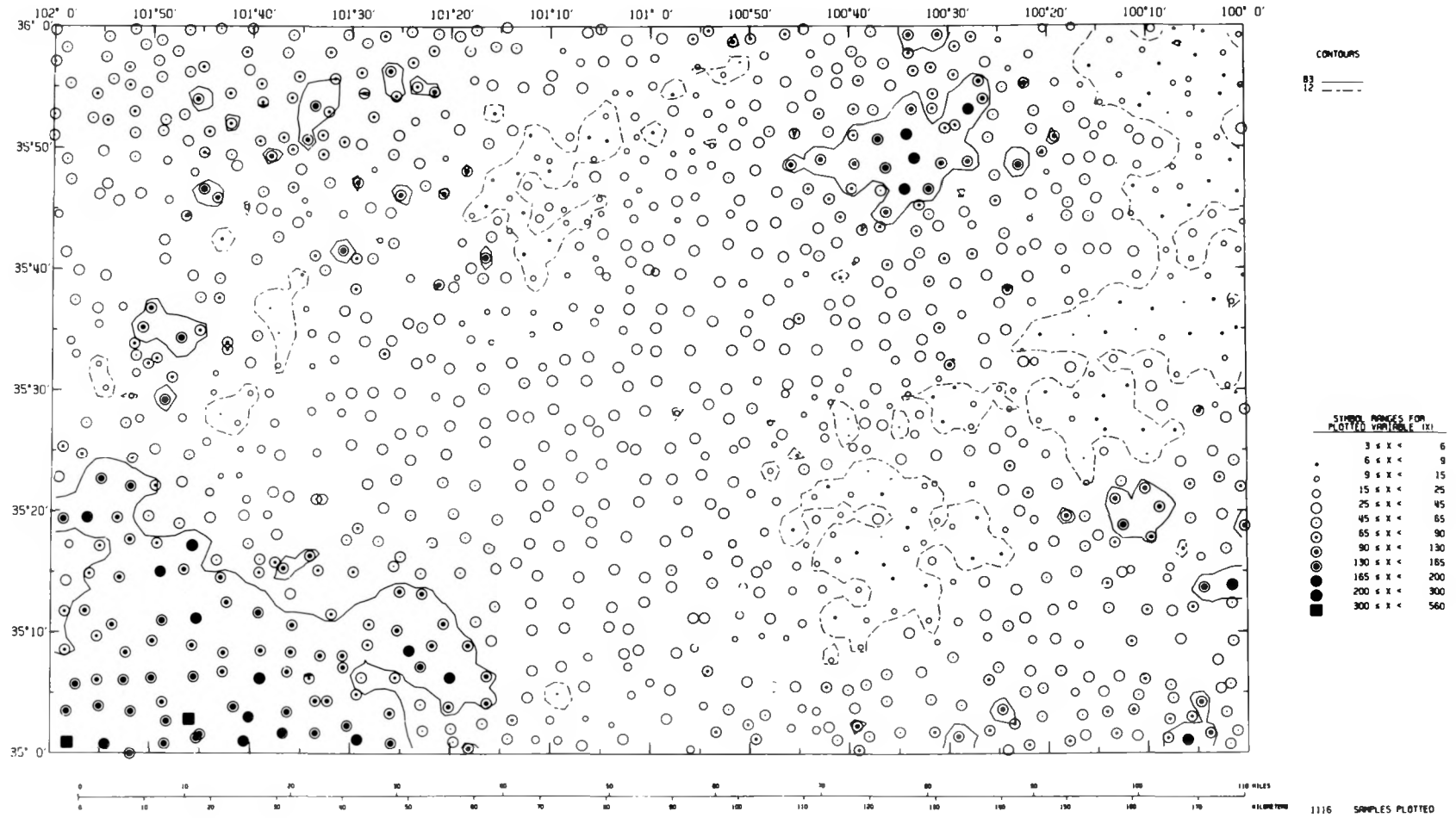
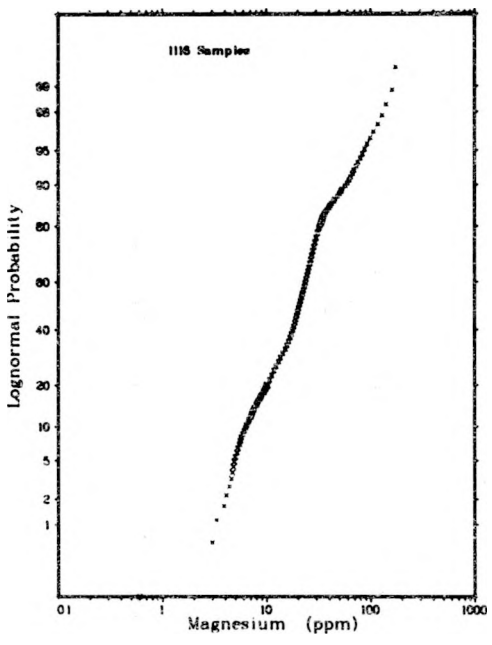
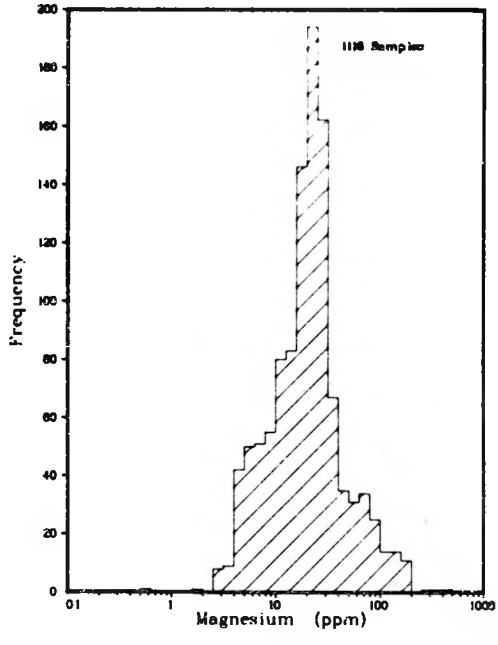


Figure A-8b

GEOCHEMICAL DISTRIBUTION OF LITHIUM (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE





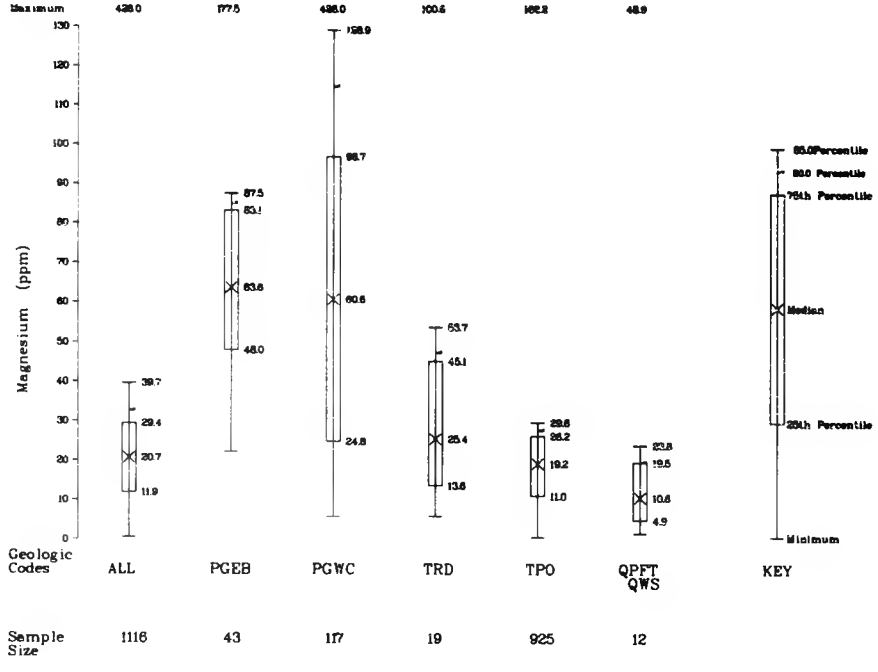


Figure A-9a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR MAGNESIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

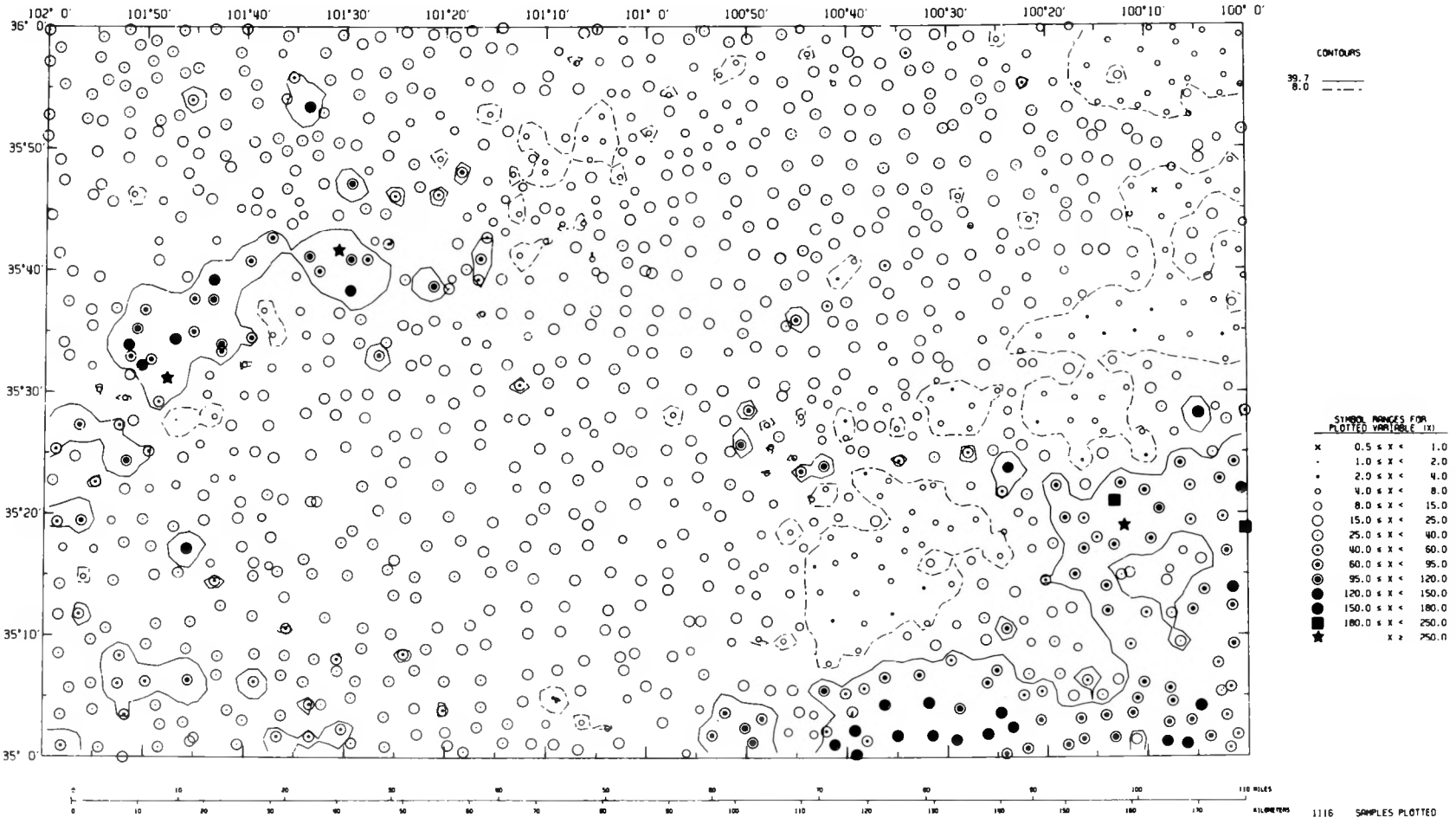


Figure A-9b

GEOCHEMICAL DISTRIBUTION OF MAGNESIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

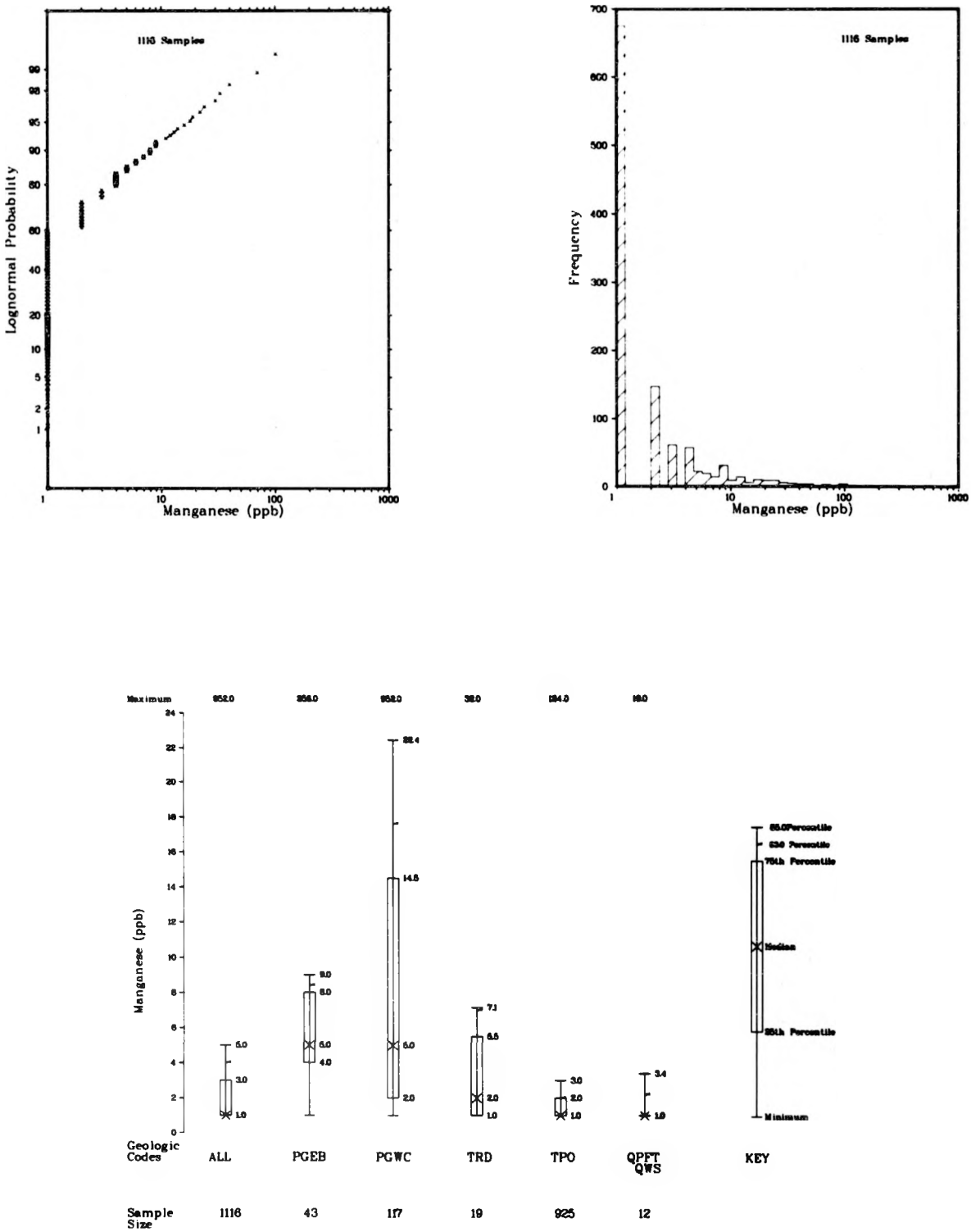


Figure A-10a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR MANGANESE (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

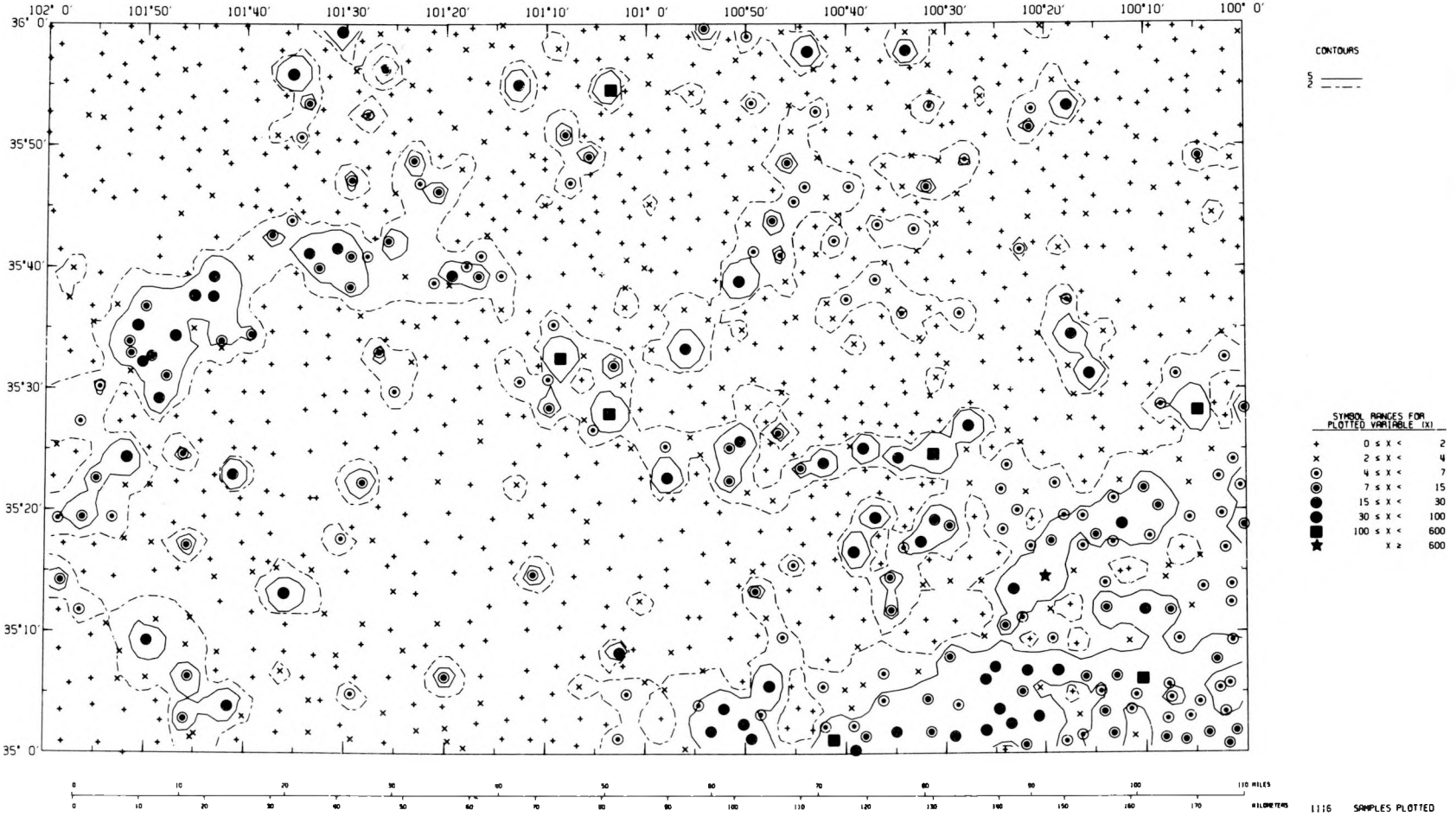
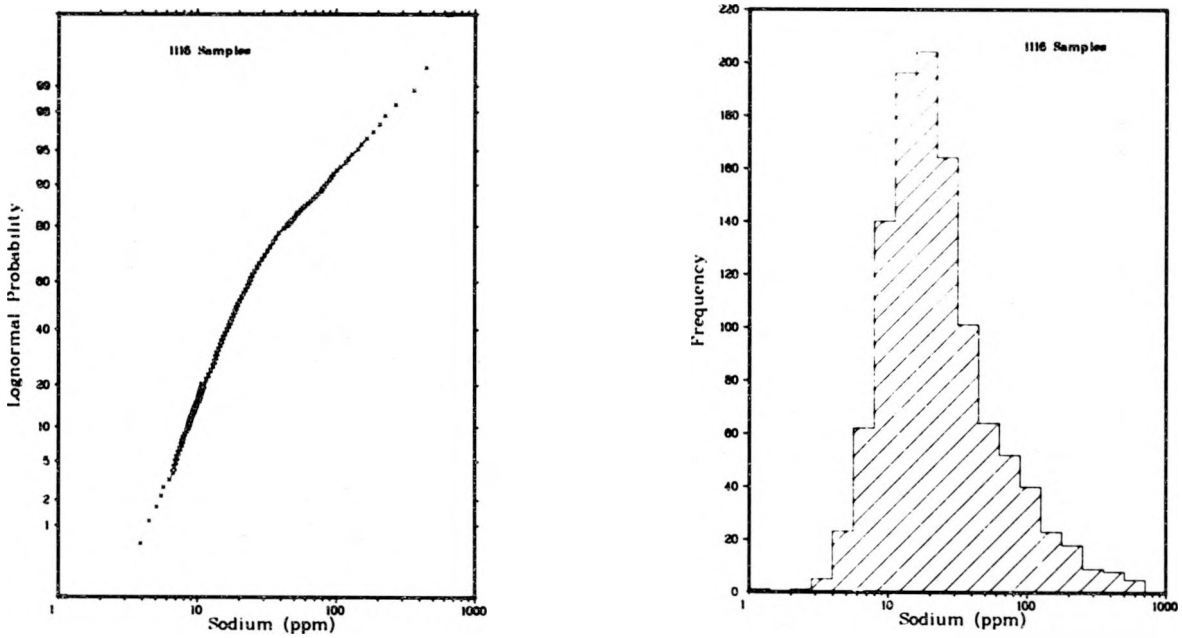


Figure A-10b

GEOCHEMICAL DISTRIBUTION OF MANGANESE (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE



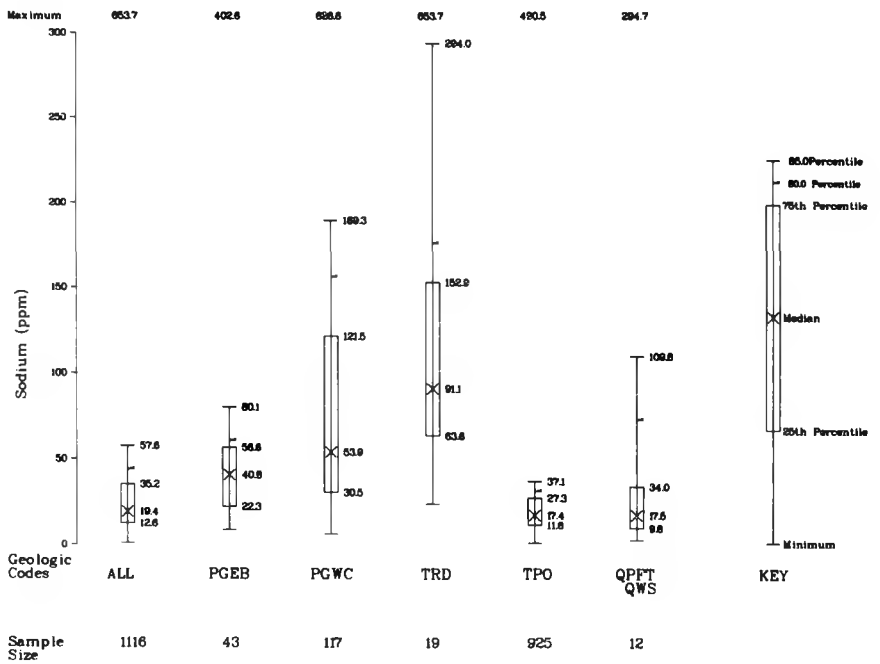


Figure A-11a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR SODIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

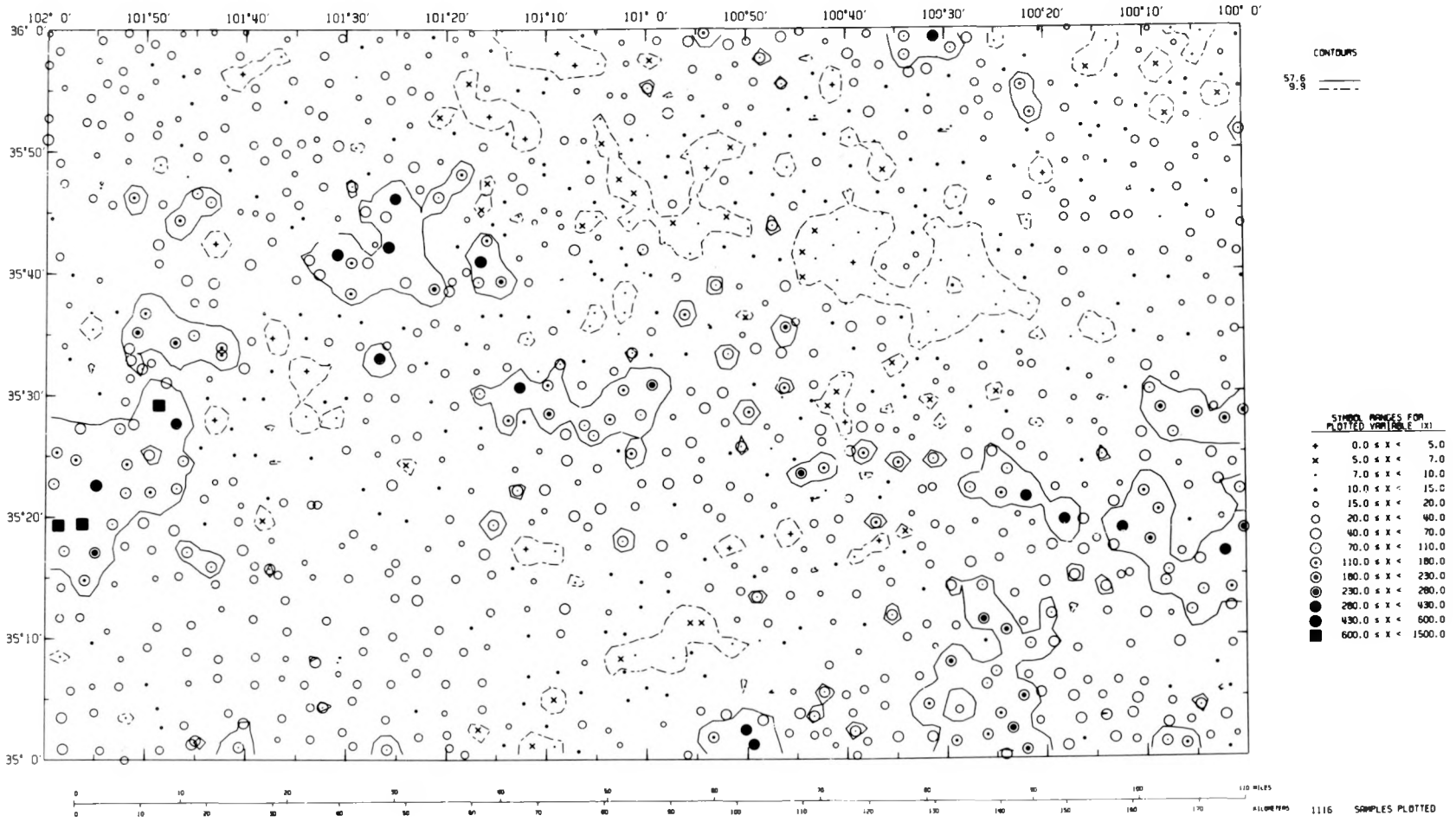


Figure A-11b

GEOCHEMICAL DISTRIBUTION OF SODIUM (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

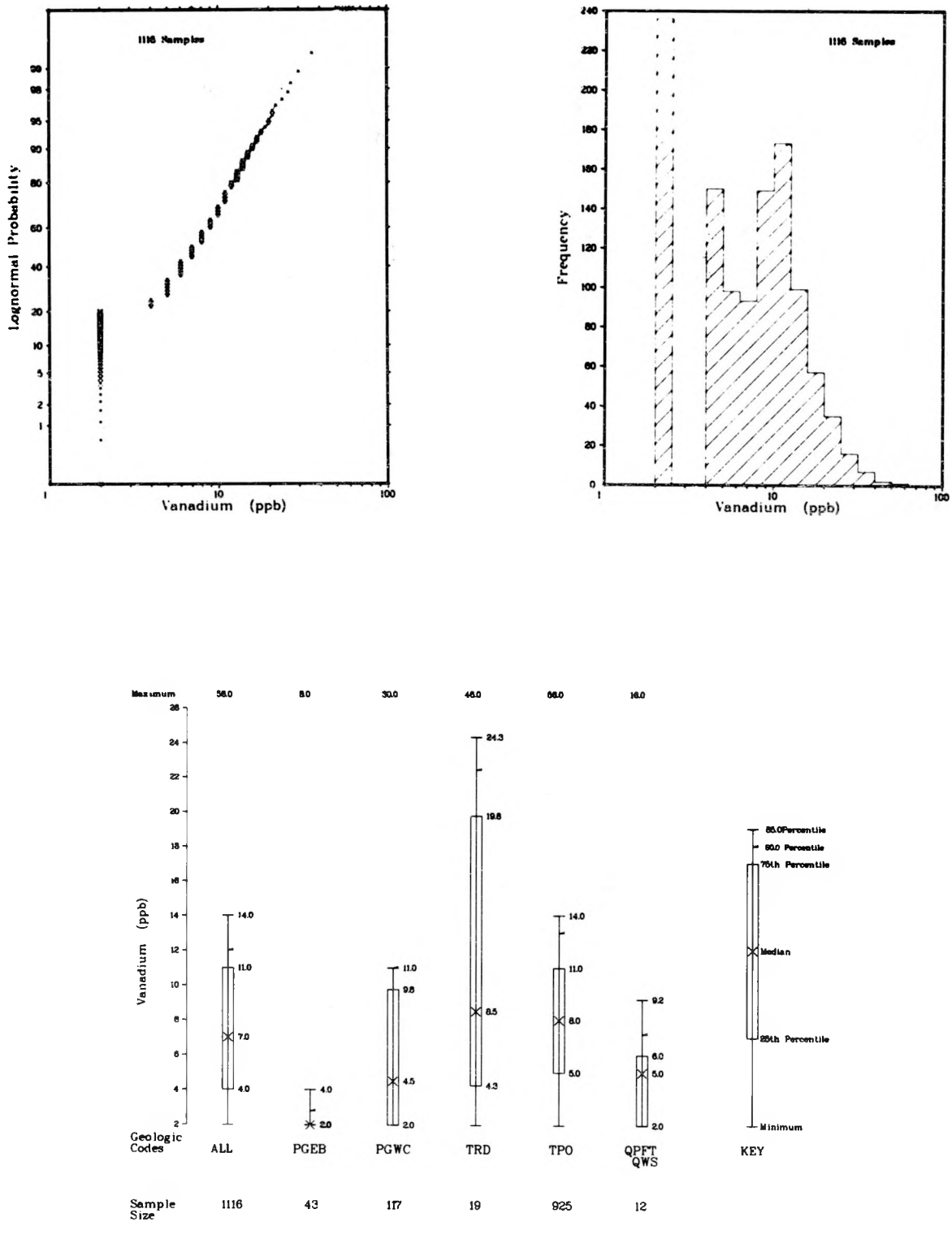


Figure A-12a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR VANADIUM (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

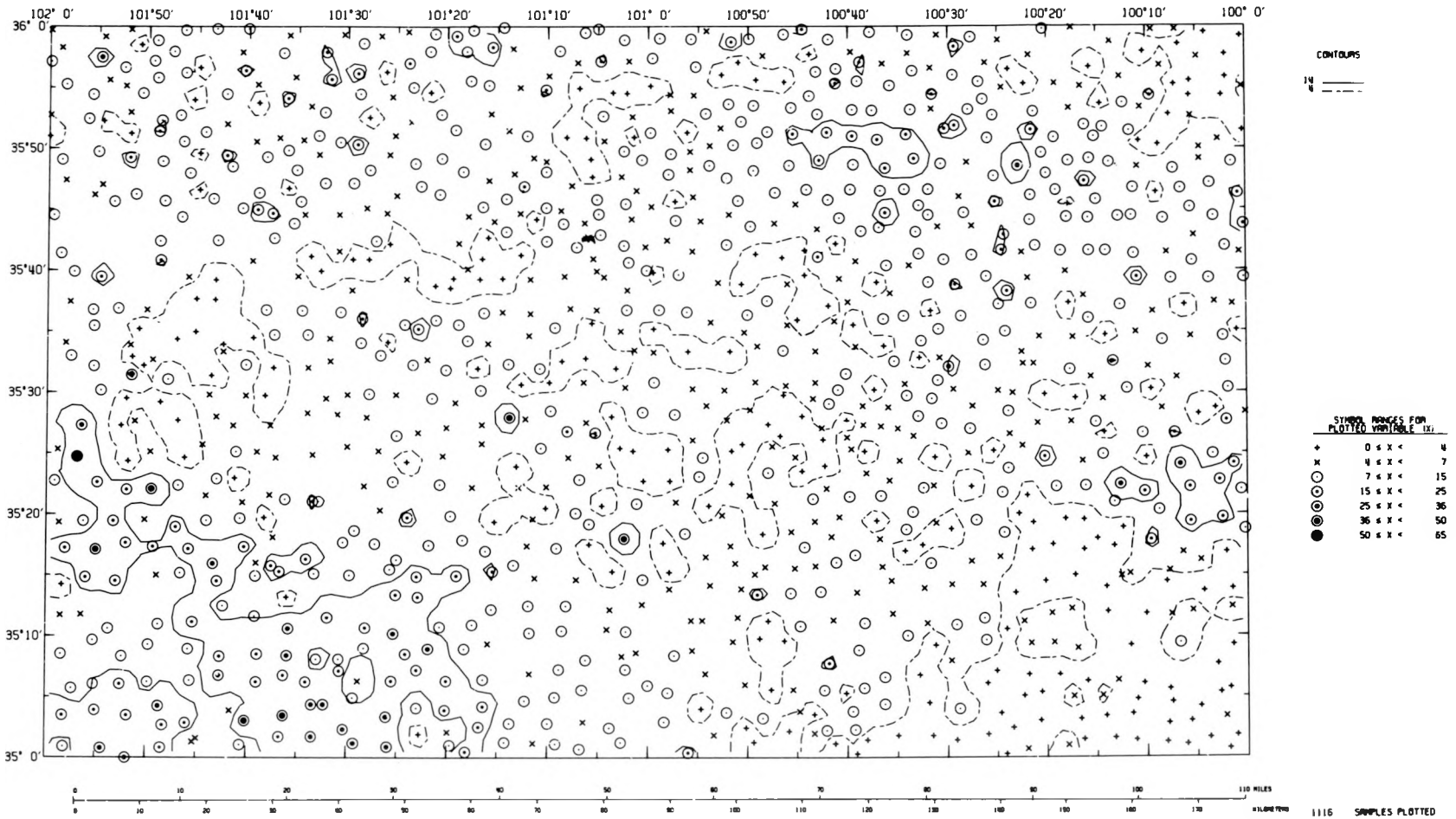
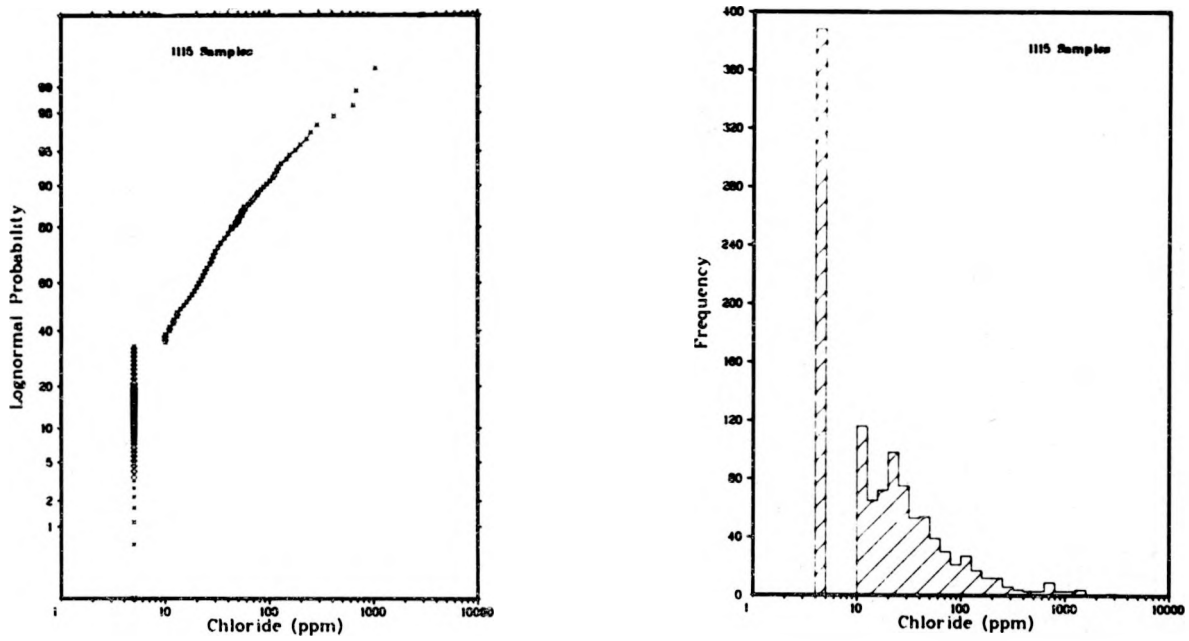


Figure A-12b

GEOCHEMICAL DISTRIBUTION OF VANADIUM (PPB) IN GROUNDWATER OF THE AMARILLO QUADRANGLE



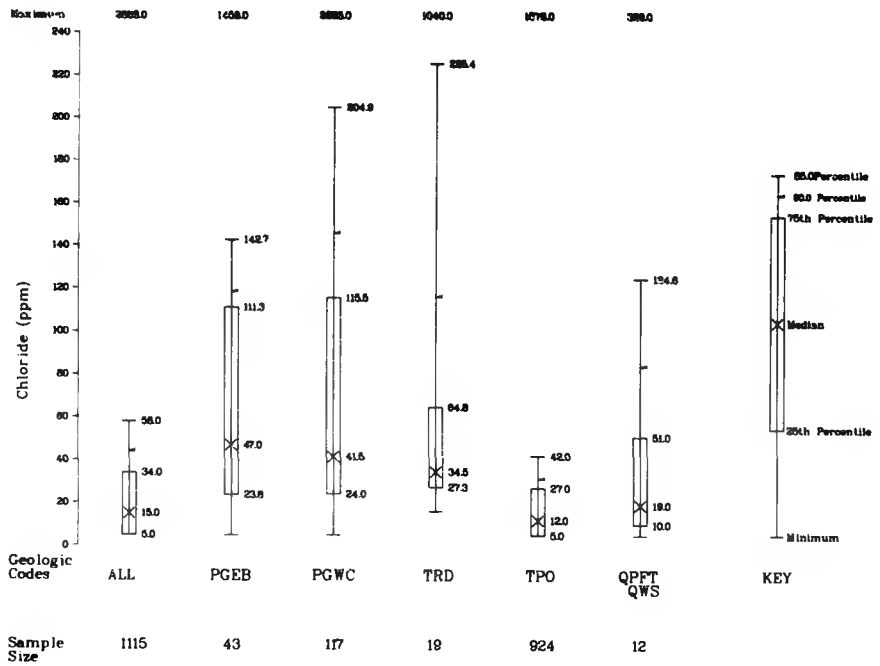


Figure A-13a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR CHLORIDE (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

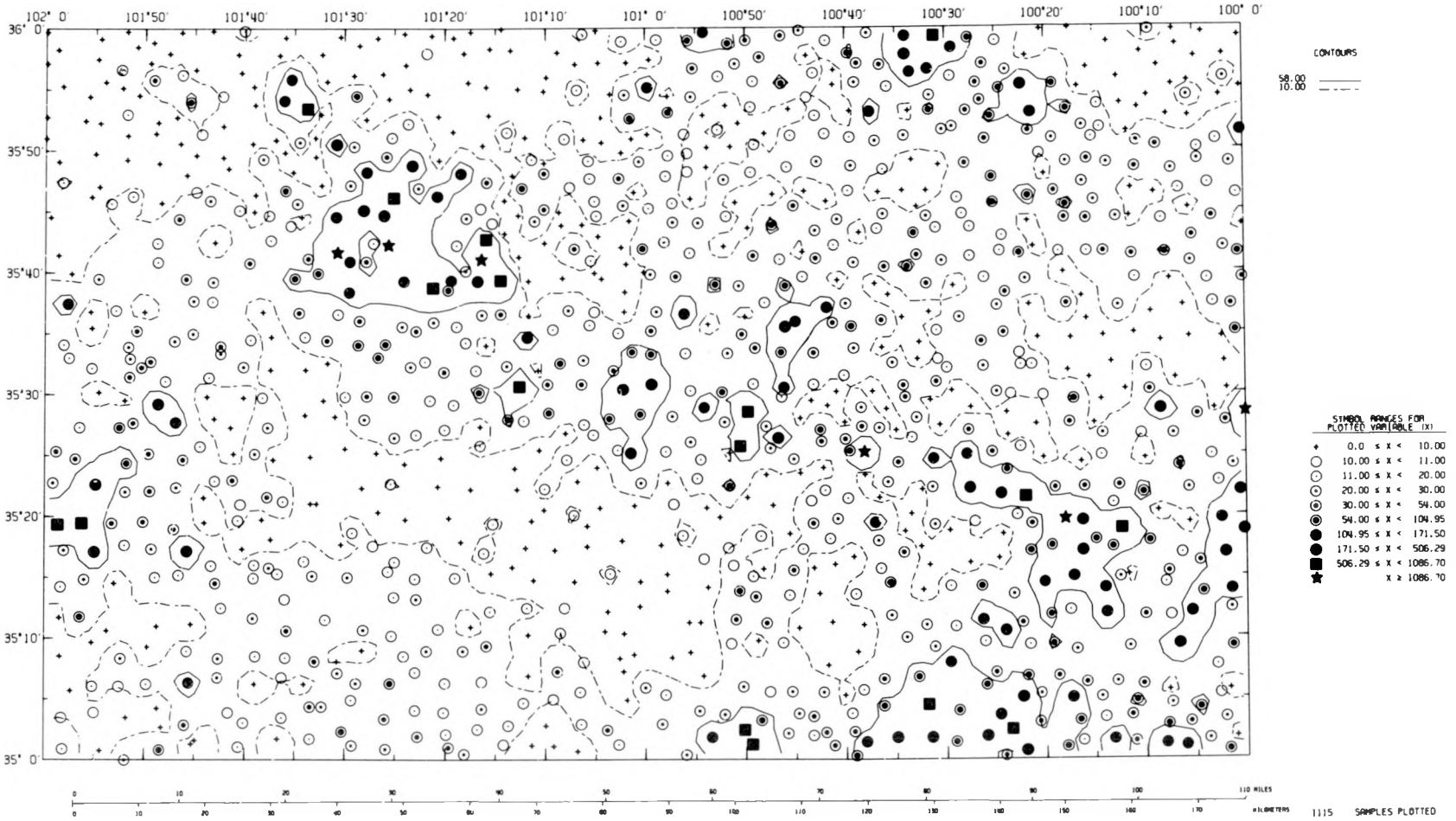


Figure A-13b

GEOCHEMICAL DISTRIBUTION OF CHLORIDE (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

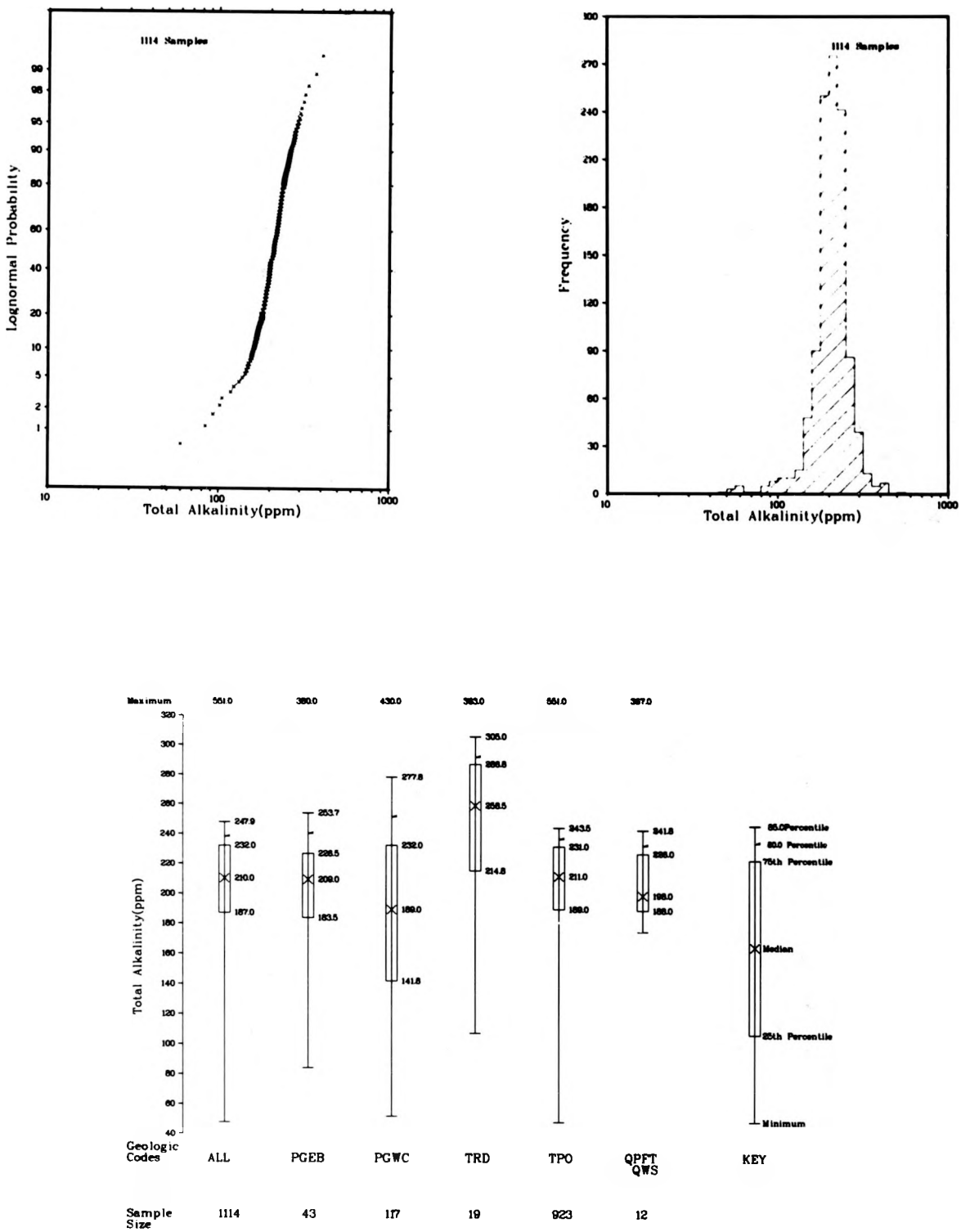


Figure A-14a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR TOTAL ALKALINITY (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

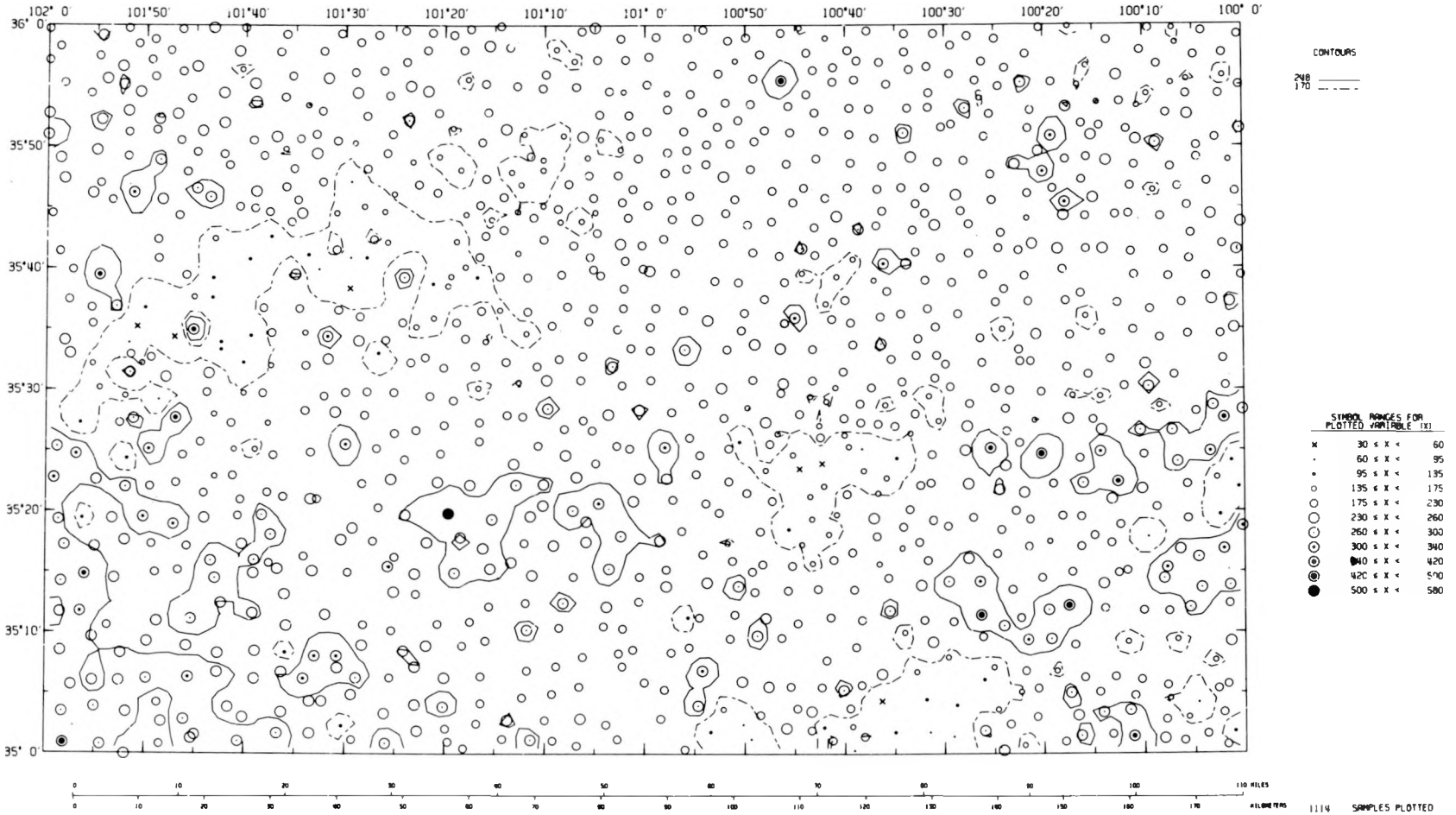


Figure A-14b

GEOCHEMICAL DISTRIBUTION OF TOTAL ALKALINITY (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

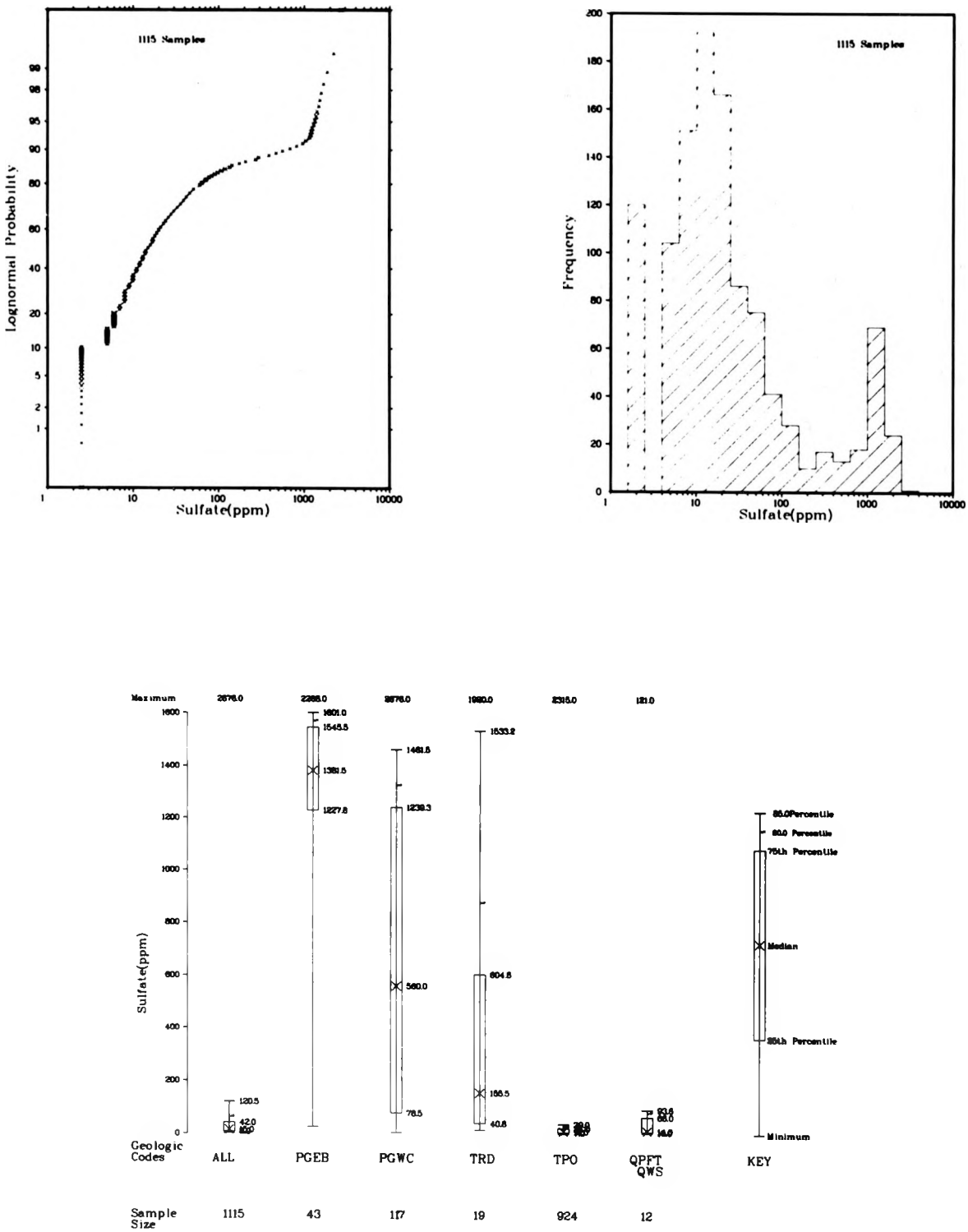


Figure A-15a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR SULFATE (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

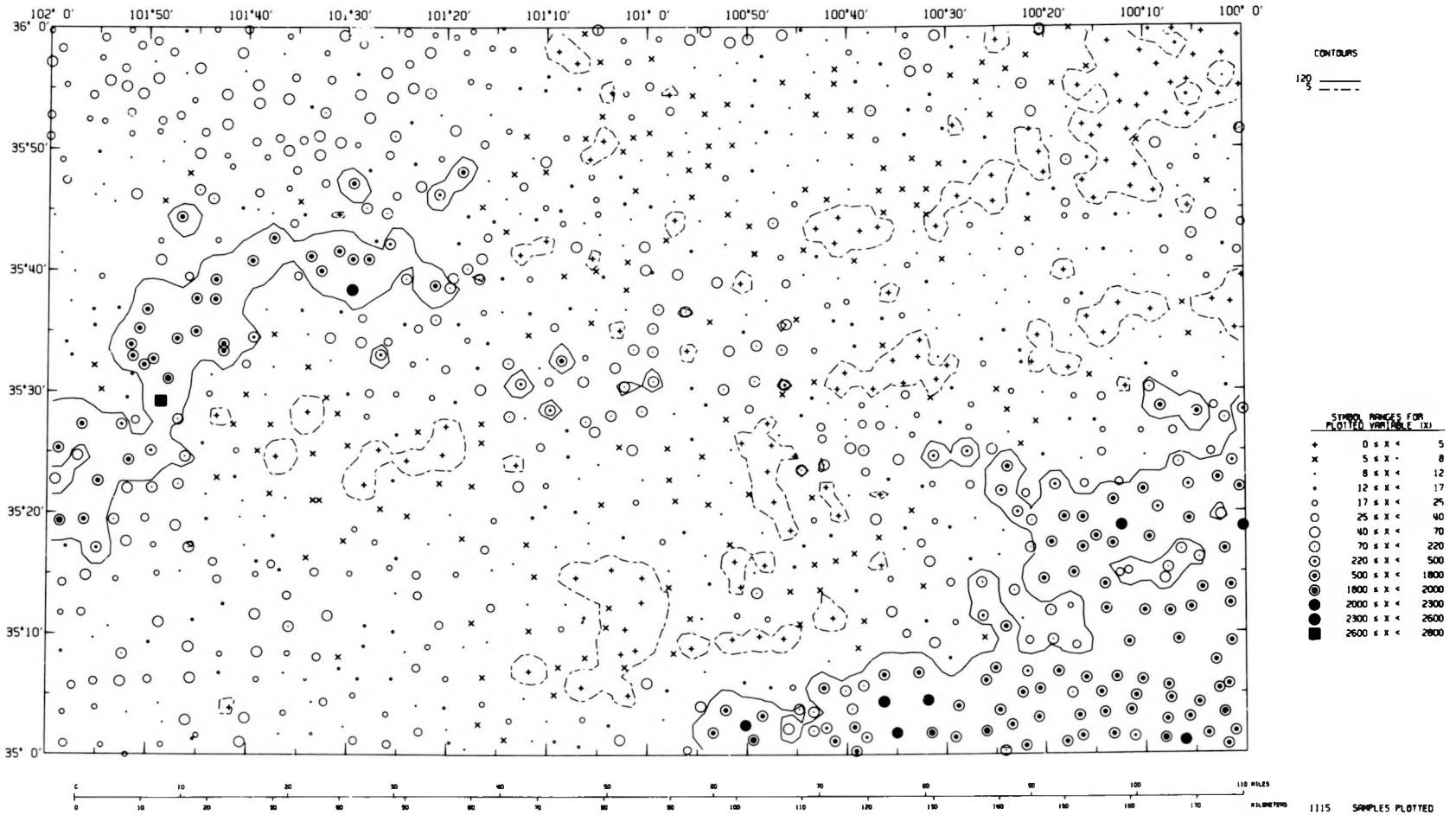


Figure A-15b

GEOCHEMICAL DISTRIBUTION OF SULFATE (PPM) IN GROUNDWATER OF THE AMARILLO QUADRANGLE

Table A-3

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18201	48-35.351	-101.547	-3-03-	6.5	540	1.8	150	38.	<10	26.	13	6
18202	48-35.351	-101.557	-3-03-	7.3	630	2.0	150	34.	<10	30.	15	7
18203	48-35.272	-101.568	-3-03-	7.6	580	0.6	140	29.	11	15.	19	5
18204	48-35.295	-101.506	-3-03-	7.2	570	3.8	150	35.	<10	19.	13	6
18205	48-35.263	-101.626	-3-03-	16.	710	0.7	670	18.	23	81.	23	36
18206	48-35.302	-101.623	-3-03-	5.4	600	0.9	78	57.	<10	15.	4	12
18207	48-35.354	-101.603	-3-03-	4.9	620	2.8	96	38.	13	21.	13	8
18208	48-35.415	-101.557	-3-03-	3.1	550	0.9	86	40.	<10	10.	7	6
18209	48-35.426	-101.499	-3-03-	5.2	600	0.7	140	36.	<10	26.	6	6
18210	48-35.470	-101.516	-3-03-	3.5	640	0.9	52	43.	<10	7.8	4	6
18211	48-35.492	-101.535	-3-03-	2.5	630	0.9	41	43.	<10	13.	6	5
18212	48-35.472	-101.566	-3-03-	2.9	620	1.1	60	39.	<10	8.2	7	<5
18214	48-35.411	-101.619	-3-03-	3.3	520	1.0	59	34.	<10	9.6	7	<5
18215	48-35.267	-101.651	-3-03-	6.4	690	0.8	140	44.	14	26.	7	12
18216	48-35.289	-101.671	-3-03-	7.6	670	2.2	230	23.	<10	41.	24	10
18217	48-35.266	-101.723	-3-03-	16.	770	1.5	510	13.	13	110.	30	39
18218	48-35.329	-101.638	-3-03-	2.8	680	<0.5	46	54.	<10	5.1	<4	8
18219	48-35.360	-101.629	-3-03-	3.3	750	1.3	120	61.	50	11.	6	6
18220	48-35.455	-101.628	-3-03-	2.4	640	2.2	95	43.	23	9.6	4	7
18221	48-35.496	-101.637	-3-03-	3.2	640	0.8	55	47.	13	14.	<4	10
18222	48-35.350	-101.674	-3-03-	5.2	600	1.0	65	40.	10	17.	5	8
18223	48-35.419	-101.650	-3-03-	2.8	660	0.9	43	49.	27	15.	4	6
18226	48-35.382	-101.717	-3-03-	3.8	520	1.3	50	43.	11	15.	8	6
18230	48-35.455	-101.690	-3-03-	3.0	650	1.3	23	45.	<10	12.	5	5
18233	48-35.467	-101.718	-3-03-	1.3	670	1.3	20	44.	<10	4.6	6	<5
18234	48-35.496	-101.669	-3-03-	1.7	580	1.1	26	45.	<10	12.	5	6
18235	48-35.359	-101.735	-3-03-	4.3	610	1.9	67	35.	<10	22.	5	8
18236	48-35.325	-101.734	-3-03-	4.8	630	1.8	64	39.	<10	13.	10	16
18238	48-35.613	-101.636	-3-03-	0.75	480	3.7	30	47.	<10	11.	11	10
18240	48-35.538	-101.669	-3-01-	0.78	450	13.	130	13.	24	54.	8	36
18241	48-35.579	-101.622	-3-03-	1.4	920	2.1	19	49.	<10	3.3	10	5
18242	48-35.610	-101.511	-3-03-	7.4	870	2.6	87	36.	12	14.	10	13
18245	48-35.750	-101.651	-3-03-	4.2	1100	3.0	63	33.	<10	17.	20	8
18246	48-35.627	-101.721	-3-03-	40.	3200	0.7	330	370.	11	30.	<4	1300
18255	48-35.773	-101.649	-3-03-	4.6	520	2.3	73	34.	<10	14.	9	29
18257	48-35.777	-101.748	-3-03-	4.6	810	0.7	460	29.	10	92.	<4	110
18259	48-35.743	-101.572	-3-03-	2.1	460	1.4	31	42.	<10	11.	7	12
18262	48-35.964	-101.609	-3-03-	5.0	570	2.3	71	49.	<10	7.3	14	10
18263	48-35.583	-101.753	-3-03-	17.	2900	<0.5	350	210.	21	82.	<4	700
18265	48-35.745	-101.626	-3-03-	4.2	500	4.0	52	38.	11	27.	17	9
18267	48-35.711	-101.623	-3-03-	12.	3200	2.5	200	400.	17	35.	9	1200
18268	48-35.574	-101.529	-3-03-	13.	740	1.0	150	56.	31	35.	6	49
18269	48-35.659	-101.583	-3-03-	2.4	840	1.0	130	64.	80	34.	5	30
18270	48-35.666	-101.544	-3-03-	13.	2400	1.3	390	320.	86	58.	<4	930
18274	48-35.654	-101.720	-3-03-	21.	2800	1.0	330	360.	29	40.	<4	1300
18275	48-35.566	-101.707	-3-03-	16.	2600	0.6	420	290.	45	140.	<4	1200
18276	48-35.556	-101.707	-3-03-	15.	2300	1.2	410	250.	24	140.	6	1000
18277	48-35.575	-101.657	-3-03-	16.	1900	1.0	280	260.	16	40.	<4	280
18278	48-35.921	-101.652	-3-03-	8.3	530	1.1	140	46.	<10	20.	5	51
18280	48-35.845	-101.575	-3-03-	7.1	690	1.5	190	44.	29	36.	7	39
18284	48-35.965	-101.537	-3-03-	7.5	540	2.7	120	36.	<10	23.	15	21
18285	48-35.928	-101.529	-3-03-	6.8	520	3.2	130	43.	<10	24.	16	35
18286	48-35.822	-101.636	-3-03-	6.6	560	1.9	170	38.	29	32.	9	23
18288	48-35.827	-101.748	-3-03-	5.2	570	0.7	210	26.	<10	36.	<4	41
18290	48-35.824	-101.703	-3-03-	6.3	510	3.2	110	36.	<10	20.	17	19

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18296	48-35.896	-101.650	-3-03-	3.9	650	1.9	170	27.	<10	24.	<4	53
18297	48-35.825	-101.548	-3-03-	6.8	580	1.5	170	41.	<10	27.	6	43
18298	48-35.786	-101.538	-3-03-	5.8	550	1.8	130	32.	<10	23.	10	28
18300	48-35.982	-101.040	-3-03-	5.7	620	0.9	63	60.	17	16.	11	17
18301	48-35.953	-101.032	-3-03-	4.4	590	0.7	53	49.	<10	16.	4	18
18302	48-35.783	-101.126	-3-03-	3.5	590	1.4	37	63.	10	15.	6	12
18304	48-35.802	-101.169	-3-03-	1.3	460	2.9	27	46.	50	14.	8	7
18308	48-35.324	-101.938	-3-03-	17.	9500	0.9	2500	170.	1000	650.	10	1500
18310	48-35.324	-101.888	-3-03-	17.	700	3.1	380	23.	34	82.	18	82
18312	48-35.322	-101.978	-3-03-	43.	8700	1.0	2400	110.	660	650.	7	1900
18315	48-35.294	-101.867	-3-03-	6.9	440	2.7	120	33.	18	24.	20	46
18317	48-35.419	-101.827	-3-03-	30.	1100	<0.5	380	81.	31	48.	5	290
18320	48-35.373	-101.781	-3-03-	16.	670	<0.5	300	13.	27	74.	11	82
18323	48-35.316	-101.785	-3-03-	8.1	840	<0.5	240	29.	34	52.	16	58
18328	48-35.523	-101.727	-3-01-	1.5	1000	0.8	49	41.	13	16.	<4	11
18334	48-35.543	-101.528	-3-03-	8.1	830	1.6	48	35.	<10	9.8	7	9
18335	48-35.534	-101.565	-3-03-	2.7	840	1.6	35	45.	<10	4.9	6	7
18336	48-35.579	-101.566	-3-03-	1.9	700	0.6	44	35.	11	14.	14	9
18337	48-35.612	-101.576	-3-03-	2.0	1100	1.0	58	47.	37	12.	9	14
18340	48-35.743	-101.514	-3-03-	1.9	1100	1.9	29	70.	120	19.	6	<5
18341	48-35.680	-101.659	-3-03-	22.	2900	1.4	300	280.	50	41.	4	1200
18343	48-35.708	-101.717	-3-03-	1.5	910	2.4	32	42.	<10	4.3	10	24
18349	48-35.613	-101.924	-3-03-	5.5	800	3.8	60	31.	<10	9.5	11	12
18350	48-35.591	-101.922	-3-03-	4.5	680	3.0	60	27.	<10	7.2	14	12
18351	48-35.455	-101.942	-3-03-	11.	3900	4.1	280	490.	16	61.	26	1600
18352	48-35.613	-101.834	-3-03-	37.	3200	0.9	620	250.	<10	120.	5	1400
18353	48-35.681	-101.812	-3-03-	5.1	820	3.6	93	33.	17	27.	15	58
18355	48-35.707	-101.813	-3-03-	2.0	630	2.1	94	26.	12	44.	8	20
18357	48-35.740	-101.777	-3-03-	28.	1500	1.5	390	99.	43	130.	8	560
18378	48-35.966	-101.363	-3-03-	8.1	760	2.0	120	38.	10	18.	10	60
18379	48-35.993	-101.400	-3-23-	2.8	660	0.7	91	27.	<10	17.	4	29
18380	48-35.977	-101.475	-3-03-	6.4	630	1.4	110	36.	<10	15.	10	25
18385	48-35.473	-101.008	-3-03-	6.8	1200	1.7	150	45.	94	100.	9	70
18386	48-35.420	-101.024	-3-03-	7.3	1600	0.8	130	61.	250	120.	<4	44
18387	48-35.320	-101.097	-3-03-	7.4	830	1.8	140	30.	<10	37.	10	16
18388	48-35.292	-101.097	-3-03-	6.7	740	1.5	130	41.	<10	19.	<4	8
18389	48-35.300	-101.039	-3-03-	9.6	720	15.	200	14.	<10	82.	42	15
18390	48-35.466	-101.229	-3-03-	11.	1000	12.	170	15.	77	140.	36	110
18398	48-35.615	-101.128	-3-03-	3.9	680	2.4	50	54.	28	15.	6	16
18400	48-35.613	-101.085	-3-03-	4.1	540	2.0	57	39.	10	9.0	7	11
18402	48-35.247	-101.934	-3-03-	17.	1100	1.9	720	9.4	28	150.	24	46
18403	48-35.196	-101.941	-3-03-	12.	1100	1.3	150	68.	56	25.	5	28
18404	48-35.195	-101.975	-3-03-	8.2	780	2.7	140	52.	<10	24.	6	19
18405	48-35.237	-101.973	-3-03-	6.0	900	1.2	81	58.	16	24.	<4	27
18406	48-35.242	-101.884	-3-03-	4.6	750	2.4	95	32.	<10	15.	15	19
18407	48-35.253	-101.777	-3-03-	5.4	720	1.6	180	31.	13	20.	11	10
18408	48-35.183	-101.813	-3-03-	8.6	850	2.2	190	36.	<10	33.	12	42
18409	48-35.149	-101.763	-3-03-	6.8	860	4.8	210	40.	12	31.	10	54
18410	48-35.106	-101.760	-3-03-	11.	1300	2.3	190	71.	120	19.	10	64
18411	48-35.186	-101.756	-3-03-	6.8	810	5.2	180	36.	<10	30.	23	16
18412	48-35.155	-101.829	-3-03-	7.2	820	1.6	140	34.	<10	25.	9	16
18413	48-35.104	-101.830	-3-03-	6.8	920	5.2	210	37.	13	12.	12	28
18414	48-35.071	-101.812	-3-03-	6.4	710	5.0	120	32.	<10	10.	30	10
18416	48-35.058	-101.864	-3-03-	6.6	770	3.7	88	34.	<10	8.5	22	8
18418	48-35.013	-101.907	-3-03-	6.3	790	3.6	200	33.	<10	34.	26	22

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18420	48-35.015	-101.969	-3-03-	17.	1100	1.7	240	43.	16	50.	13	36
18421	48-35.048	-101.767	-3-03-	14.	940	1.7	230	56.	33	35.	20	40
18423	48-35.045	-101.805	-3-03-	6.0	730	3.9	110	32.	<10	14.	22	10
18424	48-35.022	-101.755	-3-03-	10.	750	1.3	210	25.	<10	53.	6	16
18425	48-35.014	-101.808	-3-03-	9.3	870	2.8	190	43.	56	29.	17	22
18426	48-35.000	-101.866	-3-03-	8.5	760	5.8	170	27.	22	31.	28	19
18427	48-35.065	-101.917	-3-03-	8.5	760	3.0	180	39.	10	22.	15	22
18428	48-35.058	-101.971	-3-03-	9.0	810	5.6	200	31.	10	42.	22	22
18429	48-35.101	-101.920	-3-03-	6.1	780	2.6	160	37.	11	19.	14	25
18430	48-35.095	-101.956	-3-03-	4.3	920	2.2	170	39.	<10	26.	10	25
18431	48-35.142	-101.974	-3-03-	6.7	660	2.0	120	42.	<10	8.8	9	13
18432	48-35.161	-101.921	-3-03-	7.5	830	3.5	130	48.	<10	14.	11	10
18433	48-35.139	-101.873	-3-03-	11.	990	2.5	180	52.	23	17.	9	71
18434	48-35.250	-101.816	-3-03-	5.4	690	1.3	130	56.	13	18.	6	21
18436	48-35.534	-101.623	-3-03-	1.9	700	1.3	35	50.	<10	14.	<4	8
18437	48-35.047	-101.166	-3-03-	2.5	550	1.9	32	45.	<10	12.	9	9
18440	48-35.083	-101.154	-3-03-	0.47	660	1.6	35	70.	10	6.9	8	6
18441	48-35.049	-101.107	-3-03-	1.5	630	1.0	33	65.	11	23.	6	17
18442	48-35.012	-101.113	-3-03-	3.5	680	1.8	67	48.	<10	11.	14	14
18444	48-35.019	-101.153	-3-03-	4.0	730	1.2	61	46.	<10	9.2	10	14
18445	48-35.020	-101.190	-3-03-	4.3	750	1.0	36	50.	<10	6.4	5	10
18446	48-35.041	-101.064	-3-03-	1.6	820	0.7	49	80.	33	15.	9	14
18447	48-35.021	-101.045	-3-03-	3.5	660	1.5	97	46.	12	16.	11	42
18448	48-35.047	-101.229	-3-03-	7.5	680	3.1	160	46.	15	19.	9	19
18449	48-35.115	-101.196	-3-03-	3.9	530	1.8	45	35.	<10	13.	6	<5
18452	48-35.101	-101.876	-3-03-	8.8	850	2.2	160	35.	10	24.	22	52
18453	48-35.078	-101.204	-3-03-	4.7	1000	1.9	98	48.	15	14.	13	8
18454	48-35.171	-101.196	-3-03-	4.7	350	1.5	54	49.	<10	13.	12	7
18457	48-35.173	-101.036	-3-03-	5.0	300	1.5	90	41.	<10	13.	8	<5
18458	48-35.176	-101.068	-3-03-	5.8	300	1.4	95	42.	<10	13.	6	5
18459	48-35.177	-101.896	-3-03-	7.2	400	2.2	150	44.	<10	17.	14	10
18462	48-35.121	-101.147	-3-03-	7.0	720	1.4	51	56.	30	13.	8	6
18464	48-35.208	-101.198	-3-03-	5.3	320	2.8	150	45.	13	18.	11	8
18465	48-35.246	-101.187	-3-03-	6.3	330	1.4	140	37.	<10	15.	7	7
18466	48-35.208	-101.135	-3-03-	8.3	330	1.8	180	34.	10	41.	8	10
18467	48-35.244	-101.118	-3-03-	6.0	930	1.4	90	42.	<10	8.7	5	<5
18469	48-35.203	-101.063	-3-03-	6.1	1000	1.6	130	42.	<10	20.	7	5
18470	48-35.244	-101.008	-3-03-	5.7	940	2.5	91	43.	<10	11.	10	<5
18471	48-35.210	-101.009	-3-03-	5.7	920	1.4	110	42.	<10	12.	6	<5
18476	48-35.093	-101.109	-3-03-	4.0	280	2.5	70	45.	14	13.	10	<5
18478	48-35.139	-101.043	-3-03-	3.0	360	1.0	34	42.	<10	5.6	4	<5
18479	48-35.144	-101.019	-3-03-	4.4	370	0.9	57	40.	<10	7.2	6	<5
18481	48-35.082	-101.031	-3-03-	3.0	790	3.0	44	45.	<10	14.	9	<5
18482	48-35.099	-101.000	-3-03-	3.9	890	2.1	39	47.	29	14.	12	50
18484	48-35.220	-101.600	-3-03-	1.2	440	<0.5	140	67.	10	26.	<4	28
18485	48-35.174	-101.142	-3-03-	7.1	910	2.0	150	44.	10	22.	13	17
18486	48-35.255	-101.257	-3-03-	7.7	900	2.0	140	41.	<10	21.	15	9
18487	48-35.134	-101.103	-3-03-	3.9	290	3.0	66	43.	10	15.	9	6
18488	48-35.121	-101.037	-3-03-	3.1	720	2.3	36	44.	<10	11.	8	5
18489	48-35.271	-101.417	-3-03-	5.2	390	2.9	180	39.	13	24.	13	16
18490	48-35.293	-101.453	-3-03-	4.9	1000	2.8	160	39.	10	16.	11	17
18491	48-35.339	-101.444	-3-03-	5.1	940	1.6	110	44.	<10	12.	6	7
18492	48-35.372	-101.471	-3-03-	6.4	960	1.0	84	37.	<10	11.	4	<5
18493	48-35.420	-101.447	-3-03-	5.0	920	0.5	110	44.	<10	16.	5	<5
18494	48-35.405	-101.400	-3-03-	4.8	890	1.2	82	43.	<10	6.9	<4	<5

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. E. SAMPLE ST LAT	LONG	NUMBER L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18495	48-35.413	-101.340	-3-03-	6.9	960	1.4	120	39.	<10	18.	7	<5
18496	48-35.374	-101.345	-3-03-	7.3	950	1.7	110	42.	<10	12.	8	7
18497	48-35.021	-101.237	-3-03-	5.9	380	2.8	110	42.	10	13.	10	5
18498	48-35.291	-101.363	-3-03-	7.0	370	1.1	160	44.	11	16.	8	10
18499	48-35.331	-101.327	-3-03-	7.6	940	1.7	160	33.	<10	39.	8	8
18500	48-35.323	-101.254	-3-03-	8.9	960	1.2	220	21.	11	100.	<4	19
18501	48-35.370	-101.291	-3-03-	6.3	1000	1.9	150	40.	<10	16.	6	6
18502	48-35.378	-101.423	-3-03-	7.7	1300	1.8	160	33.	11	49.	9	13
18503	48-35.329	-101.399	-3-03-	6.5	860	1.2	160	42.	<10	15.	16	7
18504	48-35.456	-101.275	-3-03-	4.5	860	1.2	67	48.	<10	10.	7	5
18505	48-35.430	-101.275	-3-03-	5.6	840	1.8	68	40.	11	18.	6	5
18506	48-35.445	-101.381	-3-03-	6.3	860	1.1	120	40.	13	29.	6	7
18507	48-35.538	-101.390	-3-03-	9.2	950	1.7	61	51.	20	23.	9	23
18510	48-35.497	-101.418	-3-03-	5.8	980	1.3	93	43.	35	36.	6	23
18513	48-35.298	-101.307	-3-03-	6.7	950	1.6	150	49.	<10	16.	10	6
18520	48-35.503	-101.277	-3-03-	9.0	980	2.5	160	35.	84	87.	10	55
18521	48-35.486	-101.319	-3-03-	6.8	780	2.1	89	36.	19	24.	7	12
18522	48-35.452	-101.334	-3-03-	5.3	770	1.2	50	39.	11	14.	4	<5
18523	48-35.283	-101.269	-3-03-	5.4	900	1.3	160	39.	14	42.	14	27
18527	48-35.466	-101.467	-3-03-	3.9	710	0.7	87	40.	27	18.	4	17
18528	48-35.441	-101.417	-3-03-	4.3	740	0.7	93	38.	28	21.	8	15
18529	48-35.328	-101.678	-3-03-	4.4	630	2.3	120	30.	11	21.	12	11
18530	48-35.383	-101.687	-3-03-	1.5	800	<0.5	48	63.	34	24.	<4	14
18532	48-35.531	-101.335	-3-03-	4.8	850	1.9	68	49.	30	22.	8	28
18534	48-35.533	-101.282	-3-03-	3.2	810	0.9	54	52.	18	15.	<4	13
18536	48-35.567	-101.265	-3-03-	1.9	840	1.8	40	45.	<10	15.	5	13
18538	48-35.571	-101.299	-3-03-	1.6	1600	2.7	51	61.	17	14.	11	17
18540	48-35.311	-101.487	-3-03-	7.4	810	1.7	190	35.	16	27.	12	21
18541	48-35.551	-101.444	-3-03-	12.	1800	2.5	410	250.	58	310.	9	270
18542	48-35.568	-101.477	-3-03-	6.3	950	1.9	130	52.	54	27.	9	62
18543	48-35.601	-101.475	-3-03-	8.1	830	4.2	79	43.	50	14.	16	26
18544	48-35.569	-101.432	-3-03-	4.5	1000	1.4	88	50.	54	32.	<4	35
18546	48-35.593	-101.404	-3-03-	6.5	970	2.6	68	44.	29	12.	11	16
18548	48-35.599	-101.352	-3-03-	12.	930	3.4	110	53.	25	28.	12	94
18550	48-35.643	-101.328	-3-03-	3.6	1400	1.3	110	88.	93	42.	<4	190
18552	48-35.609	-101.272	-3-03-	1.3	970	1.9	41	61.	22	14.	9	20
18554	48-35.655	-101.279	-3-03-	12.	2900	1.2	350	130.	280	76.	<4	140
18555	48-35.693	-101.514	-3-03-	27.	4600	1.7	470	750.	2900	450.	7	1500
18556	48-35.498	-101.463	-3-03-	4.7	790	1.4	98	45.	37	22.	10	34
18557	48-35.587	-101.381	-3-03-	14.	740	7.4	200	32.	33	36.	22	30
18560	48-35.703	-101.429	-3-03-	15.	2600	1.2	420	100.	1300	590.	<4	410
18564	48-35.682	-101.491	-3-03-	14.	2200	0.7	450	250.	150	120.	<4	940
18565	48-35.640	-101.492	-3-03-	24.	2600	2.0	390	450.	110	130.	5	2300
18568	48-35.646	-101.353	-3-03-	9.3	2100	0.9	190	310.	830	210.	<4	960
18570	48-35.656	-101.323	-3-03-	1.4	1100	<0.5	54	110.	160	32.	<4	42
18571	48-35.683	-101.275	-3-03-	2.2	2400	<0.5	170	260.	1600	490.	<4	58
18572	48-35.656	-101.241	-3-03-	<0.20	1900	0.7	99	170.	710	190.	<4	13
18574	48-35.712	-101.265	-3-03-	3.2	1900	0.5	120	140.	660	180.	<4	25
18578	48-35.704	-101.314	-3-03-	4.1	650	1.7	74	35.	16	14.	7	13
18585	48-35.610	-101.241	-3-03-	2.5	790	1.3	46	47.	42	15.	7	11
18586	48-35.578	-101.197	-3-03-	0.98	970	1.3	39	87.	130	7.1	5	7
18593	48-35.242	-101.716	-3-03-	13.	810	2.2	180	40.	39	21.	15	36
18594	48-35.208	-101.706	-3-23-	4.6	580	3.1	150	40.	19	18.	13	13
18595	48-35.194	-101.653	-3-03-	8.7	670	3.7	210	47.	22	28.	14	44
18596	48-35.142	-101.649	-3-03-	7.4	610	4.2	200	36.	14	28.	18	47

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST	LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18597	48-35.139	-101.711	-3-03-		7.2	680	3.9	190	41.	22	23.	17	24
18599	48-35.113	-101.712	-3-03-		8.3	670	5.1	170	35.	23	24.	31	16
18600	48-35.104	-101.650	-3-03-		<0.20	710	17.	400	29.	<10	30.	23	17
18601	48-35.113	-101.605	-3-03-		9.5	570	3.3	160	32.	10	15.	17	9
18602	48-35.140	-101.599	-3-03-		5.0	520	3.6	180	27.	19	20.	26	19
18603	48-35.177	-101.597	-3-03-		8.4	800	3.9	430	52.	51	37.	35	85
18604	48-35.252	-101.554	-3-03-		9.4	590	2.1	190	39.	24	19.	13	30
18605	48-35.192	-101.532	-3-03-		9.2	580	5.2	340	38.	16	31.	20	53
18606	48-35.135	-101.550	-3-03-		18.	830	1.6	470	30.	38	68.	12	33
18607	48-35.119	-101.512	-3-03-		11.	690	3.9	250	39.	20	20.	17	16
18608	48-35.135	-101.513	-3-03-		12.	530	2.8	160	40.	<10	8.4	14	7
18610	48-35.073	-101.538	-3-03-		10.	670	4.5	310	24.	25	71.	27	36
18611	48-35.104	-101.568	-3-03-		12.	710	2.5	190	45.	<10	34.	17	13
18612	48-35.058	-101.605	-3-03-		8.6	550	3.7	230	30.	15	36.	36	21
18613	48-35.073	-101.558	-3-03-		7.7	640	3.2	200	33.	33	20.	25	9
18614	48-35.029	-101.558	-3-03-		8.8	630	4.8	200	29.	12	21.	32	15
18615	48-35.039	-101.505	-3-03-		6.5	630	4.4	190	38.	54	25.	26	8
18616	48-35.029	-101.612	-3-03-		9.7	650	2.4	130	35.	<10	19.	16	10
18618	48-35.065	-101.694	-3-03-		7.7	630	0.8	150	31.	10	29.	5	<5
18619	48-35.051	-101.669	-3-03-		7.8	580	6.1	260	24.	14	63.	36	47
18620	48-35.018	-101.677	-3-03-		7.9	630	1.2	210	23.	13	91.	8	57
18621	48-35.249	-101.652	-3-03-		8.4	670	2.6	210	35.	12	38.	13	18
18622	48-35.255	-101.612	-3-03-		7.1	620	4.6	200	36.	14	25.	17	14
18623	48-35.027	-101.749	-3-03-		11.	550	1.1	220	23.	<10	66.	6	18
18624	48-35.220	-101.381	-3-03-		9.8	990	3.4	300	34.	29	55.	16	30
18625	48-35.223	-101.418	-3-03-		8.0	890	2.4	210	33.	11	27.	21	10
18626	48-35.203	-101.259	-3-03-		6.1	850	2.4	220	45.	19	25.	12	29
18627	48-35.149	-101.364	-3-03-		9.8	770	3.3	260	31.	22	33.	28	24
18629	48-35.170	-101.422	-3-03-		5.8	680	5.4	230	23.	11	22.	25	13
18630	48-35.178	-101.469	-3-03-		5.3	680	5.1	200	33.	20	24.	21	13
18631	48-35.250	-101.495	-3-03-		5.4	570	2.4	200	40.	28	24.	11	16
18632	48-35.258	-101.428	-3-03-		7.9	630	2.1	220	43.	19	30.	11	21
18633	48-35.248	-101.383	-3-03-		6.8	710	3.6	220	36.	19	25.	16	29
18634	48-35.249	-101.317	-3-03-		9.6	660	2.5	250	39.	12	37.	16	21
18635	48-35.182	-101.291	-3-03-		4.4	560	2.8	98	44.	<10	11.	8	7
18636	48-35.179	-101.345	-3-03-		4.5	580	3.0	240	34.	15	31.	12	27
18637	48-35.156	-101.265	-3-03-		3.9	660	1.1	69	42.	34	18.	5	10
18638	48-35.149	-101.304	-3-03-		4.4	700	2.4	190	38.	21	21.	11	10
18639	48-35.105	-101.425	-3-03-		9.5	810	5.4	210	46.	58	23.	22	16
18641	48-35.105	-101.334	-3-03-		7.4	1100	0.8	240	34.	18	33.	21	21
18642	48-35.042	-101.280	-3-03-		6.4	1000	7.0	77	55.	12	5.6	17	5
18644	48-35.070	-101.273	-3-03-		10.	840	3.6	210	41.	21	22.	18	22
18645	48-35.120	-101.383	-3-03-		14.	910	2.8	240	40.	16	26.	16	25
18646	48-35.150	-101.471	-3-03-		8.1	760	2.9	240	33.	<10	24.	14	13
18647	48-35.105	-101.481	-3-03-		9.0	900	2.7	160	46.	24	24.	6	13
18648	48-35.032	-101.379	-3-03-		6.5	900	1.5	130	65.	37	30.	<4	25
18650	48-35.065	-101.336	-3-03-		10.	590	3.4	160	43.	11	20.	20	13
18652	48-35.015	-101.432	-3-03-		15.	820	4.5	420	28.	21	95.	29	34
18653	48-35.020	-101.488	-3-03-		5.6	610	5.4	300	33.	26	36.	32	28
18654	48-35.056	-101.434	-3-03-		7.7	620	3.6	220	35.	32	38.	27	18
18655	48-35.082	-101.489	-3-03-		7.3	580	2.4	290	42.	15	34.	14	19
18656	48-35.068	-101.383	-3-03-		7.2	560	1.7	97	63.	15	14.	10	8
18657	48-35.008	-101.302	-3-03-		5.1	570	3.6	110	46.	23	24.	18	8
18659	48-35.017	-101.328	-3-03-		6.3	600	3.1	160	48.	38	33.	14	16
18660	48-35.035	-101.332	-3-03-		3.9	530	1.3	150	42.	15	29.	6	8

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18661	48-35.107	-101.273	-3-03-	6.5	510	2.4	120	35.	10	22.	13	5
18662	48-35.142	-101.402	-3-03-	7.1	540	2.7	170	30.	11	25.	19	8
18663	48-35.377	-101.915	-3-03-	30.	4200	1.1	1900	79.	420	530.	19	720
18671	48-35.412	-101.949	-3-03-	27.	1000	2.1	730	24.	32	120.	56	63
18672	48-35.422	-101.981	-3-03-	18.	2200	1.1	310	210.	48	120.	7	570
18673	48-35.326	-101.836	-3-03-	7.9	990	1.1	120	83.	50	43.	5	34
18674	48-35.368	-101.825	-3-03-	72.	1000	2.1	1100	18.	50	160.	38	110
18675	48-35.367	-101.866	-3-03-	17.	780	1.8	390	30.	28	92.	19	56
18678	48-35.462	-101.782	-3-03-	31.	2000	17.	1600	3.8	110	290.	<4	120
18681	48-35.411	-101.770	-3-03-	17.	1400	<0.5	720	49.	35	95.	<4	200
18682	48-35.455	-101.876	-3-03-	16.	1700	0.6	350	110.	54	84.	<4	290
18683	48-35.461	-101.853	-3-03-	1.3	960	1.1	190	45.	33	65.	6	27
18684	48-35.492	-101.867	-3-03-	1.3	560	1.1	28	29.	<10	22.	<4	16
18685	48-35.487	-101.811	-3-03-	11.	8000	1.1	1200	340.	270	630.	<4	2700
18687	48-35.285	-101.917	-3-03-	8.9	2300	4.2	1700	28.	190	250.	46	450
18688	48-35.286	-101.763	-3-03-	16.	2900	1.6	270	110.	490	81.	17	140
18689	48-35.289	-101.822	-3-03-	5.2	990	1.8	110	41.	23	23.	15	21
18691	48-35.287	-101.968	-3-03-	5.2	1000	2.9	200	23.	23	90.	22	16
18692	48-35.503	-101.910	-3-03-	1.2	740	1.8	26	41.	<10	11.	8	6
18693	48-35.536	-101.922	-3-03-	1.4	900	2.7	20	57.	14	9.0	11	6
18697	48-35.587	-101.847	-3-03-	23.	4300	<0.5	930	470.	42	190.	<4	1300
18698	48-35.615	-101.882	-3-03-	7.8	900	1.1	78	59.	11	13.	14	13
18699	48-35.565	-101.861	-3-03-	45.	3700	1.3	630	500.	24	59.	5	1200
18703	48-35.550	-101.960	-3-03-	3.7	890	3.1	53	52.	14	13.	14	13
18704	48-35.524	-101.859	-3-03-	4.7	930	2.4	110	61.	30	35.	17	16
18705	48-35.537	-101.839	-3-03-	23.	3500	0.6	630	400.	32	79.	<4	1100
18706	48-35.545	-101.824	-3-03-	34.	3300	<0.5	360	500.	37	26.	4	1200
18707	48-35.549	-101.858	-3-03-	16.	2900	<0.5	500	370.	27	63.	<4	1200
18709	48-35.628	-101.752	-3-03-	15.	3000	<0.5	190	520.	24	24.	<4	1200
18711	48-35.573	-101.784	-3-03-	28.	2700	<0.5	910	420.	27	210.	<4	1500
18712	48-35.790	-101.971	-3-03-	6.8	500	1.5	170	34.	11	37.	6	25
18718	48-35.829	-101.917	-3-03-	7.1	500	1.9	100	32.	<10	16.	14	16
18722	48-35.784	-101.910	-3-03-	3.8	500	1.5	50	37.	<10	8.4	7	8
18726	48-35.762	-101.806	-3-03-	1.9	500	2.4	43	47.	<10	21.	12	7
18727	48-35.771	-101.854	-3-03-	9.3	690	3.2	400	7.9	12	120.	10	42
18731	48-35.816	-101.810	-3-03-	6.0	500	3.1	18	56.	<10	7.6	11	8
18735	48-35.800	-101.764	-3-03-	2.2	480	3.9	42	32.	<10	9.5	14	5
18736	48-35.854	-101.863	-3-03-	7.4	600	0.6	130	31.	<10	21.	<4	23
18737	48-35.857	-101.816	-3-03-	6.4	600	2.3	140	31.	<10	20.	15	23
18738	48-35.843	-101.775	-3-03-	5.1	500	1.7	73	34.	<10	11.	8	10
18739	48-35.879	-101.781	-3-03-	6.3	500	1.4	130	33.	<10	19.	9	29
18740	48-35.872	-101.812	-3-03-	12.	500	1.5	120	36.	<10	18.	14	24
18741	48-35.909	-101.844	-3-03-	7.6	500	1.3	140	37.	<10	19.	8	42
18742	48-35.850	-101.999	-3-03-	7.1	600	<0.5	230	33.	<10	57.	<4	31
18743	48-35.879	-101.998	-3-03-	8.8	500	1.1	140	37.	<10	29.	4	28
18744	48-35.921	-101.972	-3-03-	8.6	600	1.5	100	35.	<10	18.	12	21
18745	48-35.927	-101.900	-3-03-	9.5	500	0.8	130	40.	<10	24.	6	51
18746	48-35.986	-101.908	-3-03-	8.9	500	<0.5	130	38.	<10	22.	6	27
18748	48-35.971	-101.980	-3-03-	7.4	500	0.8	130	38.	<10	23.	6	31
18749	48-35.952	-101.998	-3-03-	7.8	500	<0.5	130	37.	<10	28.	8	51
18750	48-35.818	-101.978	-3-03-	8.0	500	1.3	140	38.	<10	28.	10	24
18751	48-35.874	-101.934	-3-03-	8.0	500	1.2	110	35.	<10	24.	13	23
18752	48-35.958	-101.913	-3-03-	7.0	600	3.7	100	36.	<10	17.	20	22
18753	48-35.995	-101.998	-3-03-	6.6	500	<0.5	96	34.	<10	16.	5	17
18754	48-35.996	-101.864	-3-03-	7.6	650	0.5	140	35.	<10	21.	6	24

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18755	48-35.981	-101.820	-3-03-	5.9	650	0.7	140	32.	<10	23.	8	25
18756	48-35.966	-101.793	-3-03-	8.1	700	1.2	140	39.	<10	21.	8	35
18758	48-35.871	-101.909	-3-03-	6.6	500	<0.5	140	41.	<10	30.	<4	24
18759	48-35.883	-101.864	-3-03-	8.6	500	<0.5	180	40.	11	34.	6	38
18760	48-35.919	-101.872	-3-03-	7.8	520	6.3	150	42.	<10	29.	6	62
18761	48-35.975	-101.847	-3-03-	6.3	500	1.3	140	35.	<10	21.	<4	32
18762	48-35.953	-101.825	-3-03-	5.8	500	1.1	63	34.	<10	12.	9	11
18763	48-35.900	-101.758	-3-03-	<0.20	720	<0.5	130	46.	98	10.	<4	17
18765	48-35.995	-101.773	-3-03-	7.6	500	0.9	120	36.	<10	20.	10	15
18766	48-35.770	-101.923	-3-03-	5.7	500	0.9	130	43.	<10	27.	7	6
18767	48-35.761	-101.890	-3-03-	4.5	500	2.0	110	32.	12	28.	12	10
18768	48-35.821	-101.864	-3-03-	6.7	500	2.6	100	32.	<10	19.	17	9
18769	48-35.907	-101.927	-3-03-	7.3	500	<0.5	160	37.	<10	27.	9	34
18770	48-35.944	-101.874	-3-03-	8.0	500	0.8	130	40.	11	20.	8	34
18771	48-35.937	-101.772	-3-03-	4.7	500	2.3	76	46.	17	10.	14	10
18772	48-35.379	-101.986	-3-03-	9.0	700	1.7	310	37.	25	70.	13	43
18773	48-35.999	-101.240	-3-03-	4.6	500	2.5	110	45.	<10	7.4	11	16
18774	48-35.878	-101.075	-3-03-	2.4	500	0.8	32	56.	<10	8.6	10	6
18778	48-35.844	-101.073	-3-03-	1.3	430	1.5	28	47.	<10	5.6	7	<5
18781	48-35.819	-101.095	-3-03-	1.5	500	<0.5	36	55.	12	14.	<4	<5
18782	48-35.849	-101.023	-3-03-	2.3	500	0.5	46	47.	<10	11.	<4	7
18785	48-35.916	-101.114	-3-01-	1.9	500	0.7	72	35.	14	19.	<4	14
18788	48-35.953	-101.079	-3-03-	3.5	1000	2.5	56	46.	<10	6.0	16	6
18789	48-35.951	-101.117	-3-03-	1.8	500	0.7	28	50.	<10	4.8	4	<5
18790	48-35.992	-101.105	-3- -	7.1	600	1.0	110	44.	12	12.	13	6
18791	48-35.997	-101.083	-3-03-	6.3	600	1.1	110	42.	<10	11.	9	43
18792	48-35.818	-101.010	-3-03-	3.6	550	1.3	54	54.	21	13.	9	9
18793	48-35.830	-101.040	-3-03-	2.5	490	1.4	37	46.	<10	9.9	10	5
18794	48-35.877	-101.026	-3-03-	4.6	650	0.7	94	39.	71	59.	6	22
18795	48-35.909	-101.035	-3-01-	1.8	970	1.1	55	59.	28	18.	<4	18
18796	48-35.910	-101.059	-3-03-	2.5	500	<0.5	52	42.	<10	10.	<4	<5
18797	48-35.327	-101.190	-3-03-	9.6	500	1.4	140	42.	<10	17.	4	13
18798	48-35.264	-101.222	-3-03-	6.8	500	2.1	140	39.	<10	12.	9	10
18799	48-35.290	-101.200	-3-03-	5.6	500	0.7	52	42.	<10	4.1	6	5
18801	48-35.287	-101.151	-3-03-	5.6	440	2.6	98	30.	<10	7.6	9	8
18803	48-35.370	-101.214	-3-03-	9.7	660	0.7	200	22.	<10	71.	4	42
18804	48-35.891	-101.562	-3-03-	8.1	2200	<0.5	170	170.	640	34.	5	14
18805	48-35.931	-101.589	-3- -	6.7	800	<0.5	150	59.	140	24.	4	25
18807	48-35.989	-101.507	-3-03-	9.1	500	1.1	150	40.	<10	21.	6	49
18809	48-35.988	-101.599	-3-03-	6.1	500	1.2	130	36.	<10	17.	6	22
18810	48-35.997	-101.721	-3-03-	7.6	500	1.1	150	38.	<10	19.	10	21
18811	48-35.944	-101.749	-3-03-	7.9	500	<0.5	160	40.	<10	18.	<4	47
18812	48-35.908	-101.704	-3-03-	7.7	500	1.5	120	42.	10	15.	14	40
18813	48-35.867	-101.703	-3-03-	6.9	550	1.0	220	42.	<10	31.	7	60
18814	48-35.831	-101.600	-3-03-	6.5	500	1.7	170	36.	<10	27.	13	43
18815	48-35.779	-101.599	-3-03-	4.7	600	<0.5	140	40.	65	23.	<4	17
18816	48-35.761	-101.579	-3-03-	1.4	500	2.2	42	52.	28	32.	9	5
18817	48-35.843	-101.654	-3-03-	7.0	600	1.3	160	36.	<10	22.	7	25
18818	48-35.883	-101.539	-3-03-	6.3	550	1.3	170	42.	<10	20.	8	90
18819	48-35.851	-101.549	-3-03-	7.4	500	1.0	120	41.	<10	17.	10	40
18820	48-35.842	-101.513	-3-03-	5.4	900	1.0	140	61.	170	46.	11	45
18821	48-35.848	-101.615	-3-03-	8.4	500	1.4	150	34.	<10	25.	6	37
18822	48-35.902	-101.601	-3-03-	5.1	700	3.8	160	59.	110	15.	18	66
18823	48-35.752	-101.676	-3-03-	2.3	500	2.8	30	65.	16	16.	8	16
18824	48-35.765	-101.725	-3-03-	10.0	790	1.3	440	24.	22	94.	8	110

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST	LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18826	48-35.856	-101.739	-3-03-		6.1	500	2.1	160	37.	10	24.	12	38
18827	48-35.930	-101.819	-3-03-		8.1	600	1.7	120	42.	41	18.	8	40
18828	48-35.940	-101.673	-3-03-		6.2	500	1.6	31	45.	<10	1.1	19	10
18829	48-35.965	-101.678	-3-03-		6.1	520	0.6	180	40.	<10	24.	5	45
18830	48-35.997	-101.668	-3-03-		6.4	500	1.5	120	37.	13	16.	11	28
18831	48-35.742	-101.991	-3-03-		3.9	500	1.0	69	35.	<10	10.	9	10
18832	48-35.690	-101.978	-3-03-		6.9	500	2.1	120	24.	<10	34.	13	11
18833	48-35.658	-101.911	-3-03-		4.6	520	3.9	66	41.	22	15.	16	21
18834	48-35.665	-101.956	-3-03-		5.1	500	2.9	69	34.	<10	13.	10	9
18835	48-35.624	-101.962	-3-03-		5.9	800	1.4	130	54.	120	16.	4	11
18836	48-35.568	-101.969	-3-03-		3.3	500	2.4	68	52.	12	17.	6	13
18837	48-35.682	-101.464	-3-03-		12.	1400	1.1	430	170.	31	69.	<4	520
18838	48-35.707	-101.452	-3-03-		0.75	500	2.9	35	43.	12	16.	11	14
18839	48-35.745	-101.434	-3-03-		0.25	1200	1.0	70	110.	190	63.	4	120
18841	48-35.752	-101.468	-3-03-		3.7	1000	1.5	70	110.	190	65.	5	110
18842	48-35.655	-101.401	-3-03-		6.0	950	1.7	170	91.	110	60.	5	110
18843	48-35.669	-101.299	-3-03-		12.	750	3.0	180	53.	28	33.	5	140
18844	48-35.734	-101.255	-3-03-		1.1	500	1.7	36	35.	10	13.	6	12
18845	48-35.754	-101.274	-3-03-		1.2	500	1.7	23	47.	10	6.1	9	6
18846	48-35.790	-101.264	-3-01-		0.90	980	1.5	23	65.	32	6.3	4	10
18848	48-35.741	-101.298	-3-03-		0.93	510	1.4	39	45.	21	17.	5	15
18850	48-35.593	-101.314	-3-03-		1.9	500	2.9	40	42.	17	18.	9	14
18851	48-35.545	-101.366	-3-03-		2.8	500	1.4	47	50.	12	11.	6	10
18853	48-35.782	-101.377	-3-03-		7.1	520	2.9	240	32.	26	35.	11	63
18854	48-35.771	-101.346	-3-03-		16.	1200	2.9	410	72.	110	90.	8	290
18857	48-35.802	-101.307	-3-03-		39.	1600	3.0	480	120.	140	150.	8	600
18858	48-35.820	-101.343	-3-03-		1.2	500	3.2	30	42.	<10	15.	9	21
18859	48-35.813	-101.387	-3-03-		2.1	1000	1.2	53	86.	210	49.	8	14
18860	48-35.851	-101.421	-3-03-		3.3	500	1.3	73	45.	17	11.	6	120
18861	48-35.870	-101.394	-3-03-		2.0	520	1.9	62	67.	16	16.	7	14
18862	48-35.880	-101.344	-3-03-		2.0	500	2.6	40	49.	<10	6.4	8	10
18865	48-35.804	-101.463	-3-03-		1.0	750	1.9	28	92.	110	12.	9	13
18866	48-35.786	-101.490	-3-03-		12.	2500	4.2	440	320.	24	71.	12	1200
18867	48-35.839	-101.484	-3-03-		3.7	500	3.1	50	40.	22	7.3	20	23
18868	48-35.769	-101.418	-3-01-		3.3	2800	1.5	140	130.	680	290.	4	38
18870	48-35.876	-101.464	-3-03-		7.4	500	0.8	140	40.	<10	20.	<4	45
18871	48-35.908	-101.480	-3-03-		8.7	690	1.0	120	56.	59	18.	9	41
18872	48-35.936	-101.484	-3-03-		6.7	500	4.2	86	35.	<10	9.8	18	14
18874	48-35.987	-101.445	-3-03-		5.4	500	1.3	94	27.	<10	18.	6	10
18876	48-35.990	-101.355	-3-03-		8.0	500	3.2	120	35.	<10	15.	8	18
18877	48-35.987	-101.319	-3-03-		7.9	480	2.1	120	36.	<10	15.	21	20
18878	48-35.995	-101.291	-3-03-		7.8	480	2.4	110	37.	<10	18.	14	20
18879	48-35.972	-101.259	-3-03-		6.7	450	1.9	110	41.	<10	13.	21	19
18880	48-35.966	-101.302	-3-03-		7.3	450	1.5	110	37.	<10	16.	14	22
18883	48-35.859	-101.320	-3-03-		3.0	400	2.0	56	36.	<10	14.	9	55
18884	48-35.840	-101.271	-3-03-		5.3	400	3.7	140	22.	<10	36.	8	30
18887	48-35.881	-101.261	-3-01-		0.73	350	1.2	22	60.	<10	2.8	5	10
18890	48-35.938	-101.436	-3-03-		41.	600	0.7	170	41.	<10	31.	<4	62
18891	48-35.917	-101.391	-3-03-		6.5	600	1.4	140	44.	<10	24.	8	65
18892	48-35.910	-101.362	-3-03-		6.6	650	0.5	160	43.	<10	29.	<4	72
18895	48-35.926	-101.295	-3-03-		1.5	300	2.1	29	48.	<10	5.7	12	18
18896	48-35.920	-101.265	-3-03-		2.8	400	2.6	78	46.	<10	16.	14	17
18897	48-35.950	-101.398	-3-03-		7.6	500	1.4	120	39.	<10	20.	15	32
18899	48-35.904	-101.426	-3-03-		7.4	550	1.3	150	43.	<10	25.	7	55
18900	48-35.825	-101.430	-3-03-		5.8	550	2.1	92	49.	30	20.	6	33

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18911	48-35.885	-100.962	-3-03-	4.9	700	0.8	110	48.	84	50.	5	33
18913	48-35.906	-100.924	-3-03-	2.0	400	0.9	49	49.	25	19.	4	7
18915	48-35.945	-100.921	-3-03-	1.7	500	1.3	52	45.	47	37.	8	10
18919	48-35.804	-100.930	-3-03-	2.9	400	1.4	59	34.	10	11.	7	7
18921	48-35.855	-100.935	-3-03-	1.7	400	0.7	44	48.	10	10.	<4	10
18922	48-35.907	-100.963	-3-03-	1.9	330	1.6	23	49.	<10	7.4	4	<5
18923	48-35.919	-100.996	-3-03-	3.1	780	1.1	64	46.	160	93.	<4	30
18926	48-35.855	-100.996	-3-03-	2.3	400	1.8	36	47.	<10	9.8	11	7
18927	48-35.776	-101.019	-3-03-	3.1	400	1.7	37	45.	<10	5.8	7	5
18928	48-35.826	-100.962	-3-03-	2.0	450	1.2	45	49.	11	10.	10	7
18932	48-35.829	-100.930	-3-03-	1.4	530	1.3	38	52.	10	9.6	5	10
18933	48-35.837	-100.897	-3-03-	0.97	500	1.4	33	38.	<10	7.8	6	6
18936	48-35.838	-100.858	-3-03-	2.2	460	2.4	49	44.	<10	6.9	9	7
18937	48-35.861	-100.879	-3-03-	4.0	500	1.5	49	44.	14	9.8	6	10
18938	48-35.951	-100.650	-3-03-	2.2	400	0.9	44	32.	20	16.	<4	10
18939	48-35.983	-100.832	-3- -	6.3	600	2.9	110	65.	47	36.	13	56
18940	48-35.989	-100.774	-3-03-	6.8	600	3.9	130	48.	44	52.	14	64
18941	48-35.979	-100.862	-3-03-	7.4	700	2.5	140	55.	72	56.	24	63
18942	48-35.983	-100.929	-3-03-	9.0	600	1.1	120	53.	64	44.	11	50
18943	48-35.984	-100.981	-3-03-	3.1	500	2.5	65	42.	12	20.	13	22
18944	48-35.957	-100.993	-3-03-	2.9	450	3.1	29	45.	<10	5.1	13	7
18946	48-35.892	-100.824	-3-03-	4.1	500	1.1	53	51.	13	17.	8	13
18953	48-35.406	-101.864	-3-03-	15.	1700	<0.5	620	480.	97	150.	<4	1000
18954	48-35.492	-101.358	-3-03-	1.6	870	2.3	38	59.	11	11.	11	24
18955	48-35.497	-101.730	-3-01-	2.0	770	1.9	45	48.	<10	12.	6	19
18956	48-35.419	-101.685	-3-03-	1.4	250	2.1	30	47.	<10	13.	8	21
18957	48-35.429	-101.741	-3-01-	1.6	890	1.7	33	52.	17	11.	4	14
18958	48-35.686	-101.561	-3-03-	20.	3200	<0.5	500	270.	35	66.	<4	1000
18959	48-35.731	-101.590	-3-03-	5.6	350	2.9	70	40.	10	14.	13	35
18960	48-35.658	-101.765	-3-01-	2.5	770	1.6	140	28.	30	54.	5	27
18961	48-35.518	-101.799	-3-03-	100.	5000	2.6	570	440.	14	53.	8	2000
18962	48-35.809	-101.694	-3-03-	4.3	760	1.7	73	41.	<10	15.	12	20
18963	48-35.804	-101.586	-3-03-	7.2	730	1.7	110	29.	<10	17.	8	35
18964	48-35.514	-101.106	-3-03-	4.8	710	1.4	69	42.	30	35.	7	40
18965	48-35.507	-101.037	-3-03-	4.6	2000	1.3	140	83.	270	180.	7	160
18966	48-35.497	-101.499	-3-03-	6.0	620	1.0	67	46.	12	11.	5	13
18967	48-35.514	-100.989	-3-03-	4.1	2200	1.3	170	44.	230	250.	13	180
18968	48-35.505	-100.925	-3-03-	5.4	970	1.0	130	40.	17	30.	7	13
18969	48-35.556	-100.933	-3-03-	1.4	800	0.8	65	39.	14	11.	<4	<5
18972	48-35.596	-100.895	-3-03-	3.1	740	0.6	63	55.	<10	9.3	7	5
18976	48-35.582	-100.839	-3-03-	4.1	790	0.8	100	50.	48	19.	5	12
18978	48-35.555	-100.990	-3-03-	3.7	570	1.2	110	51.	64	14.	5	100
18979	48-35.587	-100.990	-3-03-	3.9	540	1.6	100	41.	40	27.	<4	96
18980	48-35.613	-100.981	-3-03-	4.6	490	1.7	87	40.	22	11.	9	77
18981	48-35.610	-100.935	-3-03-	4.6	990	2.0	120	41.	170	120.	8	150
18983	48-35.503	-100.872	-3-03-	1.6	840	0.8	86	34.	54	46.	5	91
18984	48-35.514	-100.820	-3-03-	3.3	880	1.3	57	39.	17	10.	5	74
18985	48-35.509	-100.769	-3-03-	7.8	1300	2.2	140	51.	130	110.	6	230
18986	48-35.557	-100.774	-3-03-	6.3	1100	1.7	120	45.	89	51.	9	120
18987	48-35.563	-100.817	-3-03-	5.3	920	1.9	130	34.	42	52.	5	97
18988	48-35.496	-100.773	-3-03-	2.4	1300	1.5	45	46.	18	9.6	<4	6
18989	48-35.411	-100.753	-3-03-	0.70	1300	2.1	24	56.	26	14.	6	<5
18990	48-35.708	-100.968	-3-03-	5.1	1100	2.4	78	39.	24	9.2	7	5
18992	48-35.735	-100.954	-3-03-	1.5	1000	1.0	55	63.	22	5.9	8	<5
18993	48-35.693	-100.926	-3-03-	5.0	260	1.1	90	41.	13	7.5	5	12

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. LAT	E. D. LONG	SAMPLE NUMBER ST L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
18995	48-35.664	-100.991	-3-03-	4.7	380	0.9	57	43.	24	14.	<4	16
18996	48-35.661	-100.949	-3-03-	4.3	440	2.1	80	40.	48	32.	8	40
18997	48-35.737	-101.027	-3-03-	2.6	720	1.2	44	39.	<10	7.9	7	9
18998	48-35.744	-101.082	-3-03-	1.5	640	3.0	38	45.	16	8.7	8	17
18999	48-35.732	-101.105	-3-03-	0.92	540	2.9	17	36.	<10	5.5	4	9
19000	48-35.764	-101.085	-3-03-	1.5	490	2.9	36	44.	13	11.	12	21
19001	48-35.731	-101.140	-3-03-	1.4	620	2.3	43	39.	<10	17.	9	18
19002	48-35.655	-101.195	-3-03-	2.2	770	1.8	82	35.	<10	27.	7	20
19004	48-35.754	-100.994	-3-03-	3.1	850	1.3	53	43.	19	8.7	5	12
19006	48-35.795	-101.044	-3-03-	1.4	920	0.8	37	93.	44	5.4	4	12
19007	48-35.758	-101.037	-3-03-	3.1	750	1.8	68	54.	20	13.	8	15
19008	48-35.970	-101.225	-3-03-	4.7	820	1.4	81	43.	<10	9.2	7	17
19010	48-35.917	-101.213	-3-03-	5.2	820	2.1	71	43.	<10	11.	7	13
19012	48-35.967	-101.147	-3-03-	1.9	700	2.7	13	41.	<10	3.9	11	<5
19013	48-35.933	-101.165	-3-03-	4.5	850	1.4	78	45.	<10	12.	6	14
19015	48-35.914	-101.170	-3-03-	6.1	880	2.2	78	45.	<10	10.	16	13
19021	48-35.851	-101.201	-3-03-	1.2	570	5.0	15	54.	<10	3.7	11	7
19022	48-35.858	-101.231	-3-03-	1.7		0.8	67	53.	16	14.	4	20
19023	48-35.994	-100.903	-3-03-	8.9	1100	0.8	150	53.	170	120.	6	48
19024	48-35.734	-100.912	-3-03-	4.9	320	0.7	59	39.	23	8.9	4	9
19026	48-35.814	-100.467	-3-03-	4.8	580	0.6	59	43.	36	14.	6	13
19027	48-35.847	-100.433	-3-03-	4.4	550	0.9	66	33.	37	19.	13	13
19028	48-35.996	-100.340	-3-03-	1.7	660	1.3	28	39.	<10	14.	12	160
19029	48-35.998	-100.291	-3-03-	4.1	810	0.8	34	47.	<10	19.	7	7
19030	48-35.944	-100.261	-3-03-	1.1	670	0.7	26	53.	<10	6.5	<4	6
19044	48-35.578	-100.235	-3-03-	1.3	1300	0.8	11	61.	<10	7.5	<4	<5
19046	48-35.049	-100.973	-3-03-	4.8	1300	2.9	88	33.	27	20.	10	10
19048	48-35.089	-100.967	-3-03-	5.7	1300	1.7	86	46.	14	13.	8	15
19050	48-35.821	-101.190	-3-03-	2.1	620	1.2	31	59.	12	18.	5	9
19052	48-35.816	-101.169	-3-03-	1.7	500	0.9	33	49.	<10	11.	7	50
19053	48-35.782	-101.206	-3-03-	7.7	770	6.1	320	39.	67	66.	16	33
19054	48-35.799	-101.222	-3-03-	1.5	520	2.4	49	39.	<10	21.	5	5
19058	48-35.765	-101.235	-3-03-	2.2	580	2.2	32	58.	<10	14.	8	9
19059	48-35.848	-101.103	-3-03-	0.97	560	0.8	32	71.	<10	20.	<4	7
19062	48-35.459	-101.102	-3-03-	2.4	850	1.9	170	44.	16	74.	7	120
19063	48-35.467	-101.060	-3-03-	0.95	1200	<0.5	130	46.	90	110.	<4	120
19064	48-35.348	-101.018	-3-03-	1.6	750	1.8	150	42.	<10	36.	8	24
19065	48-35.345	-101.076	-3-03-	2.1	850	1.0	98	43.	<10	53.	<4	7
19066	48-35.381	-101.113	-3-03-	7.7	650	1.7	130	36.	<10	18.	9	11
19067	48-35.342	-101.169	-3-03-	8.5	710	1.0	140	47.	<10	17.	<4	13
19068	48-35.475	-101.161	-3-03-	14.	1500	1.9	260	16.	54	210.	11	260
19069	48-35.424	-101.177	-3-03-	8.1	600	0.9	110	29.	<10	19.	10	25
19070	48-35.445	-101.087	-3-03-	7.5	720	3.2	230	26.	11	78.	16	55
19077	48-35.745	-101.212	-3-03-	0.88	1100	1.5	20	51.	<10	7.3	5	8
19078	48-35.753	-101.169	-3-03-	1.1	1100	1.7	46	54.	42	18.	9	17
19079	48-35.749	-101.144	-3-03-	1.4	980	1.7	40	46.	<10	19.	5	15
19080	48-35.447	-101.133	-3-03-	9.1	1100	5.5	140	20.	<10	40.	15	14
19081	48-35.424	-101.046	-3-03-	5.1	970	1.3	110	42.	18	12.	<4	6
19082	48-35.379	-101.007	-3-03-	6.3	970	0.8	130	39.	24	26.	<4	11
19083	48-35.371	-101.168	-3-03-	8.3	1200	1.3	150	31.	16	50.	5	20
19086	48-35.689	-100.548	-3-03-	2.2	1200	1.9	56	54.	38	17.	13	9
19087	48-35.726	-100.516	-3-03-	2.4	1200	1.8	51	62.	19	8.9	7	<5
19089	48-35.681	-100.506	-3-03-	3.2	1100	2.7	66	52.	28	7.8	11	6
19091	48-35.255	-101.059	-3-03-	3.6	1500	<0.5	89	45.	12	13.	<4	<5
19092	48-35.335	-101.119	-3-03-	9.3	1600	2.8	160	29.	12	53.	8	14

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19093	48-35.464	-101.203	-3-03-	4.3	1400	1.3	120	39.	13	15.	6	9
19094	48-35.411	-101.131	-3-03-	7.8	1500	0.9	140	33.	18	40.	5	15
19095	48-35.679	-100.653	-3-03-	0.83	810	2.3	20	56.	22	3.0	7	6
19098	48-35.725	-100.614	-3-03-	4.3	1200	2.9	61	51.	17	8.2	13	<5
19104	48-35.719	-100.553	-3-03-	3.9	1400	3.0	64	54.	56	10.	10	8
19106	48-35.673	-100.564	-3-03-	1.3	1400	<0.5	71	97.	78	15.	5	20
19107	48-35.673	-100.602	-3-03-	6.9	1300	0.8	77	64.	32	17.	9	8
19108	48-35.742	-100.532	-3-03-	3.4	930	3.2	60	55.	25	10.	13	5
19109	48-35.720	-100.644	-3-03-	5.4	960	2.3	56	61.	<10	8.7	10	<5
19110	48-35.745	-100.604	-3-03-	4.9	920	4.3	72	55.	26	9.4	20	6
19111	48-35.723	-100.717	-3-03-	3.5	920	1.4	52	67.	29	5.4	7	<5
19116	48-35.516	-100.516	-3-03-	1.9	650	1.6	30	98.	49	16.	8	<5
19117	48-35.511	-100.571	-3-03-	1.5	490	1.5	42	52.	38	11.	6	<5
19118	48-35.542	-100.589	-3-03-	2.8	500	1.6	52	58.	23	6.7	9	<5
19119	48-35.604	-100.573	-3-03-	4.7	590	1.2	100	58.	<10	11.	11	17
19120	48-35.400	-101.081	-3-03-	7.5	520	1.0	110	38.	<10	24.	6	11
19121	48-35.563	-100.606	-3-03-	2.3	520	0.7	67	20.	<10	22.	<4	7
19122	48-35.655	-100.680	-3-03-	0.79	410	4.2	30	32.	<10	7.0	7	8
19123	48-35.694	-100.738	-3-03-	2.1	530	1.0	56	32.	<10	6.8	<4	5
19124	48-35.513	-100.720	-3-03-	3.9	480	1.9	70	38.	12	25.	7	5
19125	48-35.503	-100.682	-3-03-	1.7	380	2.3	28	41.	<10	5.5	11	<5
19126	48-35.525	-100.669	-3-03-	2.5	440	1.2	59	48.	12	8.9	10	<5
19127	48-35.635	-100.596	-3-03-	5.2	450	1.4	66	46.	<10	7.7	5	<5
19129	48-35.738	-100.680	-3-03-	5.5	470	3.1	110	41.	24	7.9	11	<5
19130	48-35.537	-100.437	-3-03-	4.8	450	2.3	69	42.	21	22.	12	16
19140	48-35.575	-100.289	-3-03-	1.0	440	1.1	12	64.	<10	9.9	4	9
19142	48-35.715	-100.405	-3-03-	2.8	470	4.0	56	56.	17	11.	15	10
19149	48-35.720	-101.235	-3-03-	1.6	510	3.8	36	41.	<10	13.	10	5
19150	48-35.595	-101.093	-3-03-	3.5	550	1.2	55	28.	15	8.3	<4	5
19155	48-35.688	-101.211	-3-03-	1.2	570	2.8	43	52.	<10	18.	<4	<5
19156	48-35.707	-101.168	-3-03-	1.6	540	3.6	42	19.	<10	17.	8	<5
19157	48-35.737	-101.185	-3-03-	2.0	670	1.4	50	60.	28	19.	<4	16
19159	48-35.659	-101.138	-3-03-	1.9	550	2.3	39	36.	<10	9.8	5	5
19161	48-35.683	-101.091	-3-03-	1.9	620	2.2	65	39.	15	15.	6	<5
19162	48-35.667	-101.002	-3-03-	4.9	520	1.8	76	45.	<10	9.0	8	42
19163	48-35.699	-101.004	-3-03-	5.1	770	1.0	92	46.	74	79.	5	42
19164	48-35.678	-101.032	-3-03-	5.6	550	1.8	74	41.	<10	10.	11	7
19165	48-35.701	-101.040	-3-03-	6.6	570	2.2	81	36.	<10	12.	8	9
19167	48-35.716	-101.079	-3-03-	2.4	520	2.2	73	40.	<10	16.	10	5
19168	48-35.699	-101.118	-3-03-	2.2	700	2.9	74	52.	42	48.	11	46
19171	48-35.666	-101.085	-3-03-	2.8	530	1.5	60	40.	<10	12.	6	6
19172	48-35.640	-101.034	-3-03-	2.7	540	1.6	46	51.	<10	7.4	6	6
19173	48-35.613	-101.035	-3-03-	5.5	610	1.5	66	44.	<10	9.2	9	9
19174	48-35.511	-101.210	-3-03-	7.8	4100	0.7	180	150.	640	410.	<4	490
19175	48-35.539	-101.231	-3-03-	4.2	700	0.9	78	60.	21	32.	8	73
19176	48-35.608	-101.195	-3-03-	2.4	550	1.9	43	45.	<10	14.	6	12
19178	48-35.658	-101.073	-3-03-	4.7	600	1.2	51	46.	<10	12.	6	12
19182	48-35.589	-101.154	-3-03-	3.4	570	1.9	56	47.	18	23.	10	37
19196	48-35.236	-100.896	-3-03-	5.4	520	1.1	130	31.	<10	31.	7	12
19197	48-35.223	-100.817	-3-03-	16.	810	9.9	420	20.	31	92.	20	82
19198	48-35.192	-100.850	-3-03-	1.8	730	1.7	59	43.	43	19.	5	23
19199	48-35.225	-100.761	-3-03-	3.1	630	1.5	68	21.	14	23.	9	5
19203	48-35.231	-100.844	-3-03-	1.7	810	1.7	44	49.	63	26.	6	<5
19205	48-35.159	-100.858	-3-03-	1.9	980	1.4	45	52.	10	7.8	7	<5
19206	48-35.147	-100.926	-3-03-	2.4	910	3.3	41	47.	<10	11.	7	<5

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19207	48-35.163	-100.813	-3-01-	1.1	990	1.6	41	25.	<10	9.8	<4	<5
19208	48-35.160	-100.772	-3-03-	1.1	1000	1.0	52	68.	18	14.	<4	<5
19209	48-35.584	-101.045	-3-03-	3.8	1500	2.1	63	40.	12	9.8	7	<5
19210	48-35.558	-101.022	-3-03-	4.8	1300	0.7	88	44.	92	78.	4	75
19211	48-35.547	-101.103	-3-03-	4.5	1500	1.7	59	44.	22	15.	<4	18
19212	48-35.533	-101.053	-3-03-	5.3	1600	<0.5	74	54.	52	28.	<4	41
19213	48-35.543	-101.142	-3-03-	3.7	1800	<0.5	82	57.	62	71.	<4	720
19214	48-35.514	-101.163	-3-03-	8.0	2400	0.7	110	72.	44	130.	<4	30
19215	48-35.533	-101.179	-3-03-	3.3	1400	1.9	44	36.	<10	8.6	8	11
19216	48-35.187	-100.799	-3-03-	2.1	1500	0.7	56	72.	37	21.	<4	17
19217	48-35.188	-100.909	-3-03-	3.3	1500	<0.5	63	23.	<10	6.8	5	8
19221	48-35.140	-100.956	-3-03-	2.9	1300	1.4	53	47.	<10	7.0	9	7
19229	48-35.691	-100.132	-3-03-	0.79	1300	0.6	32	55.	66	21.	6	25
19231	48-35.737	-100.138	-3-03-	1.2	1300	2.6	32	76.	19	9.8	8	12
19232	48-35.679	-100.090	-3- -	1.7	1400	1.1	48	46.	21	19.	10	18
19233	48-35.714	-100.087	-3-03-	2.9	1600	2.4	76	55.	35	23.	7	83
19235	48-35.655	-100.062	-3-03-	1.5	1300	1.5	37	47.	18	17.	12	21
19237	48-35.740	-100.054	-3-03-	2.4	1600	3.5	73	64.	51	27.	14	66
19238	48-35.655	-100.125	-3-03-	0.89	1300	1.4	17	48.	<10	11.	10	8
19240	48-35.752	-100.093	-3-03-	0.61	1100	3.5	26	42.	<10	12.	8	<5
19241	48-35.691	-100.011	-3-03-	1.8	1400	0.7	45	73.	54	30.	7	26
19242	48-35.699	-100.035	-3-03-	1.1	1200	1.8	33	60.	25	21.	11	12
19244	48-35.689	-100.187	-3-03-	2.9	1300	1.0	61	41.	37	15.	11	10
19245	48-35.657	-100.182	-3-03-	2.5	1200	1.9	53	38.	18	14.	18	8
19246	48-35.693	-100.234	-3-03-	2.8	1600	1.3	58	62.	50	25.	13	14
19248	48-35.656	-100.004	-3-03-	0.35	1600	2.2	28	75.	41	12.	10	<5
19249	48-35.619	-100.210	-3-03-	0.58	1400	3.0	31	74.	28	11.	8	<5
19250	48-35.620	-100.023	-3-03-	3.4	1500	1.4	30	69.	42	20.	7	<5
19255	48-35.440	-100.779	-3-03-	3.2	1500	0.5	70	120.	250	37.	<4	10
19258	48-35.470	-100.955	-3-03-	<0.20	760	2.7	73	41.	28	18.	8	9
19262	48-35.290	-100.862	-3-03-	1.6	780	1.8	34	50.	10	4.5	7	6
19265	48-35.275	-100.903	-3-03-	1.9	790	1.7	41	62.	10	11.	4	8
19266	48-35.306	-100.808	-3-03-	1.7	770	2.3	52	53.	12	12.	<4	10
19269	48-35.251	-100.821	-3-03-	4.0	770	1.3	68	59.	13	15.	7	9
19270	48-35.261	-100.804	-3-03-	2.7	790	1.9	64	47.	<10	16.	7	<5
19272	48-35.266	-100.854	-3-03-	3.8	790	2.3	72	48.	10	19.	7	<5
19273	48-35.309	-100.760	-3-03-	0.62	660	1.7	21	48.	<10	3.8	5	<5
19274	48-35.348	-100.788	-3-03-	2.4	730	1.5	52	45.	<10	15.	4	<5
19275	48-35.359	-100.830	-3-03-	3.2	740	1.5	87	48.	<10	22.	4	5
19276	48-35.332	-100.876	-3-03-	4.1	760	1.4	120	43.	<10	32.	5	11
19279	48-35.456	-100.799	-3-03-	1.1	960	<0.5	61	55.	25	19.	<4	<5
19283	48-35.462	-100.868	-3-03-	7.5	800	1.2	74	28.	21	28.	4	6
19285	48-35.411	-100.908	-3-03-	3.2	730	1.5	68	45.	13	15.	8	5
19289	48-35.422	-100.966	-3-03-	6.5	970	1.7	110	39.	15	22.	<4	6
19290	48-35.259	-100.754	-3-03-	1.7	960	1.3	52	88.	34	20.	7	15
19293	48-35.375	-100.860	-3-03-	4.0	970	<0.5	100	58.	83	31.	<4	8
19297	48-35.429	-100.842	-3-03-	2.6	3900	<0.5	72	280.	860	87.	<4	<5
19298	48-35.426	-100.792	-3-03-	1.7	910	2.3	31	83.	29	9.9	6	<5
19299	48-35.390	-100.799	-3-03-	1.4	810	2.7	58	46.	<10	15.	11	<5
19300	48-35.420	-100.860	-3-03-	3.4	880	0.5	41	46.	<10	11.	<4	9
19301	48-35.476	-100.829	-3-03-	4.7	3800	0.6	110	200.	800	160.	4	30
19302	48-35.482	-100.902	-3-03-	4.5	1100	2.0	110	57.	110	52.	4	13
19303	48-35.379	-100.963	-3-03-	3.7	850	0.6	170	18.	<10	55.	<4	5
19304	48-35.385	-100.914	-3-03-	5.1	790	1.4	140	35.	15	31.	10	8
19305	48-35.294	-100.974	-3-03-	27.	780	2.0	250	18.	<10	46.	<4	19

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19306	48-35.350	-100.953	-3-03-	3.7	780	1.2	71	53.	10	12.	7	5
19307	48-35.254	-100.964	-3-03-	8.9	820	0.8	120	46.	<10	19.	<4	8
19308	48-35.345	-100.898	-3-03-	2.9	810	0.5	91	19.	<10	27.	<4	7
19309	48-35.227	-100.711	-3-03-	0.83	750	1.3	41	39.	<10	16.	12	5
19310	48-35.129	-100.697	-3-03-	0.87	760	2.0	63	48.	<10	29.	16	8
19314	48-35.180	-100.745	-3-03-	1.5	810	1.0	49	60.	<10	13.	12	5
19315	48-35.226	-100.651	-3-03-	1.3	860	0.9	50	37.	12	23.	5	16
19316	48-35.184	-100.638	-3-03-	1.1	780	0.8	35	43.	<10	13.	8	6
19317	48-35.188	-100.690	-3-03-	0.43	770	1.2	45	34.	<10	20.	4	<5
19318	48-35.147	-100.648	-3-03-	1.0	730	1.8	45	49.	<10	17.	13	7
19319	48-35.095	-100.639	-3-03-	7.3	1300	7.4	120	60.	17	33.	11	150
19323	48-35.033	-100.722	-3-03-	1.2	1000	1.0	120	69.	11	37.	7	130
19325	48-35.037	-100.701	-3-03-	2.2	1300	2.1	140	150.	30	23.	9	370
19326	48-35.019	-100.687	-3-03-	9.3	2600	<0.5	170	430.	50	16.	<4	1000
19327	48-35.005	-100.651	-3-03-	9.8	3400	<0.5	710	540.	58	34.	<4	1500
19329	48-35.038	-100.654	-3-03-	14.	3600	2.3	680	490.	35	100.	10	1500
19330	48-35.024	-100.634	-3-03-	13.	1300	0.6	240	150.	110	29.	<4	410
19332	48-35.435	-100.925	-3-03-	6.2	1000	0.7	93	41.	27	42.	5	16
19333	48-35.307	-100.938	-3-03-	5.1	880	1.3	96	49.	12	16.	8	16
19335	48-35.059	-100.722	-3-03-	5.1	1300	0.5	170	100.	50	78.	<4	71
19336	48-35.088	-100.669	-3-03-	7.8	1200	2.8	120	55.	<10	35.	<4	140
19337	48-35.063	-100.658	-3-03-	5.4	1200	2.9	130	110.	13	23.	10	190
19338	48-35.092	-100.705	-3-03-	22.	2900	2.2	420	350.	25	76.	11	980
19343	48-35.930	-100.033	-3-01-	1.5	720	0.8	20	47.	22	13.	<4	11
19344	48-35.995	-100.157	-3-03-	1.9	780	1.6	22	63.	29	15.	5	13
19345	48-35.894	-100.243	-3-03-	1.6	780	0.5	22	49.	12	12.	<4	11
19346	48-35.905	-100.094	-3-03-	5.5	830	0.9	31	70.	28	11.	<4	13
19347	48-35.763	-100.699	-3-03-	5.6	640	2.4	110	40.	<10	15.	10	7
19348	48-35.777	-100.662	-3-03-	4.6	600	2.0	100	38.	14	9.5	9	8
19349	48-35.811	-100.657	-3-03-	4.2	730	1.7	120	38.	21	14.	10	8
19350	48-35.850	-100.659	-3-03-	5.5	650	2.7	51	51.	12	8.2	16	7
19351	48-35.855	-100.701	-3-03-	6.3	690	1.3	80	37.	11	13.	19	8
19358	48-35.938	-100.720	-3-03-	5.2	520	1.7	66	50.	15	13.	12	5
19359	48-35.962	-100.731	-3-03-	2.0	520	1.9	34	66.	<10	8.6	<4	8
19361	48-35.905	-100.731	-3-03-	5.2	450	1.3	61	44.	10	12.	10	7
19362	48-35.942	-100.686	-3-03-	2.7	500	2.5	42	55.	<10	7.3	11	5
19366	48-35.951	-100.647	-3-03-	4.4	680	2.7	83	51.	31	29.	18	10
19369	48-35.965	-100.662	-3-03-	3.6	830	<0.5	90	53.	79	51.	5	24
19370	48-35.880	-100.717	-3-03-	4.5	580	2.4	69	38.	11	9.5	11	6
19371	48-35.777	-100.735	-3-03-	5.5	540	2.8	130	33.	<10	14.	14	5
19372	48-35.996	-100.743	-3-03-	2.8	420	2.1	70	52.	23	23.	16	14
19373	48-35.982	-100.699	-3-03-	3.2	310	1.3	60	48.	16	19.	9	6
19374	48-35.992	-100.630	-3-03-	5.5	260	2.8	110	49.	24	27.	13	11
19375	48-35.988	-100.567	-3-03-	5.4	720	2.2	120	48.	130	100.	14	17
19376	48-35.988	-100.518	-3-03-	7.8	2800	1.1	170	51.	610	360.	4	50
19378	48-35.817	-100.714	-3-03-	6.5	350	2.2	95	41.	23	23.	15	10
19379	48-35.755	-100.548	-3-03-	1.9	260	2.6	54	59.	<10	14.	9	5
19381	48-35.806	-100.604	-3-03-	5.1	250	3.8	86	38.	11	6.7	16	5
19382	48-35.852	-100.569	-3-03-	7.1	520	1.8	76	71.	26	21.	15	14
19383	48-35.777	-100.532	-3-03-	3.1	270	2.2	56	43.	<10	14.	12	7
19384	48-35.775	-100.612	-3-03-	3.8	310	1.5	73	36.	<10	14.	11	5
19385	48-35.777	-100.572	-3-03-	4.0	370	3.8	57	43.	<10	15.	14	6
19386	48-35.819	-100.556	-3-03-	5.3	340	5.1	67	45.	<10	11.	20	5
19387	48-35.812	-100.511	-3-03-	5.0	300	2.5	61	41.	<10	12.	12	6
19390	48-35.886	-100.659	-3-03-	5.0	450	2.5	59	44.	<10	11.	11	7

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. E. SAMPLE ST LAT	LONG	NUMBER L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19392	48-35.925	-100.651	-3-03-	5.0	1100	1.9	66	55.	22	22.	13	13
19397	48-35.919	-100.597	-3-03-	3.0	430	1.5	53	58.	19	13.	11	10
19398	48-35.922	-100.687	-3-03-	1.6	350	1.2	31	65.	<10	4.9	15	5
19400	48-35.949	-100.609	-3-03-	3.3	570	0.7	74	63.	49	26.	5	15
19403	48-35.943	-100.529	-3-03-	12.	730	1.0	94	54.	110	41.	7	32
19404	48-35.963	-100.567	-3-03-	8.0	1300	1.3	140	66.	200	99.	5	96
19407	48-35.939	-100.559	-3-03-	6.7	640	1.0	98	51.	130	53.	10	51
19408	48-35.886	-100.562	-3-03-	5.4	300	2.0	51	47.	<10	13.	8	14
19409	48-35.887	-100.527	-3-03-	6.5	410	5.6	93	38.	72	31.	4	17
19410	48-35.885	-100.626	-3-03-	8.2	810	1.3	110	57.	130	43.	11	60
19412	48-35.845	-100.617	-3-03-	6.5	540	4.7	48	49.	25	9.5	21	18
19413	48-35.907	-100.526	-3-03-	6.7	540	2.0	94	31.	27	14.	16	14
19414	48-35.860	-100.505	-3-03-	6.9	500	2.3	72	40.	20	9.7	15	12
19416	48-35.685	-100.716	-3-03-	6.6	500	5.7	140	33.	50	8.8	20	12
19417	48-35.556	-100.720	-3-03-	6.0	530	1.4	100	23.	50	38.	5	20
19418	48-35.586	-100.515	-3-03-	3.2	340	1.8	50	33.	18	8.1	13	11
19419	48-35.650	-100.532	-3-03-	5.0	460	2.1	73	41.	30	7.3	9	12
19420	48-35.600	-100.607	-3-03-	7.2	450	1.5	91	38.	41	24.	11	13
19421	48-35.597	-100.688	-3-03-	5.3	520	1.1	110	44.	38	15.	6	13
19422	48-35.562	-100.653	-3-03-	5.2	520	0.7	57	41.	26	14.	4	12
19423	48-35.623	-100.666	-3-03-	5.1	590	2.0	85	48.	23	9.2	5	22
19424	48-35.611	-100.528	-3-03-	3.7	500	1.3	48	53.	<10	7.0	<4	10
19425	48-35.650	-100.618	-3-03-	4.0	350	1.5	55	42.	<10	7.5	<4	8
19428	48-35.660	-100.738	-3-03-	1.7	450	1.6	29	57.	15	6.1	<4	10
19429	48-35.618	-100.698	-3-03-	3.2	870	<0.5	98	70.	110	33.	<4	21
19430	48-35.592	-100.657	-3-03-	6.3	730	<0.5	110	55.	58	47.	<4	15
19431	48-35.503	-100.622	-3-03-	2.9	400	1.4	49	56.	<10	12.	<4	<5
19432	48-35.547	-100.513	-3-03-	4.4	380	1.9	35	57.	10	14.	4	8
19434	48-35.599	-100.750	-3-03-	10.	1000	<0.5	130	100.	120	30.	<4	5
19435	48-35.703	-100.686	-3-03-	2.6	560	0.8	88	83.	17	7.1	<4	<5
19436	48-35.570	-100.544	-3-03-	3.6	660	1.6	56	46.	<10	8.9	9	<5
19437	48-35.547	-100.547	-3-03-	3.4	570	1.1	50	51.	<10	11.	<4	<5
19438	48-35.622	-100.296	-3-03-	1.8	620	<0.5	56	93.	37	21.	<4	19
19439	48-35.665	-100.301	-3-03-	1.8	640	3.3	44	68.	<10	26.	7	<5
19444	48-35.767	-100.925	-3-03-	2.6	400	1.3	59	35.	<10	9.2	6	6
19445	48-35.793	-100.869	-3-03-	9.8	600	1.7	130	54.	28	35.	10	23
19446	48-35.762	-100.850	-3-03-	4.6	450	1.7	75	44.	<10	14.	10	8
19447	48-35.810	-100.898	-3-03-	1.7	400	2.9	38	58.	<10	4.4	10	6
19448	48-35.881	-100.904	-3-03-	2.3	430	0.8	51	52.	<10	14.	8	7
19450	48-35.960	-100.809	-3-03-	2.5	600	1.4	62	41.	51	81.	6	15
19452	48-35.927	-100.820	-3-03-	3.7	530	2.0	55	68.	11	22.	<4	12
19454	48-35.856	-100.801	-3-03-	3.9	430	1.5	52	56.	<10	12.	11	15
19456	48-35.798	-100.966	-3-03-	4.1	450	2.1	57	44.	11	13.	8	9
19457	48-35.761	-100.955	-3-03-	5.6	500	1.8	85	40.	17	20.	<4	9
19459	48-35.934	-100.878	-3- -	2.1	450	0.5	37	58.	17	18.	<4	9
19461	48-35.894	-100.866	-3-03-	2.7	400	1.5	47	50.	<10	18.	8	6
19462	48-35.853	-100.758	-3-03-	4.7	480	3.2	77	42.	14	11.	16	9
19463	48-35.889	-100.761	-3-03-	4.1	430	1.5	52	43.	<10	13.	11	9
19466	48-35.924	-100.773	-3-03-	1.5	800	<0.5	43	70.	88	76.	<4	6
19468	48-35.757	-100.753	-3-03-	6.0	550	1.1	120	46.	30	25.	6	17
19469	48-35.773	-100.788	-3-03-	4.8	400	2.8	66	35.	<10	13.	11	8
19471	48-35.803	-100.824	-3-03-	6.3	450	2.2	71	46.	11	13.	11	16
19473	48-35.810	-100.764	-3-03-	5.2	500	2.5	79	41.	18	7.0	10	9
19474	48-35.841	-100.818	-3-03-	5.1	450	2.1	63	43.	12	11.	11	11
19476	48-35.870	-100.845	-3-03-	6.3	400	1.4	34	41.	<10	17.	8	9

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST	LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19477	48-35.650	-100.883	-3-03-		5.7	650	2.0	100	40.	71	78.	7	51
19478	48-35.727	-100.829	-3-03-		3.5	430	2.2	82	36.	<10	7.8	12	7
19479	48-35.743	-100.865	-3-03-		5.0	450	1.0	66	68.	18	6.7	5	6
19480	48-35.702	-100.869	-3-03-		2.1	450	1.4	110	37.	<10	13.	8	9
19481	48-35.689	-100.820	-3-03-		2.2	630	<0.5	64	85.	44	13.	<4	6
19482	48-35.731	-100.789	-3-03-		5.3	680	0.5	110	38.	83	92.	7	70
19483	48-35.684	-100.776	-3-03-		4.3	480	<0.5	100	39.	11	14.	<4	17
19484	48-35.648	-100.767	-3-03-		3.9	700	<0.5	110	76.	95	40.	5	35
19487	48-35.556	-100.863	-3-03-		6.0	600	0.9	150	26.	29	99.	<4	50
19488	48-35.592	-100.767	-3-03-		8.1	1400	0.7	160	77.	240	190.	5	190
19489	48-35.606	-100.834	-3-03-		3.0	450	3.0	43	49.	<10	6.8	10	8
19492	48-35.648	-100.844	-3-03-		0.33	400	<0.5	32	26.	21	19.	<4	<5
19493	48-35.625	-100.801	-3-03-		3.5	450	1.6	70	38.	13	19.	9	8
19498	48-35.933	-100.491	-3-	-	4.3	480	2.7	63	46.	18	12.	12	7
19501	48-35.950	-100.437	-3-03-		2.9	480	1.4	41	35.	41	34.	6	6
19502	48-35.985	-100.461	-3-03-		4.8	600	1.4	56	42.	63	47.	12	10
19503	48-35.922	-100.319	-3-03-		1.8	500	<0.5	24	61.	59	17.	5	6
19504	48-35.921	-100.372	-3-03-		10.	1300	0.8	150	84.	330	150.	<4	93
19505	48-35.960	-100.364	-3-03-		1.9	400	1.5	29	44.	<10	14.	7	6
19506	48-35.981	-100.415	-3-03-		1.5	430	1.4	22	59.	12	7.0	7	<5
19507	48-35.941	-100.398	-3-03-		2.3	450	0.5	21	51.	22	11.	<4	6
19508	48-35.916	-100.409	-3-03-		6.5	600	0.7	81	46.	58	34.	5	9
19509	48-35.924	-100.448	-3-03-		7.1	550	1.9	66	41.	34	21.	11	5
19510	48-35.883	-100.356	-3-03-		5.0	1000	0.6	94	49.	170	140.	12	50
19513	48-35.848	-100.320	-3-03-		6.4	580	1.9	70	39.	29	21.	8	8
19514	48-35.888	-100.295	-3-03-		2.1	650	0.7	68	49.	84	37.	6	8
19515	48-35.865	-100.269	-3-03-		4.6	480	2.0	50	48.	25	15.	13	<5
19516	48-35.849	-100.253	-3-03-		2.8	500	0.9	50	52.	14	13.	11	<5
19518	48-35.809	-100.382	-3-03-		4.4	530	5.0	82	41.		11.	25	
19519	48-35.799	-100.334	-3-03-		1.4	480	1.0	49	92.	<10	4.2	8	<5
19520	48-35.827	-100.342	-3-03-		3.3	550	1.7	69	56.	10	11.	12	<5
19521	48-35.816	-100.296	-3-03-		3.5	500	1.0	57	50.	22	17.	10	8
19522	48-35.819	-100.261	-3-03-		3.0	450	1.4	51	41.	37	15.	11	12
19524	48-35.763	-100.250	-3-03-		3.1	450	1.2	42	32.	20	15.	12	<5
19527	48-35.788	-100.269	-3-03-		2.6	500	1.9	45	45.	24	14.	18	<5
19528	48-35.757	-100.297	-3-03-		1.9	650	<0.5	64	44.	76	32.	<4	39
19530	48-35.776	-100.317	-3-03-		2.3	500	4.3	58	63.	40	16.	9	12
19532	48-35.769	-100.361	-3-03-		2.4	650	2.3	62	71.	100	22.	10	16
19536	48-35.918	-100.276	-3-03-		1.7	400	1.6	27	35.	<10	14.	7	<5
19537	48-35.972	-100.489	-3-03-		4.6	750	2.3	85	35.	120	110.	18	13
19538	48-35.900	-100.441	-3-03-		7.3	580	1.4	72	53.	44	20.	14	8
19539	48-35.886	-100.465	-3-03-		8.4	600	1.8	75	46.	36	25.	13	8
19540	48-35.864	-100.488	-3-03-		5.8	530	3.4	74	39.	26	9.5	17	<5
19542	48-35.858	-100.360	-3-03-		4.1	500	0.9	68	42.	32	14.	17	<5
19544	48-35.760	-100.420	-3-03-		1.5	580	3.1	65	53.	63	17.	15	<5
19549	48-35.795	-100.422	-3-03-		2.2	580	4.1	54	44.	54	9.6	12	<5
19550	48-35.878	-100.424	-3-03-		3.9	600	1.5	73	44.	69	36.	11	6
19559	48-35.358	-100.611	-3-03-		1.1	390	1.8	23	39.	<10	13.	8	<5
19560	48-35.324	-100.618	-3-03-		0.40	1200	1.4	130	57.	130	120.	<4	66
19564	48-35.299	-100.613	-3-03-		1.2	520	1.0	12	69.	29	4.7	5	6
19567	48-35.261	-100.609	-3-03-		1.2	500	1.7	34	44.	13	18.	7	<5
19568	48-35.368	-100.701	-3-03-		1.2	410	1.9	19	53.	15	8.0	7	<5
19569	48-35.329	-100.680	-3-03-		2.2	490	1.9	44	40.	20	20.	7	<5
19570	48-35.323	-100.721	-3-03-		1.9	590	2.2	63	53.	34	26.	7	24
19571	48-35.354	-100.724	-3-03-		1.8	450	1.3	31	54.	10	9.4	8	7

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19572	48-35.302	-100.693	-3-03-	1.7	500	1.7	49	50.	18	24.	5	16
19575	48-35.392	-100.742	-3-03-	5.3	4300	1.2	740	480.	<10	250.	<4	210
19576	48-35.399	-100.704	-3-03-	8.4	3500	0.5	750	420.	<10	160.	<4	180
19577	48-35.389	-100.635	-3-03-	0.89	390	1.5	16	42.	<10	7.2	6	25
19578	48-35.379	-100.597	-3-03-	0.85	510	2.0	25	70.	23	14.	6	14
19579	48-35.406	-100.580	-3-03-	8.6	2500	0.7	220	240.	30	120.	5	60
19583	48-35.312	-100.569	-3-03-	1.6	490	0.9	20	74.	<10	6.5	8	13
19587	48-35.453	-100.611	-3-03-	6.4	550	2.1	82	42.	28	35.	6	26
19588	48-35.450	-100.583	-3-03-	1.1	560	0.9	39	27.	<10	17.	4	10
19589	48-35.479	-100.599	-3-03-	0.98	400	1.4	30	44.	<10	7.8	6	10
19590	48-35.495	-100.568	-3-03-	1.1	600	1.2	37	73.	36	14.	8	27
19591	48-35.491	-100.526	-3-03-	0.87	510	1.8	20	65.	<10	6.6	10	5
19592	48-35.467	-100.549	-3-03-	2.8	540	1.7	60	45.	20	19.	10	22
19594	48-35.457	-100.510	-3-03-	0.66	470	0.8	22	48.	<10	7.9	9	13
19595	48-35.440	-100.557	-3-03-	2.0	400	2.2	47	30.	11	18.	6	17
19596	48-35.411	-100.521	-3-03-	0.62	1800	<0.5	170	170.	120	84.	<4	490
19601	48-35.372	-100.523	-3-03-	1.5	560	1.4	36	45.	21	27.	5	19
19603	48-35.451	-100.709	-3-03-	2.9	650	1.2	64	47.	61	41.	6	39
19604	48-35.467	-100.742	-3-03-	2.3	410	0.8	34	28.	<10	10.	<4	16
19605	48-35.491	-100.724	-3-03-	1.8	410	1.0	37	47.	<10	10.	7	13
19606	48-35.484	-100.697	-3-03-	1.4	420	1.3	32	31.	<10	6.8	12	11
19607	48-35.461	-100.668	-3-03-	0.38	550	0.9	16	47.	<10	4.3	<4	10
19608	48-35.357	-100.663	-3-03-	2.3	470	1.8	39	27.	12	23.	13	8
19609	48-35.288	-100.738	-3-03-	2.7	470	1.2	48	45.	13	19.	9	13
19612	48-35.266	-100.528	-3-03-	3.1	570	2.6	62	62.	<10	22.	9	44
19613	48-35.291	-100.542	-3-03-	1.1	650	<0.5	61	74.	<10	33.	<4	35
19614	48-35.283	-100.571	-3-03-	1.4	580	0.9	28	82.	45	15.	<4	8
19615	48-35.321	-100.519	-3-03-	2.0	550	<0.5	49	65.	21	26.	4	21
19616	48-35.277	-100.654	-3-03-	1.6	480	2.0	19	69.	<10	7.9	8	7
19617	48-35.267	-100.685	-3-03-	1.5	520	0.7	30	44.	<10	13.	8	7
19618	48-35.262	-100.720	-3-03-	1.8	410	0.6	19	47.	<10	9.0	4	5
19619	48-35.336	-100.558	-3-03-	1.5	460	0.7	33	57.	<10	15.	8	7
19620	48-35.369	-100.540	-3-03-	2.0	620	1.7	34	68.	<10	30.	11	13
19621	48-35.582	-100.184	-3-03-	0.57	450	1.0	17	63.	<10	11.	7	8
19622	48-35.542	-100.222	-3-03-	2.4	400	1.2	36	47.	<10	16.	15	8
19623	48-35.505	-100.199	-3-03-	1.5	450	2.7	17	56.	<10	11.	11	<5
19624	48-35.520	-100.116	-3-03-	1.8	530	1.9	31	61.	<10	25.	6	20
19626	48-35.535	-100.164	-3-03-	3.0	600	2.5	45	93.	14	46.	7	13
19627	48-35.504	-100.159	-3-03-	4.7	1000	1.9	78	130.	44	84.	<4	220
19629	48-35.571	-100.140	-3-03-	1.0	500	3.0	18	60.	<10	17.	11	9
19631	48-35.505	-100.031	-3-03-	1.3	430	2.1	21	42.	<10	24.	9	13
19632	48-35.472	-100.003	-3-03-	49.	1100	1.0	580	97.	1600	200.	6	370
19633	48-35.542	-100.035	-3-03-	0.94	500	1.8	24	62.	<10	18.	10	10
19634	48-35.576	-100.039	-3-03-	0.80	500	1.9	17	69.	<10	17.	8	8
19635	48-35.576	-100.093	-3-03-	1.1	500	1.3	19	72.	<10	12.	7	5
19636	48-35.729	-100.004	-3-03-	2.6	500	2.2	55	58.	<10	28.	18	25
19638	48-35.740	-100.213	-3-03-	3.1	530	2.3	64	49.	22	21.	11	13
19639	48-35.975	-100.112	-3-03-	1.0	400	1.0	22	48.	<10	15.	<4	13
19640	48-35.741	-100.191	-3-03-	1.2	500	2.4	75	55.	<10	33.	10	10
19641	48-35.312	-100.004	-3-03-	13.	2900	2.3	1500	440.	190	260.	11	2100
19642	48-35.379	-100.046	-3-03-	8.9	2500	3.4	380	420.	12	58.	21	1300
19643	48-35.281	-100.107	-3-03-	4.9	600	0.8	61	58.	15	38.	6	84
19644	48-35.795	-101.093	-3-03-	4.6	500	0.8	70	41.	11	22.	<4	18
19645	48-35.849	-101.135	-3-03-	2.0	450	1.4	59	33.	17	36.	<4	20
19646	48-35.176	-100.401	-3-03-	24.	3000	0.5	220	350.	220	220.	<4	1300

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19647	48-35.621	-100.360	-3-03-	2.1	450	2.3	46	45.	<10	8.6	12	8
19648	48-35.576	-100.346	-3-03-	1.4	530	1.5	18	65.	<10	8.9	6	<5
19650	48-35.531	-100.294	-3-03-	1.4	450	1.9	64	44.	<10	12.	11	<5
19654	48-35.539	-100.356	-3-03-	3.8	500	2.3	77	66.	16	26.	7	<5
19655	48-35.502	-100.415	-3-03-	3.6	580	2.1	31	70.	24	6.9	5	5
19656	48-35.535	-100.498	-3- -	1.3	480	0.9	74	44.	15	19.	26	<5
19658	48-35.767	-100.480	-3-03-	2.8	550	5.3	30	55.	16	7.8	6	<5
19659	48-35.920	-100.119	-3-03-	1.6	700	0.6	34	47.	<10	12.	<4	<5
19660	48-35.925	-100.093	-3-03-	1.2	670	1.0	35	33.	<10	14.	<4	<5
19661	48-35.879	-100.128	-3-03-	1.5	710	0.7	15	64.	<10	5.5	<4	<5
19662	48-35.877	-100.092	-3-03-	1.7	800	<0.5	35	48.	<10	17.	4	<5
19663	48-35.905	-100.040	-3-03-	1.3	780	1.1	29	54.	<10	5.1	<4	<5
19664	48-35.917	-100.006	-3-03-	2.8	730	0.7	29	41.	<10	15.	5	<5
19665	48-35.961	-100.034	-3-03-	0.98	730	1.1	32	37.	<10	15.	<4	<5
19666	48-35.986	-100.008	-3-03-	0.56	750	1.3	25	46.	<10	13.	<4	<5
19667	48-35.995	-100.117	-3-03-	1.1	730	1.4	25	40.	<10	8.0	6	<5
19668	48-35.889	-100.176	-3-03-	1.0	750	1.5	29	45.	<10	11.	5	<5
19669	48-35.905	-100.160	-3-03-	1.2	740	1.3	37	45.	<10	11.	17	<5
19672	48-35.931	-100.210	-3-03-	2.9	860	1.0	28	74.	<10	10.	6	<5
19674	48-35.895	-100.205	-3-03-	1.1	740	0.9	40	53.	<10	21.	8	<5
19675	48-35.979	-100.226	-3-03-	0.84	710	1.2	34	61.	<10	8.6	6	<5
19676	48-35.958	-100.081	-3-03-	0.82	750	1.2	18	73.	<10	8.1	4	<5
19677	48-35.991	-100.068	-3-03-	1.8	690	1.0	15	64.	<10	7.7	<4	<5
19678	48-35.946	-100.143	-3-03-	0.86	690	1.9	22	62.	<10	5.6	7	<5
19679	48-35.814	-100.024	-3-03-	1.1	830	1.4	49	67.	28	18.	11	11
19681	48-35.857	-100.005	-3-03-	6.6	1700	1.9	320	79.	150	100.	<4	140
19682	48-35.818	-100.077	-3-03-	1.2	880	<0.5	43	55.	23	17.	5	17
19683	48-35.845	-100.046	-3-03-	1.3	820	1.6	56	64.	18	23.	7	14
19686	48-35.805	-100.121	-3-03-	2.1	830	1.6	120	65.	24	39.	14	17
19688	48-35.838	-100.146	-3-03-	1.6	1200	1.4	80	79.	51	30.	<4	46
19689	48-35.771	-100.013	-3-03-	0.96	840	1.5	49	61.	14	18.	15	8
19692	48-35.785	-100.060	-3-03-	1.3	840	1.5	39	81.	14	12.	9	7
19693	48-35.778	-100.109	-3-03-	1.3	820	1.2	44	72.	15	20.	11	9
19696	48-35.773	-100.150	-3-03-	0.78	660	2.1	15	4.1	<10	12.	<4	<5
19700	48-35.814	-100.228	-3-03-	4.0	930	1.6	57	55.	23	14.	14	<5
19701	48-35.808	-100.181	-3-03-	2.2	890	1.4	58	24.	31	16.	7	<5
19702	48-35.779	-100.188	-3-03-	1.1	780	1.2	29	49.	<10	9.3	8	<5
19705	48-35.843	-100.178	-3-03-	3.9	870	0.8	84	83.	40	24.	<4	6
19710	48-35.965	-100.171	-3-03-	1.6	760	0.6	21	22.	<10	15.	<4	<5
19711	48-35.862	-100.239	-3-03-	3.1	740	1.4	49	47.	12	13.	11	<5
19712	48-35.857	-100.194	-3-03-	2.8	720	1.7	38	39.	<10	10.	10	<5
19713	48-35.834	-100.077	-3-03-	1.8	820	1.6	42	49.	19	16.	5	10
19714	48-35.610	-100.156	-3-03-	0.48	770	2.5	44	30.	<10	18.	5	<5
19715	48-35.619	-100.103	-3-03-	2.3	880	<0.5	20	61.	<10	17.	<4	5
19716	48-35.623	-100.053	-3-03-	0.68	920	3.0	34	37.	16	23.	6	<5
19717	48-35.584	-100.016	-3-03-	0.62	1100	1.1	25	64.	58	27.	<4	<5
19721	48-35.691	-100.376	-3-03-	3.5	870	1.3	43	120.	67	18.	7	28
19725	48-35.687	-100.459	-3-03-	4.2	470	3.0	61	48.	15	7.0	14	9
19726	48-35.745	-100.472	-3-03-	3.1	440	3.1	54	45.	11	13.	13	9
19728	48-35.727	-100.459	-3-03-	2.2	560	1.6	41	77.	18	8.8	7	15
19730	48-35.647	-100.487	-3-03-	3.7	440	2.6	77	38.	<10	10.	15	9
19734	48-35.632	-100.271	-3-03-	1.6	540	1.4	44	67.	<10	19.	7	15
19737	48-35.700	-100.353	-3-03-	3.9	490	1.9	56	42.	<10	11.	8	9
19738	48-35.735	-100.362	-3-03-	0.84	430	2.1	16	46.	<10	8.7	8	5
19739	48-35.693	-100.309	-3-03-	5.1	470	1.6	75	40.	11	15.	10	9

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
19740	48-35.693	-100.262	-3-03-	3.3	480	1.2	61	46.	18	16.	14	11
19741	48-35.739	-100.299	-3-03-	4.7	540	2.3	95	56.	44	29.	13	23
19742	48-35.694	-100.409	-3-03-	1.9	410	2.6	35	58.	12	11.	15	8
19743	48-35.161	-100.436	-3-03-	2.6	490	2.4	50	52.	11	10.	11	6
19770	48-35.231	-100.964	-3-03-	5.0	1200	1.6	86	56.	<10	11.	6	5
19771	48-35.090	-100.343	-3-03-	6.2	1300	1.3	140	220.	28	40.	<4	660
19773	48-35.005	-100.402	-3-03-	9.7	980	1.2	120	66.	33	45.	<4	92
19774	48-35.025	-100.272	-3-03-	3.7	2200	<0.5	100	520.	18	15.	<4	1400
19775	48-35.027	-100.063	-3-03-	7.9	2300	1.0	570	490.	24	24.	<4	1500
19776	48-35.089	-100.045	-3-03-	3.4	2200	0.7	140	480.	10	8.8	<4	1400
19778	48-35.154	-100.024	-3-03-	10.	2400	<0.5	580	440.	54	26.	<4	1600
19780	48-35.157	-100.112	-3-03-	4.3	2500	<0.5	120	510.	210	56.	8	1400
19782	48-35.201	-100.091	-3-03-	8.9	2500	1.1	120	460.	210	95.	5	1200
19783	48-35.206	-100.026	-3-03-	8.2	2400	<0.5	340	460.	26	50.	6	1500
19786	48-35.007	-100.933	-3-03-	2.1	500	2.7	66	66.	21	24.	16	32
19787	48-35.041	-100.836	-3-03-	8.9	4600	<0.5	620	440.	600	420.	<4	2200
19788	48-35.021	-100.823	-3-03-	6.3	4700	<0.5	610	420.	1000	430.	<4	1900
19789	48-35.399	-101.218	-3-03-	8.4	550	0.6	150	42.	<10	19.	<4	<5
23602	48-35.422	-100.660	-3-03-	4.5	790	3.4	78	61.	72	56.	7	67
23603	48-35.438	-100.667	-3-03-	1.5	660	1.2	15	70.	30	8.8	5	9
23604	48-35.455	-100.640	-3-03-	4.7	720	1.8	78	46.	43	44.	7	32
23606	48-35.481	-100.641	-3-03-	3.5	630	1.7	58	45.	28	29.	7	17
23609	48-35.499	-100.391	-3-03-	5.5	690	1.1	46	54.	10	17.	4	24
23612	48-35.322	-100.357	-3-03-	2.0	960	1.4	34	130.	30	17.	<4	140
23614	48-35.285	-100.359	-3-03-	1.9	850	1.7	51	95.	54	30.	<4	70
23615	48-35.292	-100.323	-3-03-	3.2	3300	0.7	120	620.	81	42.	<4	1200
23616	48-35.396	-100.398	-3-03-	28.	3500	3.6	450	420.	74	82.	12	1400
23618	48-35.504	-100.490	-3-03-	1.4	670	2.0	21	64.	<10	17.	6	12
23620	48-35.481	-100.458	-3-03-	1.2	600	1.3	27	47.	<10	11.	5	24
23621	48-35.450	-100.462	-3-03-	3.8	780	2.7	28	88.	31	18.	10	20
23624	48-35.459	-100.251	-3-03-	1.1	690	1.8	52	64.	<10	19.	12	16
23626	48-35.492	-100.285	-3-03-	0.73	770	1.3	24	81.	67	19.	<4	20
23627	48-35.497	-100.337	-3-03-	0.69	730	2.2	34	61.	10	24.	<4	9
23628	48-35.458	-100.349	-3-03-	2.2	670	2.1	18	67.	<10	7.9	5	5
23630	48-35.285	-100.271	-3-03-	5.6	3400	1.4	200	570.	370	53.	<4	1300
23631	48-35.327	-100.302	-3-03-	5.0	8400	0.7	260	780.	1500	400.	<4	1300
23632	48-35.372	-100.268	-3-03-	2.9	810	1.6	34	75.	32	20.	11	30
23633	48-35.406	-100.273	-3- -	1.5	670	1.5	13	76.	<10	11.	5	8
23638	48-35.417	-100.465	-3-03-	14.	2200	2.5	160	230.	110	53.	6	390
23640	48-35.371	-100.317	-3-03-	19.	2000	3.1	240	230.	47	24.	10	410
23642	48-35.460	-100.292	-3-03-	1.0	780	1.2	29	90.	39	18.	5	15
23643	48-35.308	-100.405	-3-03-	2.7	710	1.2	43	67.	<10	29.	9	9
23645	48-35.371	-100.460	-3-03-	2.2	1700	0.5	50	160.	200	75.	<4	29
23647	48-35.363	-100.408	-3-03-	8.6	3900	3.1	130	400.	350	150.	14	470
23649	48-35.269	-100.460	-3-03-	7.9	740	1.9	57	56.	<10	41.	5	13
23650	48-35.275	-100.412	-3-03-	1.2	710	1.2	37	63.	<10	22.	5	8
23652	48-35.313	-100.494	-3-03-	0.66	740	<0.5	70	35.	<10	25.	<4	12
23653	48-35.325	-100.452	-3-03-	0.89	770	1.7	32	64.	10	17.	11	8
23654	48-35.359	-100.367	-3-03-	3.2	4500	<0.5	180	210.	640	320.	<4	28
23655	48-35.420	-100.423	-3-03-	6.1	1200	0.9	68	26.	41	69.	<4	42
23657	48-35.427	-100.375	-3-03-	3.1	700	3.0	63	46.	13	22.	7	6
23659	48-35.412	-100.337	-3-03-	3.8	730	0.9	39	50.	<10	28.	21	12
23666	48-35.110	-100.605	-3-03-	15.	1500	1.4	210	120.	32	32.	10	1100
23667	48-35.030	-100.583	-3-03-	26.	3300	<0.5	320	510.	290	49.	<4	2300
23668	48-35.197	-100.592	-3-03-	0.69	1200	1.0	89	50.	20	84.	7	42

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. D. E. SAMPLE ST LAT	LONG	NUMBER L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
23669	48-35.184	-100.534	-3-03-	0.96	1000	0.9	30	84.	28	21.	4	12
23671	48-35.232	-100.539	-3-03-	1.5	900	0.6	21	71.	<10	15.	5	6
23672	48-35.073	-100.605	-3-03-	18.	3000	2.6	270	530.	78	24.	11	2500
23673	48-35.075	-100.531	-3-03-	6.9	3600	0.6	270	450.	510	120.	<4	2300
23675	48-35.113	-100.547	-3-03-	13.	2000	1.1	220	270.	81	32.	<4	830
23677	48-35.030	-100.525	-3-03-	16.	3400	0.6	920	550.	230	47.	<4	1900
23680	48-35.154	-100.520	-3-03-	7.4	1000	2.0	55	60.	24	19.	<4	49
23681	48-35.242	-100.594	-3-03-	1.5	1100	0.7	69	84.	70	22.	7	24
23682	48-35.167	-100.567	-3-03-	22.	820	3.0	270	35.	29	20.	10	36
23685	48-35.100	-100.838	-3-03-	4.4	830	1.6	71	42.	26	9.1	7	12
23686	48-35.093	-100.757	-3-03-	4.8	820	1.0	63	59.	28	15.	7	19
23687	48-35.093	-100.794	-3-03-	3.3	950	<0.5	52	55.	10	9.3	<4	14
23689	48-35.062	-100.869	-3-03-	26.	2800	2.3	340	450.	26	45.	11	1500
23690	48-35.054	-100.808	-3-03-	21.	3000	3.2	370	430.	78	67.	13	1500
23692	48-35.063	-100.746	-3-03-	2.6	1100	0.6	200	67.	26	44.	4	140
23694	48-35.036	-100.764	-3-03-	1.3	1000	2.4	78	47.	21	31.	<4	64
23698	48-35.031	-100.890	-3-03-	12.	3000	1.2	500	370.	160	120.	6	1200
23699	48-35.067	-100.911	-3-03-	3.7	1200	<0.5	61	88.	23	27.	<4	64
23700	48-35.115	-100.904	-3-03-	11.	1100	1.4	85	46.	<10	13.	5	10
23706	48-35.242	-100.336	-3-03-	2.3	3500	1.1	140	560.	120	57.	<4	1200
23707	48-35.250	-100.286	-3-01-	4.6	3800	1.7	180	650.	130	63.	<4	1200
23710	48-35.237	-100.441	-3-01-	3.9	1800	2.2	110	250.	54	70.	6	390
23711	48-35.237	-100.493	-3-03-	1.9	750	1.3	28	76.	13	68.	7	36
23712	48-35.191	-100.439	-3-03-	20.	2400	1.7	190	90.	120	260.	8	380
23714	48-35.182	-100.485	-3-03-	2.5	550	2.5	54	57.	19	25.	11	21
23715	48-35.226	-100.387	-3-03-	2.2	700	1.0	77	63.	29	33.	<4	74
23716	48-35.198	-100.325	-3-03-	2.8	1200	1.6	78	110.	78	87.	5	110
23717	48-35.204	-100.292	-3-03-	2.0	950	1.2	65	95.	11	7.0	5	18
23719	48-35.158	-100.321	-3-03-	4.3	1200	1.2	120	110.	65	62.	6	100
23720	48-35.150	-100.282	-3-03-	1.3	640	3.2	51	65.	25	30.	6	26
23722	48-35.157	-100.361	-3-03-	8.3	900	1.0	90	61.	17	96.	7	36
23724	48-35.187	-100.373	-3-03-	1.7	640	0.9	47	64.	39	24.	5	8
23732	48-35.114	-100.312	-3-03-	3.3	3400	<0.5	140	530.	48	46.	<4	1200
23733	48-35.114	-100.365	-3-03-	2.2	1400	<0.5	92	160.	55	38.	<4	270
23734	48-35.085	-100.373	-3-03-	6.3	4300	<0.5	190	400.	400	230.	<4	860
23735	48-35.061	-100.411	-3-03-	9.5	4900	<0.5	390	510.	240	170.	<4	1700
23736	48-35.119	-100.418	-3-03-	21.	3000	<0.5	260	420.	35	80.	<4	1200
23737	48-35.102	-100.434	-3-03-	13.	3500	<0.5	270	530.	70	85.	<4	1300
23739	48-35.041	-100.391	-3-03-	13.	6600	<0.5	380	840.	650	270.	<4	1600
23740	48-35.032	-100.433	-3-03-	4.4	5000	1.0	440	480.	260	160.	<4	1800
23744	48-35.051	-100.345	-3-03-	2.8	3600	0.9	230	570.	50	32.	<4	1400
23745	48-35.017	-100.298	-3-03-	6.8	3800	0.9	210	560.	97	47.	7	1500
23746	48-35.053	-100.277	-3-03-	5.6	3800	0.7	130	480.	100	50.	<4	1600
23747	48-35.084	-100.289	-3-03-	0.53	1200	2.5	70	98.	120	54.	6	130
23750	48-35.012	-100.367	-3-03-	7.5	5000	1.4	370	550.	370	190.	4	1200
23753	48-35.067	-100.480	-3-03-	25.	2300	2.9	180	230.	58	25.	11	680
23767	48-35.656	-100.366	-3-03-	2.6	560	3.3	51	57.	24	11.	5	9
23770	48-35.571	-100.440	-3-03-	2.5	590	2.6	47	61.	42	14.	13	14
23772	48-35.604	-100.477	-3-03-	2.3	520	0.8	43	56.	25	8.1	9	10
23773	48-35.620	-100.414	-3-03-	2.8	530	2.3	48	49.	22	8.7	14	8
23775	48-35.583	-100.403	-3-03-	2.3	550	1.2	61	50.	47	13.	9	13
23776	48-35.638	-100.400	-3-03-	1.8	570	3.2	57	65.	46	8.7	17	11
23777	48-35.658	-100.435	-3-03-	3.3	530	2.4	55	42.	13	8.6	14	8
23778	48-35.555	-100.376	-3-03-	1.3	580	3.0	43	62.	10	16.	5	12
23779	48-35.539	-100.374	-3-03-	2.6	680	2.0	42	51.	11	20.	7	15

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
23780	48-35.521	-100.259	-3-03-	0.90	580	1.2	21	53.	<10	19.	4	7
23781	48-35.601	-100.263	-3-03-	1.0	530	2.9	12	55.	<10	8.8	8	<5
23782	48-35.738	-100.263	-3-03-	5.4	740	1.7	90	65.	52	29.	13	20
23783	48-35.474	-100.398	-3-03-	1.2	510	1.5	22	56.	<10	13.	10	6
23787	48-35.326	-100.271	-3-03-	3.3	3700	1.3	160	560.	180	42.	<4	1400
23788	48-35.334	-100.381	-3-03-	1.9	1100	0.9	61	160.	16	20.	<4	390
23789	48-35.419	-100.638	-3-03-	0.80	5100	<0.5	50	420.	1200	160.	<4	78
23790	48-35.435	-100.707	-3-03-	2.5	610	0.8	60	52.	49	37.	<4	26
23801	48-35.315	-100.206	-3-03-	17.	770	0.6	820	400.	670	400.	<4	2200
23808	48-35.298	-100.160	-3-03-	9.8	2800	2.5	670	250.	56	180.	18	1000
23809	48-35.364	-100.170	-3-03-	7.5	2500	1.9	590	190.	85	180.	19	640
23810	48-35.374	-100.210	-3-03-	4.8	1000	3.9	140	55.	32	18.	30	31
23811	48-35.411	-100.167	-3-03-	0.48	660	1.2	20	59.	<10	45.	<4	11
23812	48-35.415	-100.239	-3-03-	12.	790	1.0	73	52.	19	71.	9	33
23813	48-35.445	-100.237	-3-03-	6.6	560	0.8	32	75.	23	37.	<4	20
23814	48-35.444	-100.173	-3-03-	2.8	670	1.0	23	46.	10	44.	9	18
23815	48-35.444	-100.120	-3-03-	3.3	670	2.1	120	52.	21	73.	15	33
23816	48-35.478	-100.141	-3-03-	6.7	2600	1.6	230	170.	200	220.	7	740
23818	48-35.491	-100.239	-3-03-	1.1	340	1.5	18	47.	<10	8.7	6	36
23819	48-35.401	-100.111	-3-03-	2.2	1500	2.9	120	180.	66	19.	26	150
23820	48-35.256	-100.129	-3-03-	2.6	780	1.0	51	61.	32	85.	5	80
23821	48-35.270	-100.077	-3-03-	6.8	940	<0.5	46	83.	52	63.	5	78
23827	48-35.415	-100.057	-3-03-	2.6	830	1.6	80	55.	18	54.	9	33
23828	48-35.323	-100.094	-3-03-	5.2	1900	5.3	250	250.	<10	15.	20	650
23830	48-35.328	-100.041	-3-03-	4.9	1000	2.0	150	75.	160	18.	17	67
23832	48-35.290	-100.221	-3-03-	4.8	3400	<0.5	200	570.	89	62.	<4	850
23833	48-35.470	-100.080	-3-03-	18.	4100	<0.5	980	450.	41	180.	<4	1200
23834	48-35.478	-100.052	-3-03-	2.7	670	0.9	37	49.	<10	38.	<4	25
23836	48-35.461	-100.034	-3-03-	15.	1300	3.6	370	46.	45	210.	15	70
23838	48-35.370	-100.095	-3-03-	3.4	1100	7.8	200	150.	21	28.	15	250
23842	48-35.281	-100.035	-3-03-	9.3	2800	0.7	280	190.	230	290.	<4	520
23843	48-35.252	-100.195	-3-03-	1.5	780	3.5	42	48.	<10	24.	5	29
23844	48-35.366	-100.010	-3-03-	4.7	3600	3.1	250	430.	240	74.	9	690
23845	48-35.402	-100.022	-3-03-	2.4	1800	8.1	130	200.	21	36.	15	360
23846	48-35.339	-100.146	-3-03-	18.	3800	4.7	810	530.	<10	120.	11	270
23847	48-35.105	-100.266	-3-03-	4.1	3000	1.0	130	570.	39	34.	<4	1000
23848	48-35.024	-100.485	-3- -	20.	3500	<0.5	1100	510.	75	150.	<4	1200
23850	48-35.133	-100.494	-3-03-	11.	2000	2.5	270	170.	140	200.	6	16
23853	48-35.443	-100.396	-3-03-	5.4	530	3.0	100	35.	<10	51.	6	8
23855	48-35.300	-100.249	-3-03-	2.4	3100	<0.5	160	530.	68	22.	<4	1000
23856	48-35.350	-100.220	-3-03-	11.	3600	4.4	450	430.	16	45.	14	1400
23858	48-35.188	-100.928	-3-03-	4.3	530	1.5	59	50.	<10	6.2	5	6
23901	48-35.012	-100.030	-3-03-	4.2	3300	<0.5	200	520.	54	12.	<4	1400
23902	48-35.030	-100.018	-3-03-	1.8	3100	0.6	250	500.	<10	18.	<4	1500
23904	48-35.056	-100.036	-3-03-	3.1	2400	1.1	230	340.	20	40.	4	1800
23906	48-35.018	-100.101	-3-03-	28.	4600	0.7	1800	460.	150	130.	<4	2300
23909	48-35.021	-100.134	-3-03-	14.	4200	0.7	350	460.	140	110.	<4	1900
23912	48-35.024	-100.185	-3-03-	4.3	1600	0.5	72	180.	40	36.	<4	300
23914	48-35.027	-100.220	-3-03-	4.2	3900	0.5	190	520.	150	56.	<4	1500
23916	48-35.057	-100.235	-3-03-	5.6	3500	<0.5	180	520.	16	59.	<4	1600
23917	48-35.060	-100.191	-3-03-	10.0	3500	<0.5	160	470.	31	50.	<4	1500
23919	48-35.047	-100.131	-3-03-	5.7	3600	0.7	230	530.	57	47.	<4	1600
23921	48-35.102	-100.172	-3-03-	5.7	3400	<0.5	240	520.	39	34.	<4	1600
23922	48-35.076	-100.125	-3-03-	4.3	3500	0.5	210	500.	25	24.	<4	1600
23923	48-35.080	-100.183	-3-03-	11.	3800	<0.5	180	520.	77	47.	<4	1800

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE AMARILLO QUADRANGLE

AMARILLO QUADRANGLE - GROUNDWATER

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST	LAT	LONG	L TY REP	U-FL (PPB)	SP UMHOS/CM	AS (PPB)	B (PPB)	CA (PPM)	CL (PPM)	NA (PPM)	V (PPB)	SO4 (PPM)
23924	48-35.085	-100.241	-3-03-		2.6	1700	0.8	83	220.	24	25.	5	330
23925	48-35.106	-100.215	-3-03-		1.8	2200	0.5	110	360.	28	21.	4	820
23927	48-35.094	-100.129	-3-03-		5.4	3200	<0.5	220	520.	<10	13.	<4	1300
23928	48-35.070	-100.078	-3-03-		2.7	4500	<0.5	1000	560.	100	90.	<4	1800
23931	48-35.154	-100.194	-3-03-		4.1	3200	0.7	180	490.	29	24.	<4	1300
23932	48-35.234	-100.234	-3-03-		6.3	3900	0.7	220	540.	110	68.	<4	1300
23935	48-35.249	-100.209	-3-03-		2.8	1400	1.9	66	150.	23	36.	4	26
23936	48-35.241	-100.134	-3-03-		3.3	870	<0.5	34	58.	14	87.	<4	42
23937	48-35.228	-100.072	-3-03-		12.	3600	0.7	370	510.	76	100.	<4	1400
23938	48-35.231	-100.025	-3-03-		12.	3900	0.9	630	450.	110	140.	<4	1500
23939	48-35.197	-100.168	-3-03-		3.3	3000	<0.5	150	550.	33	58.	<4	1300
23940	48-35.200	-100.232	-3-03-		4.6	3800	0.9	180	600.	110	39.	<4	1300
23941	48-35.050	-100.094	-3-03-		4.0	3300	0.8	300	540.	32	22.	<4	1300
23946	48-35.196	-100.126	-3-03-		3.2	3100	0.8	130	610.	10	17.	4	1200
23950	48-35.128	-100.050	-3-03-		3.4	3200	1.5	120	630.	13	10.	<4	1200
23951	48-35.095	-100.029	-3-03-		3.5	3300	1.0	170	550.	<10	14.	<4	1100

APPENDIX B

STREAM SEDIMENT

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APPENDIX B

STREAM SEDIMENT

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES, Continued

LIST OF FIGURES, Continued

Table B-1

STATISTICAL SUMMARY FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

ELEMENT	NO. SAMPLES ANALYZED: MEASURABLE VALUES	BELOW DETECTION LIMIT	DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	COEFFICIENT OF VARIATION	LN TRANSFORMATION MEAN	LN TRANSFORMATION S. D.	ROBUST MEAN	ROBUST S. D.
U-FL	580			0.26	6.86	1.53	1.47	1.61	0.603	0.394	0.36	0.37	0.37	0.35
U-NT	576			0.40	20.70	3.08	2.60	2.23	1.675	0.544	1.04	0.38	1.02	0.35
TH	574	6	<2	<2	14	6	6	5	2.0	0.3	1.81	0.34	1.82	0.35
U/TU	576			0.09	1.80	0.54	0.53	0.53	0.192	0.355	-0.68	0.37	-0.67	0.35
TH/U	580			0.00	12.50	2.36	2.33	2.04	1.068	0.452	0.69	0.96	0.78	0.53
AG	0	580	<2	<2	<2		<2	<2						
AL	580			0.62	5.41	3.04	2.97	2.75	0.647	0.213	1.09	0.23	1.10	0.21
AS	578			0.4	19.2	2.1	1.9	1.9	1.20	0.58	0.65	0.38	0.65	0.34
B	240	340	<10	<10	39	15	<10	<10	6.1	0.4	2.69	0.34		
BA	580			74	7512	531	507	499	333.9	0.6	6.23	0.27	6.22	0.20
BE	577	3	<1	<1	7	1	2	1	0.6	0.4	0.38	0.37		
CA	580			0.12	19.59	2.95	2.48	2.15	2.164	0.733	0.84	0.73	0.86	0.77
CE	555			12	87	34	33	29	9.6	0.3	3.51	0.28	3.51	0.28
CO	515	65	<4	<4	21	6	6	6	2.0	0.3	1.81	0.30	1.74	0.34
CR	580			8	54	21	21	20	7.0	0.3	3.04	0.32	3.04	0.32
CU	579	1	<2	<2	668	16	12	9	36.0	2.2	2.51	0.54	2.46	0.40
FE	580			0.36	4.99	1.44	1.38	1.23	0.485	0.337	0.31	0.32	0.32	0.31
K	580			0.19	1.95	1.25	1.26	1.29	0.265	0.212	0.19	0.24	0.21	0.22
LI	580			6	59	18	16	12	8.9	0.5	2.80	0.43	2.79	0.45
MG	580			0.06	3.53	0.56	0.41	0.34	0.484	0.862	-0.81	0.64	-0.84	0.69
MN	580			97	6043	367	307	281	349.2	1.0	5.77	0.45	5.75	0.42
MO	135	445	<4	<4	12	5	<4	<4	1.7	0.3	1.66	0.27		
NA	580			0.06	1.45	0.56	0.55	0.61	0.144	0.256	-0.61	0.29	-0.59	0.26
NB	579	1	<4	<4	73	10	10	10	5.4	0.5	2.30	0.35	2.28	0.34
NI	578	2	<2	<2	25	9	9	7	3.5	0.4	2.15	0.40	2.15	0.40
P	580			38	919	280	271	349	120.8	0.4	5.54	0.46	5.55	0.45
SC	580			1	10	4	4	3	1.4	0.3	1.38	0.33	1.39	0.34
SE	525	53	<0.1	<0.1	2.8	0.5	0.4	0.4	0.37	0.76	-0.98	0.75	-1.12	0.95
SR	580			30	1063	140	114	100	94.2	0.7	4.83	0.41	4.79	0.39
TI	580			419	16871	2103	1863	1861	1200.7	0.6	7.57	0.37	7.55	0.37
V	580			10	129	41	40	32	13.2	0.3	3.67	0.31	3.67	0.30
Y	580			3	29	11	11	11	3.2	0.3	2.41	0.28	2.41	0.26
ZN	580			10	92	33	30	27	13.7	0.4	3.42	0.39	3.42	0.39
ZR	580			26	281	67	65	62	21.7	0.3	4.17	0.27	4.16	0.28

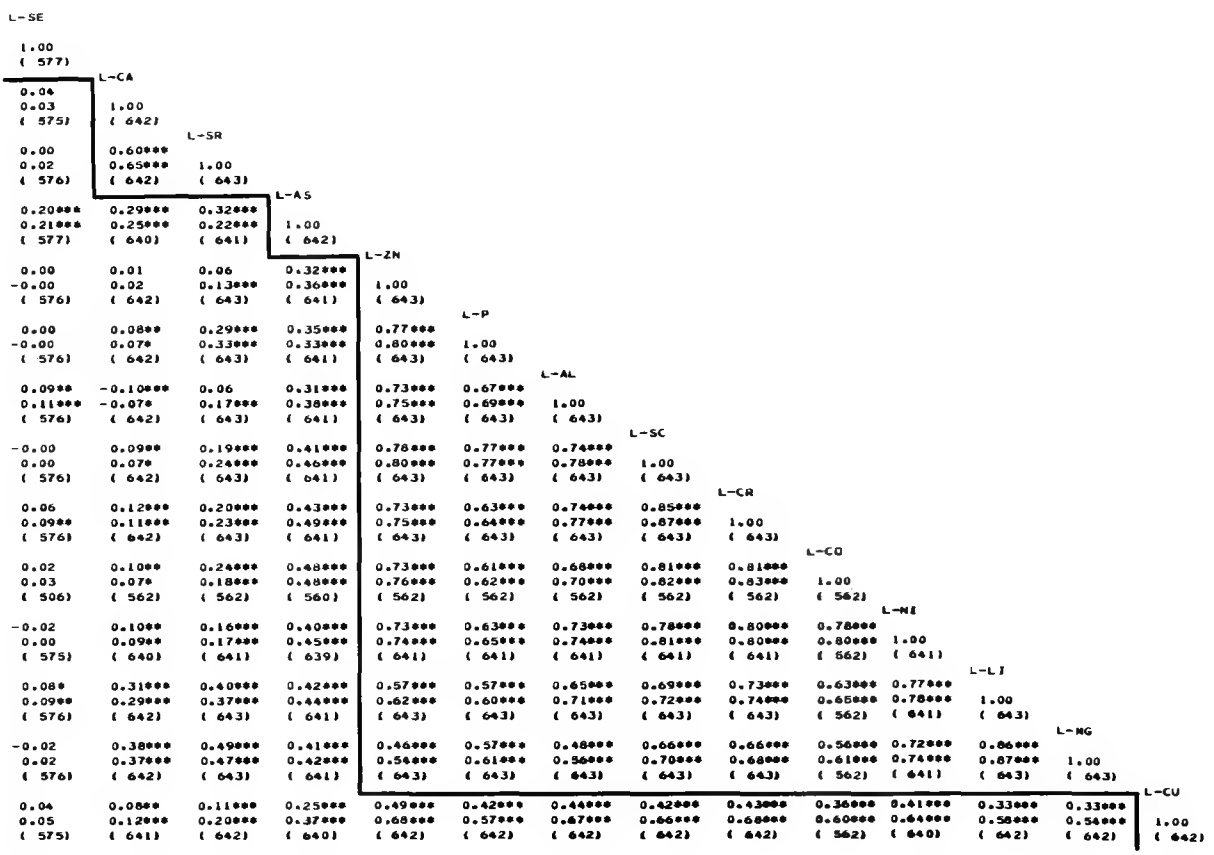
NOTE: Refer to Table 1, Page 21 and Table C-1, Page C-4 for concentration units and symbol definitions.

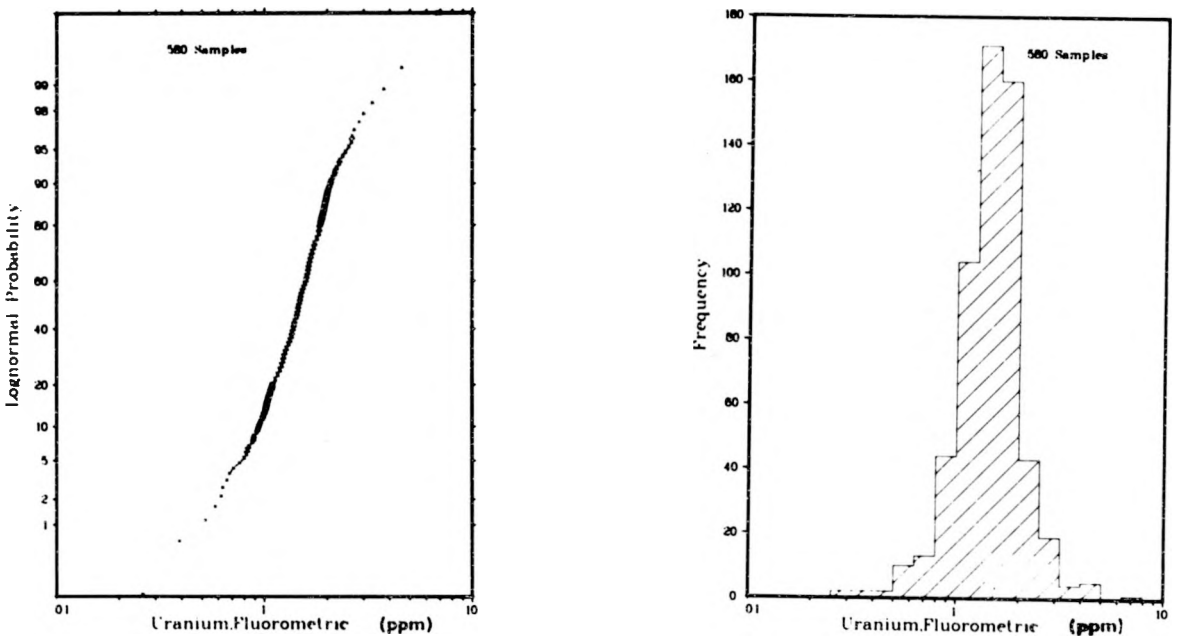
Table B-2

CORRELATION MATRIX FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

	L-U	L-ZR	L-TI	LUNT	L-MN	L-V	L-FE	L-Y	L-CE	L-NB	L-TH	L-BA	L-NA	L-K
L-U	1.00 (644)													
L-ZR	0.56**** 0.56**** (643)	1.00 (643)												
L-TI	0.54**** 0.54**** (643)	0.86**** 0.83**** (643)	1.00 (643)											
LUNT	0.46**** 0.40**** (640)	0.71**** 0.57**** (639)	0.80**** 0.74**** (639)	1.00 (640)										
L-MN	0.44**** 0.52**** (643)	0.60**** 0.65**** (643)	0.62**** 0.66**** (643)	0.50**** 0.45**** (639)	1.00 (643)									
L-V	0.50**** 0.49**** (643)	0.69**** 0.65**** (643)	0.70**** 0.71**** (643)	0.48**** 0.41**** (639)	0.48**** 0.54**** (643)	1.00 (643)								
L-FE	0.51**** 0.52**** (643)	0.70**** 0.67**** (643)	0.67**** 0.69**** (643)	0.47**** 0.38**** (639)	0.62**** 0.66**** (643)	0.94**** 0.94**** (643)	1.00 (643)							
L-Y	0.52**** 0.53**** (643)	0.80**** 0.74**** (643)	0.79**** 0.81**** (643)	0.57**** 0.51**** (639)	0.57**** 0.67**** (643)	0.87**** 0.84**** (643)	0.83**** 0.83**** (643)	1.00 (643)						
L-CE	0.42**** 0.42**** (616)	0.62**** 0.56**** (616)	0.60**** 0.61**** (616)	0.43**** 0.36**** (612)	0.40**** 0.46**** (616)	0.76**** 0.74**** (616)	0.73**** 0.72**** (616)	0.76**** 0.74**** (616)	1.00 (616)					
L-NB	0.49**** 0.46**** (642)	0.68**** 0.60**** (642)	0.79**** 0.76**** (642)	0.65**** 0.57**** (638)	0.51**** 0.49**** (642)	0.70**** 0.69**** (642)	0.65**** 0.62**** (642)	0.72**** 0.71**** (642)	0.68**** 0.70**** (616)	1.00 (642)				
L-TH	0.16**** 0.18**** (635)	0.33**** 0.33**** (635)	0.29**** 0.35**** (635)	0.16**** 0.17**** (631)	0.26**** 0.29**** (635)	0.54**** 0.54**** (635)	0.48**** 0.48**** (635)	0.52**** 0.55**** (635)	0.66**** 0.66**** (609)	0.41**** 0.46**** (635)	1.00 (635)			
L-BA	0.13**** 0.13**** (642)	0.10** 0.08* (642)	0.27**** 0.29**** (642)	0.23**** 0.29**** (638)	0.14**** 0.17**** (642)	0.27**** 0.24**** (642)	0.18**** 0.14**** (642)	0.35**** 0.35**** (642)	0.13**** 0.09**** (616)	0.23**** 0.26**** (641)	0.16**** 0.15**** (634)	1.00 (642)		
L-NA	0.13**** 0.08**** (643)	0.07* 0.03 (643)	0.15**** 0.11**** (643)	0.08* 0.02 (639)	0.01 0.03 (643)	0.00 -0.07* (643)	-0.01 -0.08**** (643)	0.13**** 0.09**** (643)	0.06 0.02 (616)	0.10**** 0.07* (642)	-0.12**** -0.14**** (635)	0.31**** 0.26**** (642)	1.00 (643)	
L-K	0.14**** 0.14**** (643)	0.07* 0.06 (643)	0.09** 0.08**** (643)	-0.02 -0.07* (639)	-0.03 0.07* (643)	0.11**** 0.07* (643)	0.09** 0.10**** (643)	0.08** 0.03 (643)	0.19**** 0.19**** (616)	0.08* 0.07* (642)	-0.17**** -0.18**** (635)	0.09** -0.06 (642)	0.60**** 0.46**** (643)	1.00 (643)
L-SE	0.09** 0.06 (577)	-0.00 0.00 (576)	0.02 0.02 (576)	0.02 0.03 (576)	-0.02 -0.06 (576)	0.03 0.02 (576)	0.01 0.02 (576)	-0.05 -0.06 (576)	0.04 0.07 (549)	0.02 0.02 (575)	-0.10** -0.11**** (570)	-0.08* -0.06 (575)	0.09** 0.07* (576)	0.14**** 0.15**** (576)
L-CA	0.01 0.01 (642)	-0.13**** -0.10**** (642)	-0.17**** -0.17**** (642)	-0.15**** -0.14**** (638)	0.08** 0.02 (642)	0.07* 0.07* (642)	0.06 0.05 (642)	-0.08* -0.06 (642)	-0.18**** -0.17**** (616)	-0.02 -0.01 (641)	0.04 0.03 (634)	0.10**** 0.18**** (642)	-0.31**** -0.36**** (642)	-0.30**** -0.30**** (642)
L-SR	0.15**** 0.19**** (643)	-0.04 0.04 (643)	-0.10** -0.02 (643)	-0.14**** -0.06 (639)	0.30**** 0.27**** (643)	0.04 0.13**** (643)	0.12**** 0.17**** (643)	0.00 0.12**** (643)	-0.07* 0.00 (616)	-0.01 0.07* (642)	-0.01 0.02 (635)	-0.04 0.22**** (642)	-0.09** 0.01 (643)	-0.10**** -0.03 (643)
L-AS	0.26**** 0.30**** (642)	0.19**** 0.28**** (641)	0.09** 0.20**** (641)	0.03 0.08** (638)	0.40**** 0.34**** (641)	0.41**** 0.45**** (641)	0.49**** 0.49**** (641)	0.25**** 0.28**** (641)	0.26**** 0.32**** (614)	0.16**** 0.22**** (640)	0.20**** 0.22**** (633)	0.04 0.01 (640)	-0.10** -0.14**** (641)	0.02 0.07* (641)
L-ZN	0.23**** 0.27**** (643)	0.30**** 0.32**** (643)	0.24**** 0.32**** (643)	0.04 0.06 (639)	0.23**** 0.33**** (643)	0.72**** 0.74**** (643)	0.71**** 0.75**** (643)	0.59**** 0.62**** (643)	0.60**** 0.60**** (616)	0.31**** 0.37**** (642)	0.46**** 0.46**** (635)	0.14**** 0.08** (642)	0.03 -0.05 (643)	0.21**** 0.16**** (643)
L-P	0.35**** 0.37**** (643)	0.35**** 0.38**** (643)	0.29**** 0.33**** (643)	0.00 0.01 (639)	0.43**** 0.51**** (643)	0.61**** 0.61**** (643)	0.67**** 0.67**** (643)	0.60**** 0.61**** (643)	0.49**** 0.48**** (616)	0.29**** 0.31**** (642)	0.39**** 0.39**** (635)	0.13**** 0.11**** (642)	0.17**** 0.12**** (643)	0.20**** 0.20**** (643)
L-AL	0.23**** 0.26**** (643)	0.23**** 0.29**** (643)	0.17**** 0.28**** (643)	-0.10**** -0.08** (639)	0.09** 0.22**** (643)	0.61**** 0.64**** (643)	0.57**** 0.63**** (643)	0.52**** 0.53**** (643)	0.57**** 0.60**** (616)	0.23**** 0.33**** (642)	0.31**** 0.34**** (635)	0.20**** 0.05 (642)	0.37**** 0.24**** (643)	0.59**** 0.50**** (643)
L-SC	0.36**** 0.38**** (643)	0.53**** 0.52**** (643)	0.40**** 0.44**** (643)	0.09** 0.06 (639)	0.39**** 0.49**** (643)	0.81**** 0.80**** (643)	0.82**** 0.83**** (643)	0.72**** 0.71**** (643)	0.67**** 0.66**** (616)	0.42**** 0.43**** (642)	0.50**** 0.50**** (635)	0.07* 0.01 (642)	-0.06 -0.10**** (643)	0.14**** 0.14**** (643)
L-CR	0.34**** 0.37**** (643)	0.45**** 0.48**** (643)	0.33**** 0.40**** (643)	0.09** 0.08* (639)	0.28**** 0.39**** (643)	0.76**** 0.77**** (643)	0.75**** 0.78**** (643)	0.59**** 0.59**** (643)	0.73**** 0.73**** (616)	0.39**** 0.44**** (642)	0.47**** 0.47**** (635)	0.01 -0.05 (642)	-0.09** -0.15**** (643)	0.25**** 0.25**** (643)
L-CO	0.31**** 0.35**** (562)	0.33**** 0.38**** (562)	0.21**** 0.31**** (562)	-0.01 -0.01 (559)	0.39**** 0.46**** (562)	0.70**** 0.72**** (562)	0.78**** 0.80**** (562)	0.53**** 0.54**** (562)	0.60**** 0.61**** (539)	0.31**** 0.35**** (562)	0.41**** 0.42**** (561)	-0.12**** -0.11** (562)	-0.15**** -0.18**** (562)	0.17**** 0.19**** (562)
L-NI	0.17**** 0.23**** (641)	0.20**** 0.29**** (641)	0.04 0.19**** (641)	-0.16**** -0.12**** (637)	0.12**** 0.28**** (641)	0.58**** 0.61**** (641)	0.61**** 0.66**** (641)	0.38**** 0.42**** (641)	0.46**** 0.48**** (614)	0.10**** 0.20**** (640)	0.33**** 0.34**** (633)	-0.03 -0.16**** (640)	-0.09** -0.18**** (641)	0.23**** 0.22**** (641)
L-LI	0.18**** 0.20**** (643)	0.13**** 0.22**** (643)	-0.09** 0.02 (643)	-0.29**** -0.26**** (639)	0.06 0.16**** (643)	0.40**** 0.44**** (643)	0.43**** 0.48**** (643)	0.19**** 0.23**** (643)	0.30**** 0.33**** (616)	0.01 0.09** (642)	0.23**** 0.23**** (635)	-0.15**** -0.24**** (642)	-0.09** -0.15**** (643)	0.28**** 0.28**** (643)
L-MG	0.18**** 0.19**** (643)	0.16**** 0.22**** (643)	-0.07* -0.00 (643)	-0.26**** -0.27**** (639)	0.18**** 0.25**** (643)	0.33**** 0.38**** (643)	0.40**** 0.46**** (643)	0.18**** 0.22**** (643)	0.20**** 0.25**** (616)	-0.03 0.03 (642)	0.20**** 0.24**** (635)	-0.14**** -0.20**** (642)	-0.19**** -0.24**** (643)	0.14**** 0.13**** (643)
L-CU	0.11**** 0.20**** (642)	0.09** 0.28**** (642)	0.06 0.20**** (642)	-0.07* -0.03 (638)	0.12**** 0.21**** (642)	0.38**** 0.58**** (642)	0.35**** 0.55**** (642)	0.30**** 0.44**** (642)	0.27**** 0.44**** (615)	0.14**** 0.30**** (641)	0.21**** 0.38**** (634)	0.11**** 0.08 (641)	-0.02 -0.11**** (642)	0.12**** 0.17**** (642)

NOTE: (1) Pearson correlation/Spearman correlation/(sample size). If either element has a concentration below the laboratory detection limits, it is omitted from the pairwise computations.
(2) Significance levels: *-10%, **-5%, ***-1%.





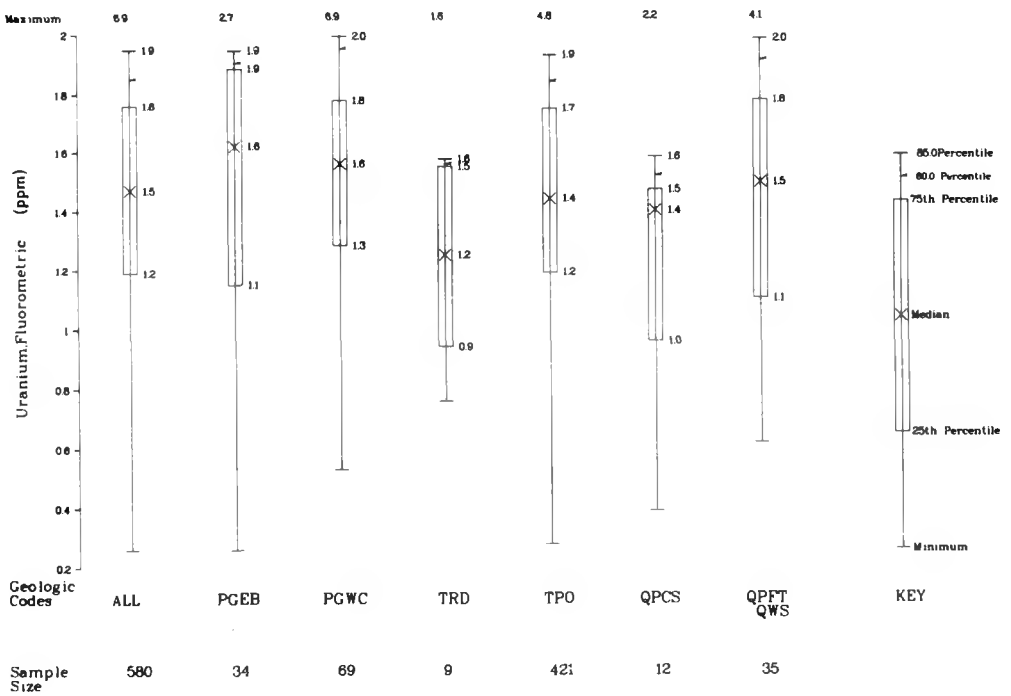


Figure B-1a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR SOLUBLE URANIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

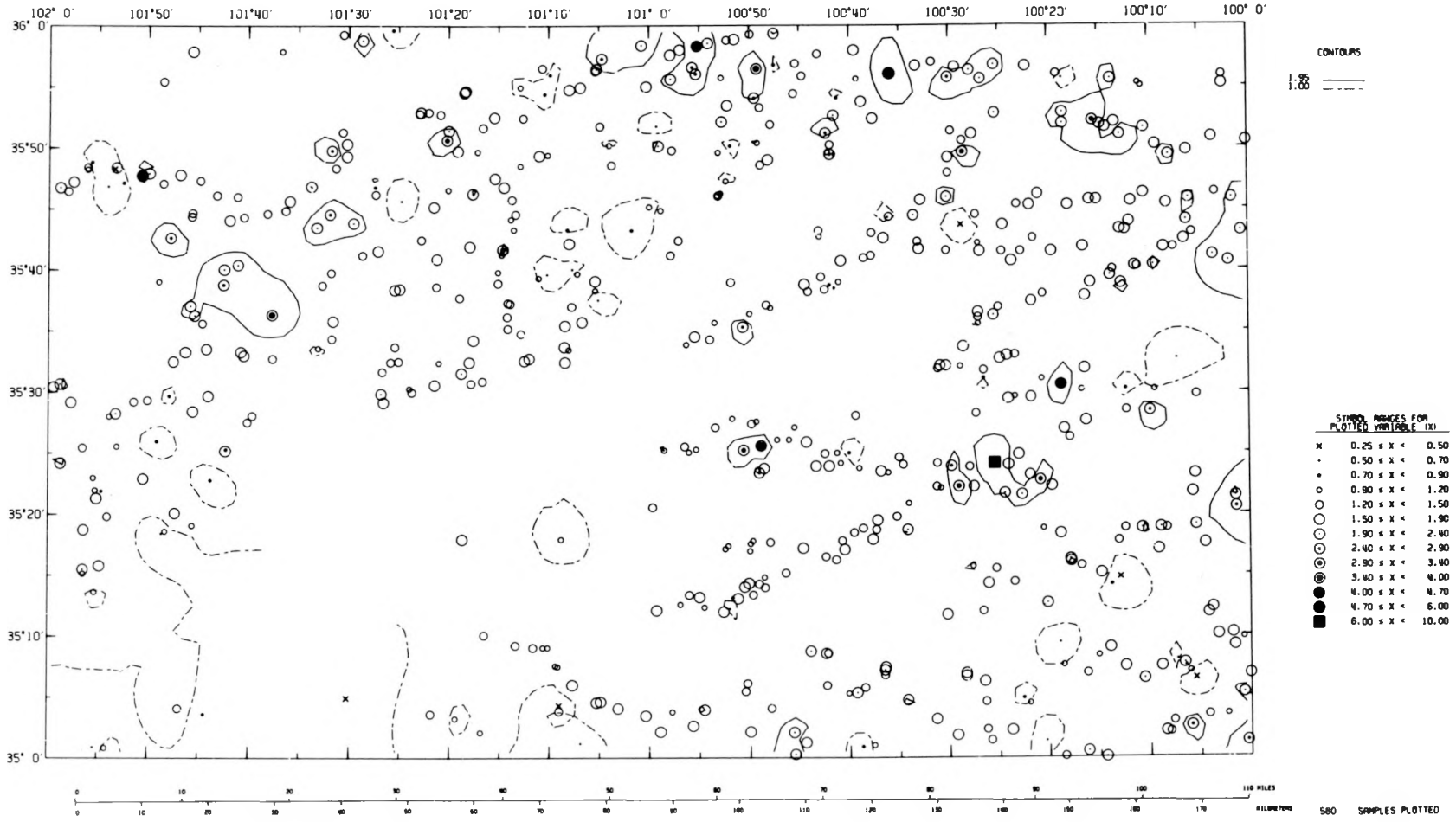
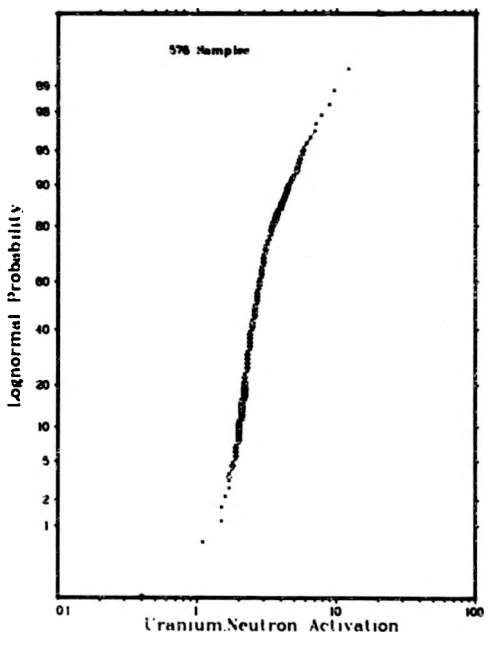
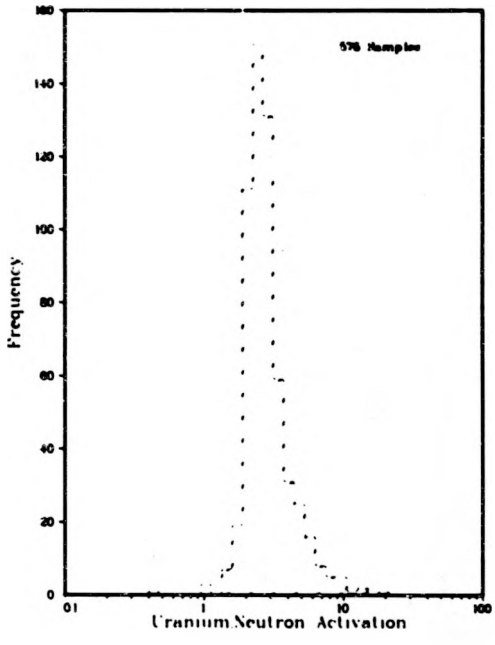


Figure B-1b

GEOCHEMICAL DISTRIBUTION OF SOLUBLE URANIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE





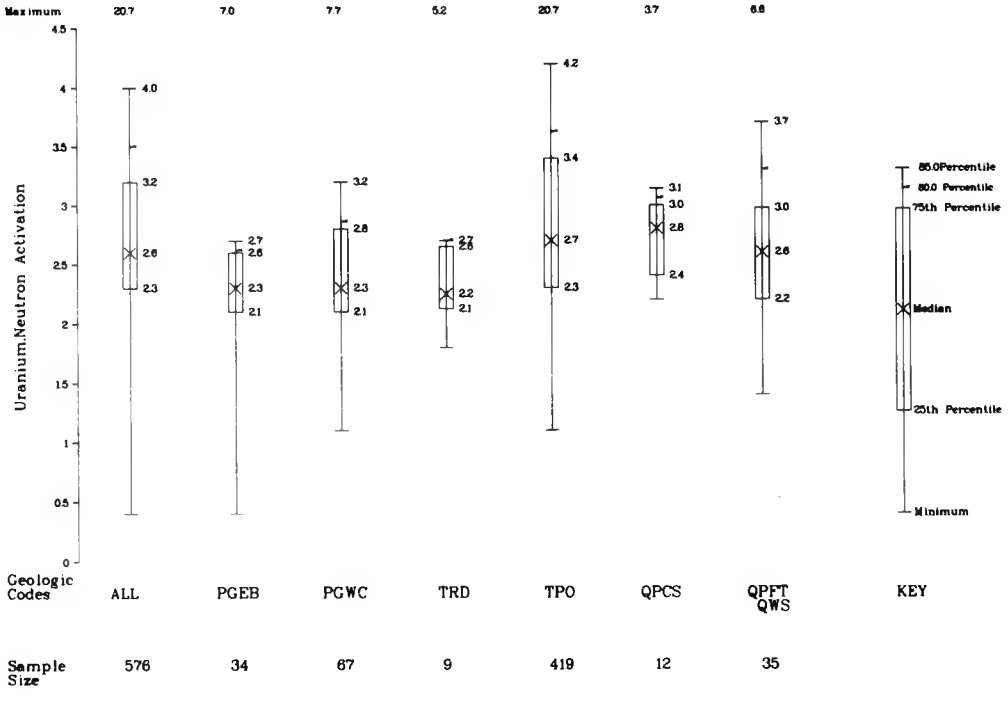


Figure B-2a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR URANIUM BY NEUTRON ACTIVATION IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

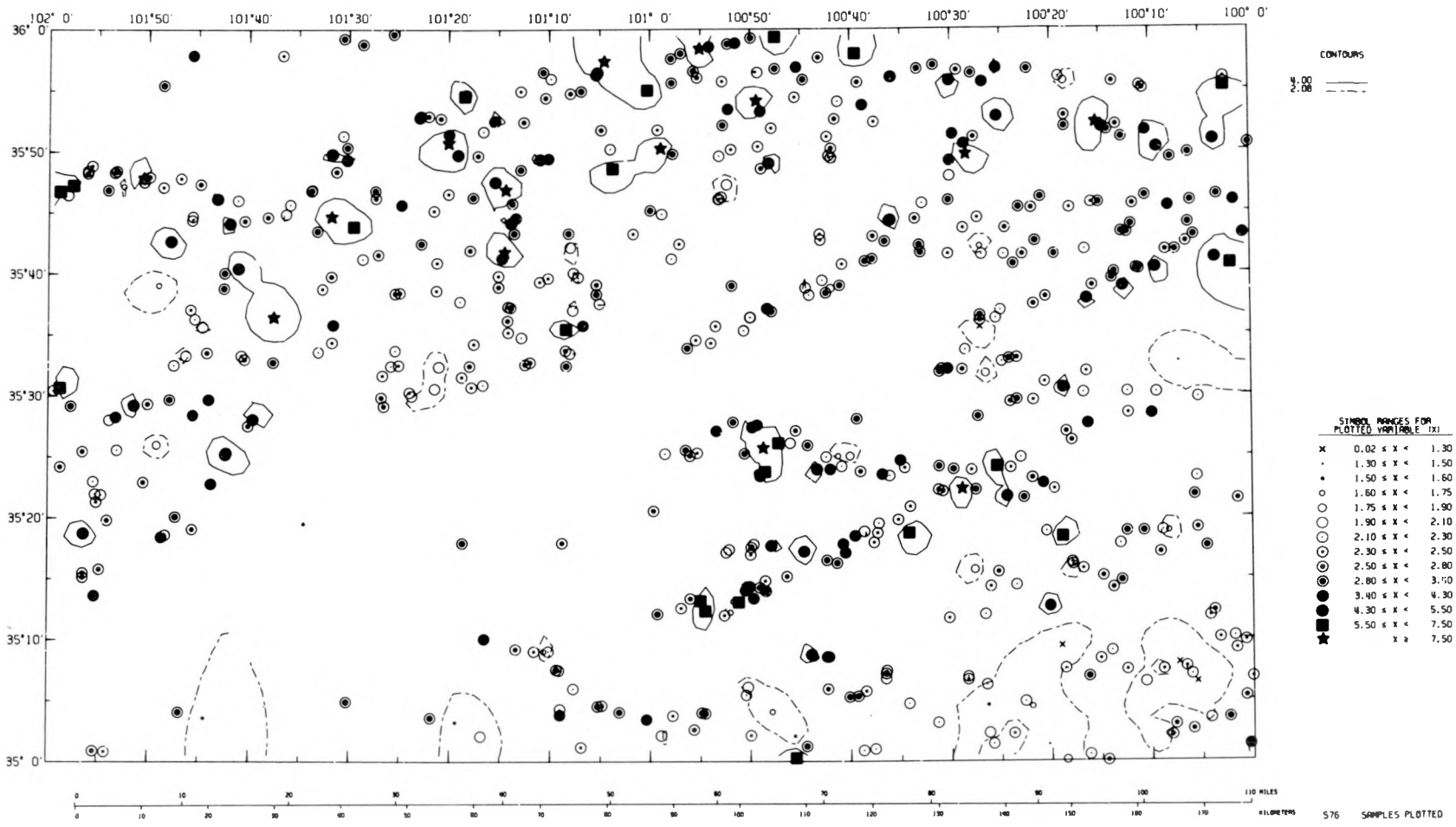


Figure B-2b

GEOCHEMICAL DISTRIBUTION OF URANIUM BY NEUTRON ACTIVATION (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

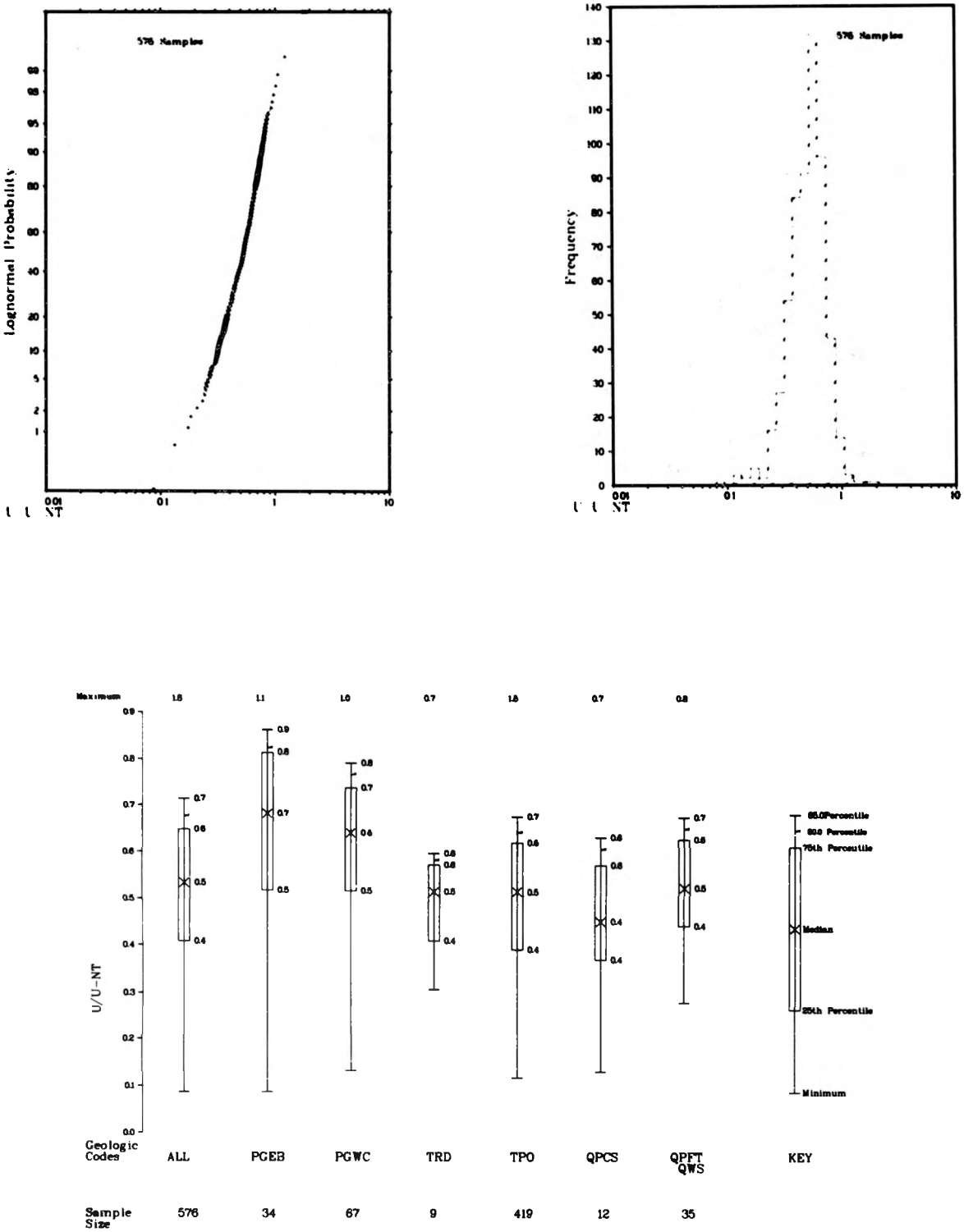


Figure B-3a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR URANIUM FLUOROMETRIC/ URANIUM NEUTRON ACTIVATION IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

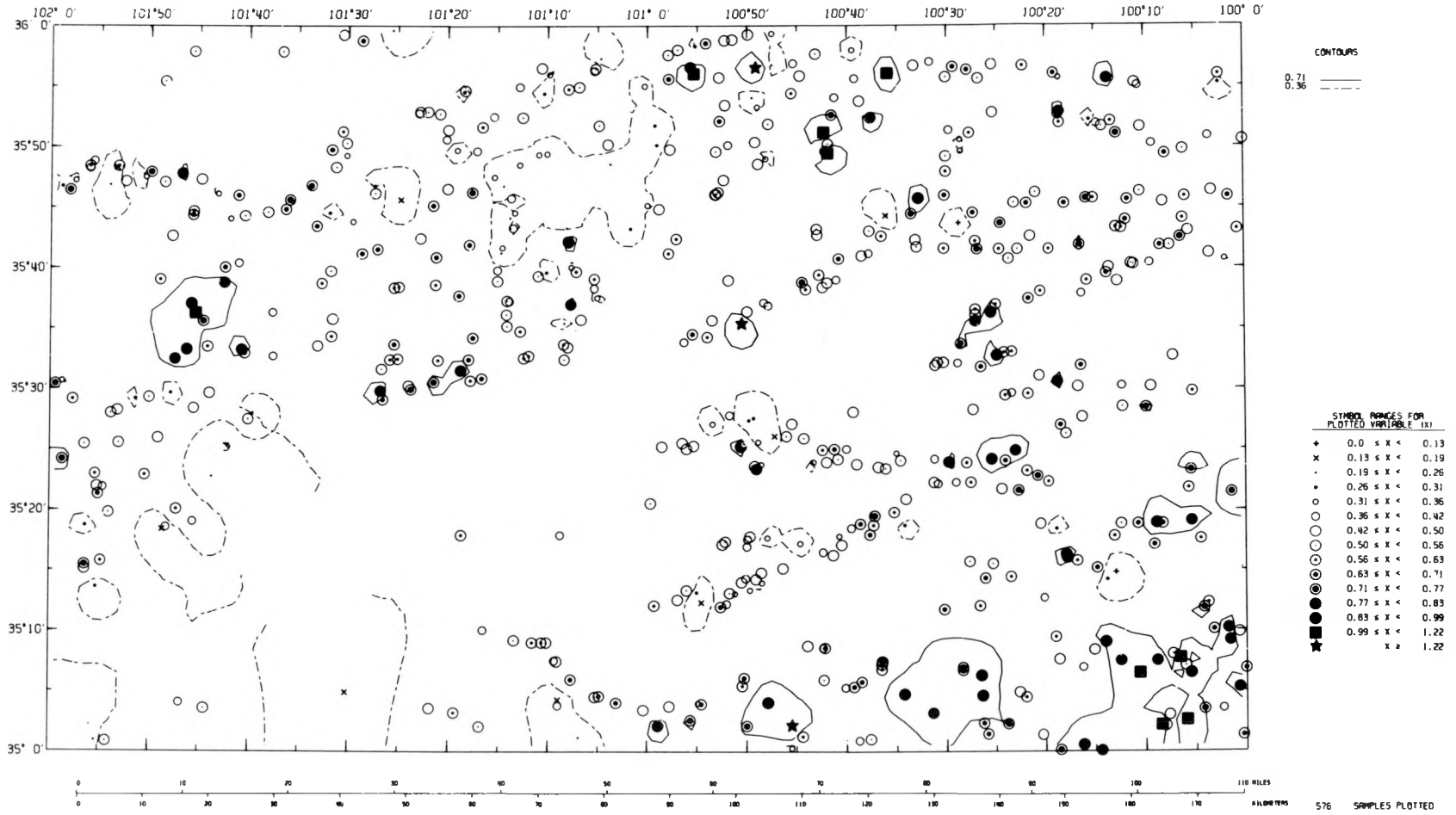
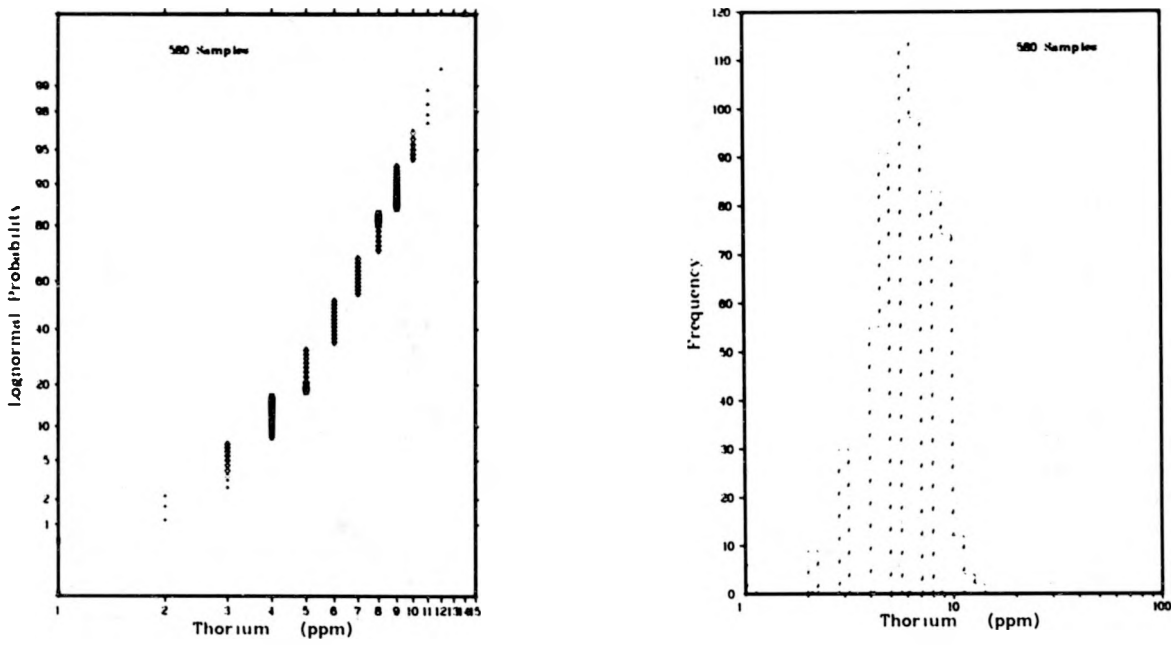


Figure B-3b

GEOCHEMICAL DISTRIBUTION OF URANIUM FLUOROMETRIC/URANIUM NEUTRON ACTIVATION IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



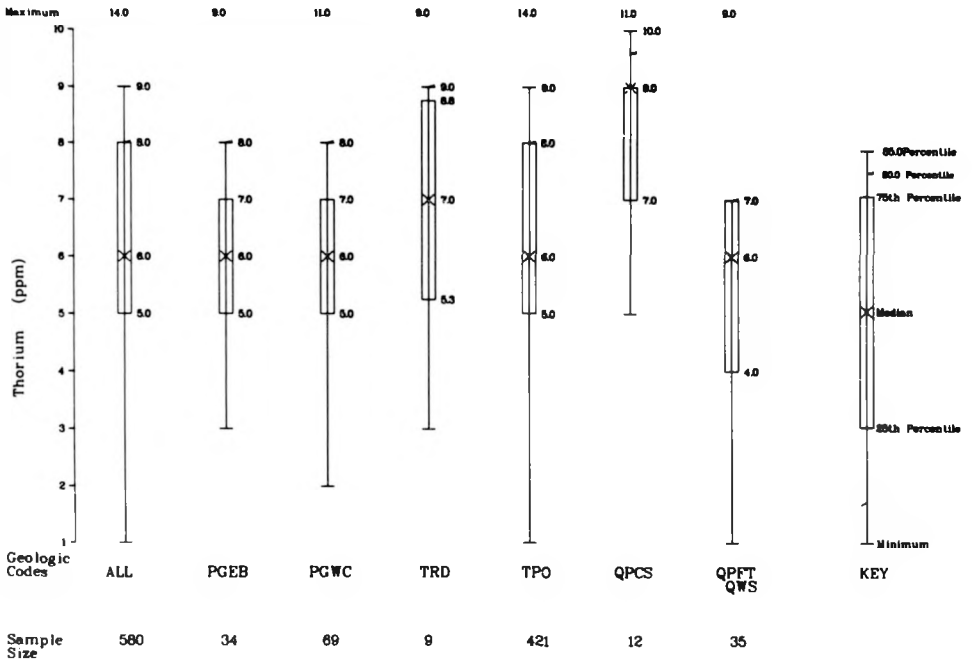


Figure B-4a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR THORIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

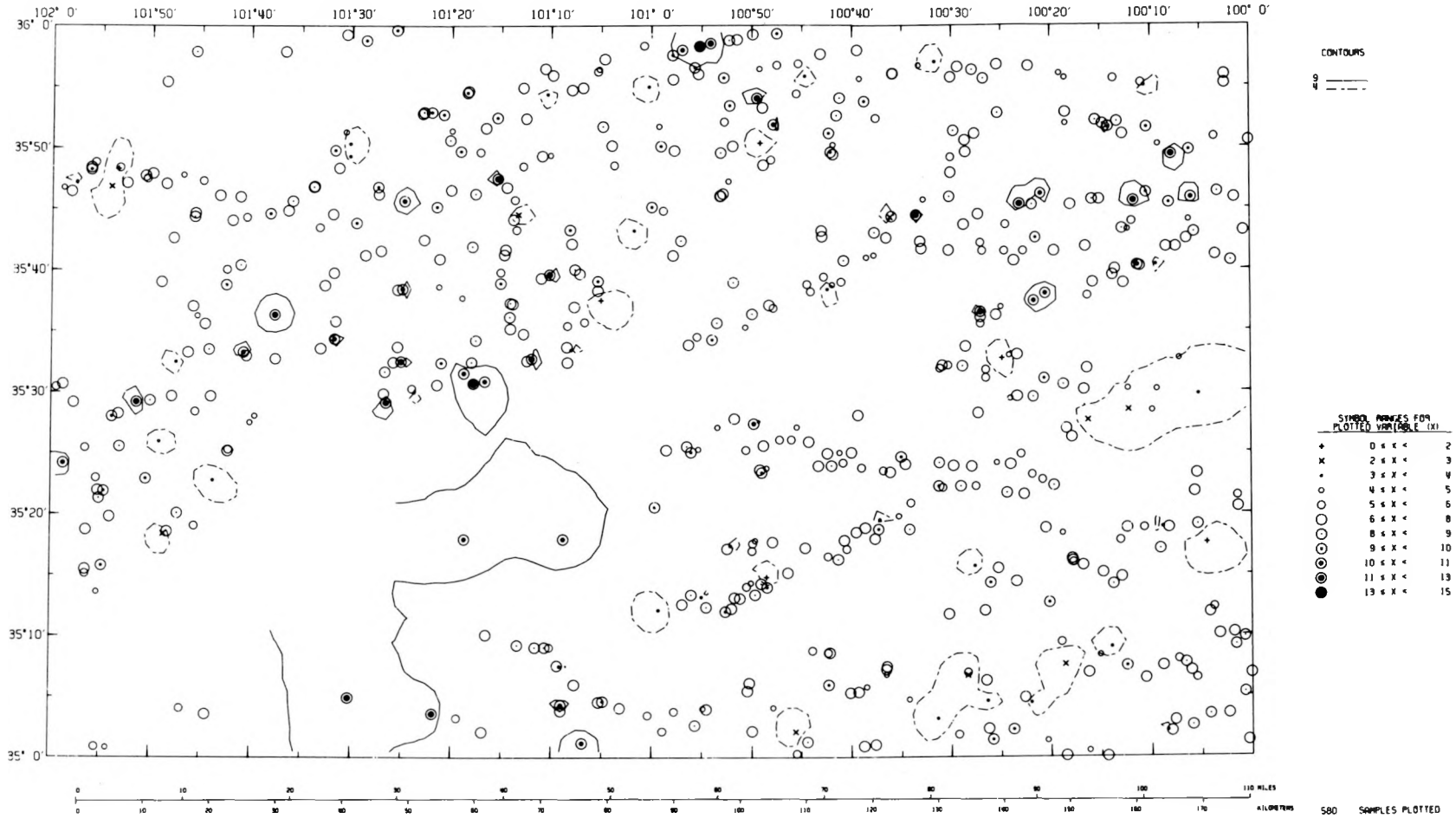
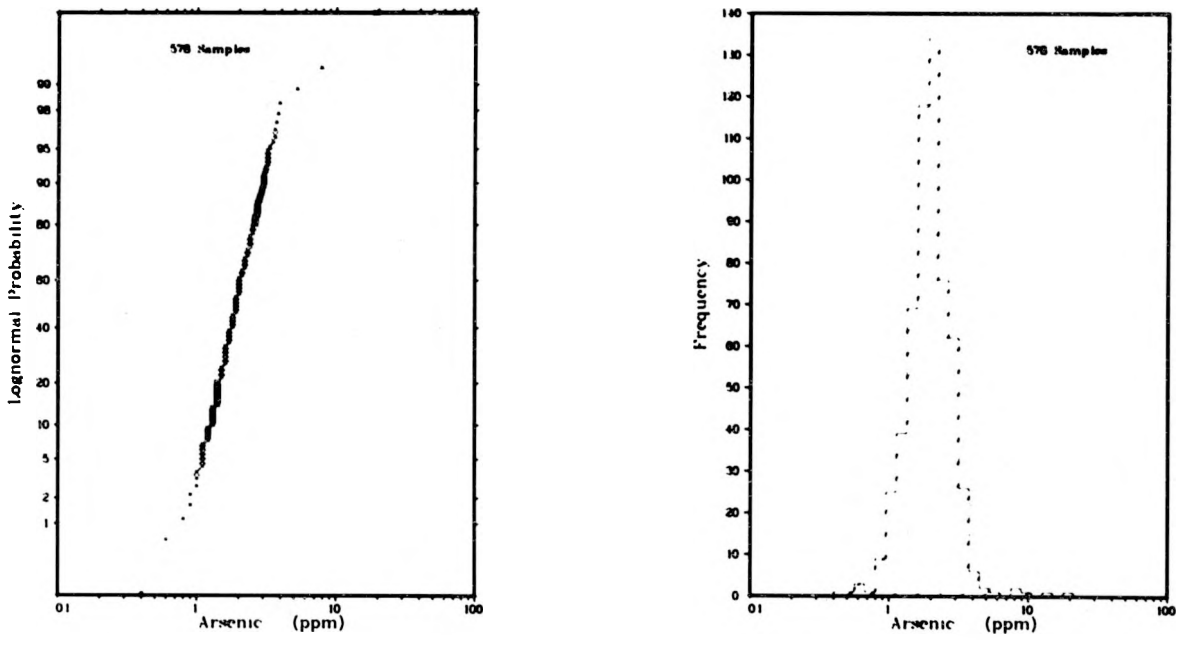


Figure B-4b

GEOCHEMICAL DISTRIBUTION OF THORIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



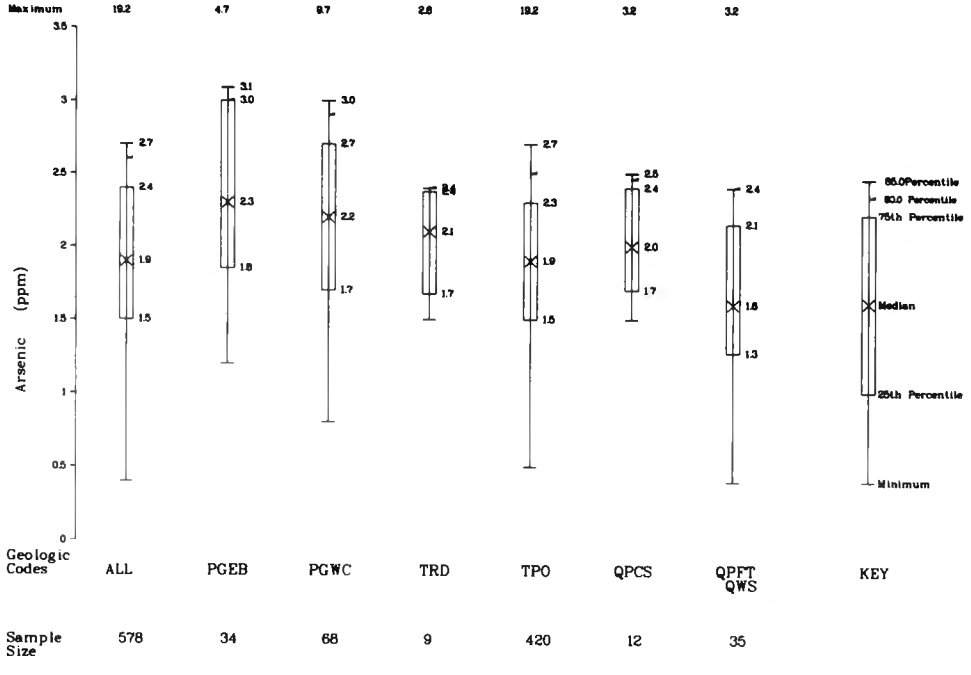


Figure B-5a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR ARSENIC (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

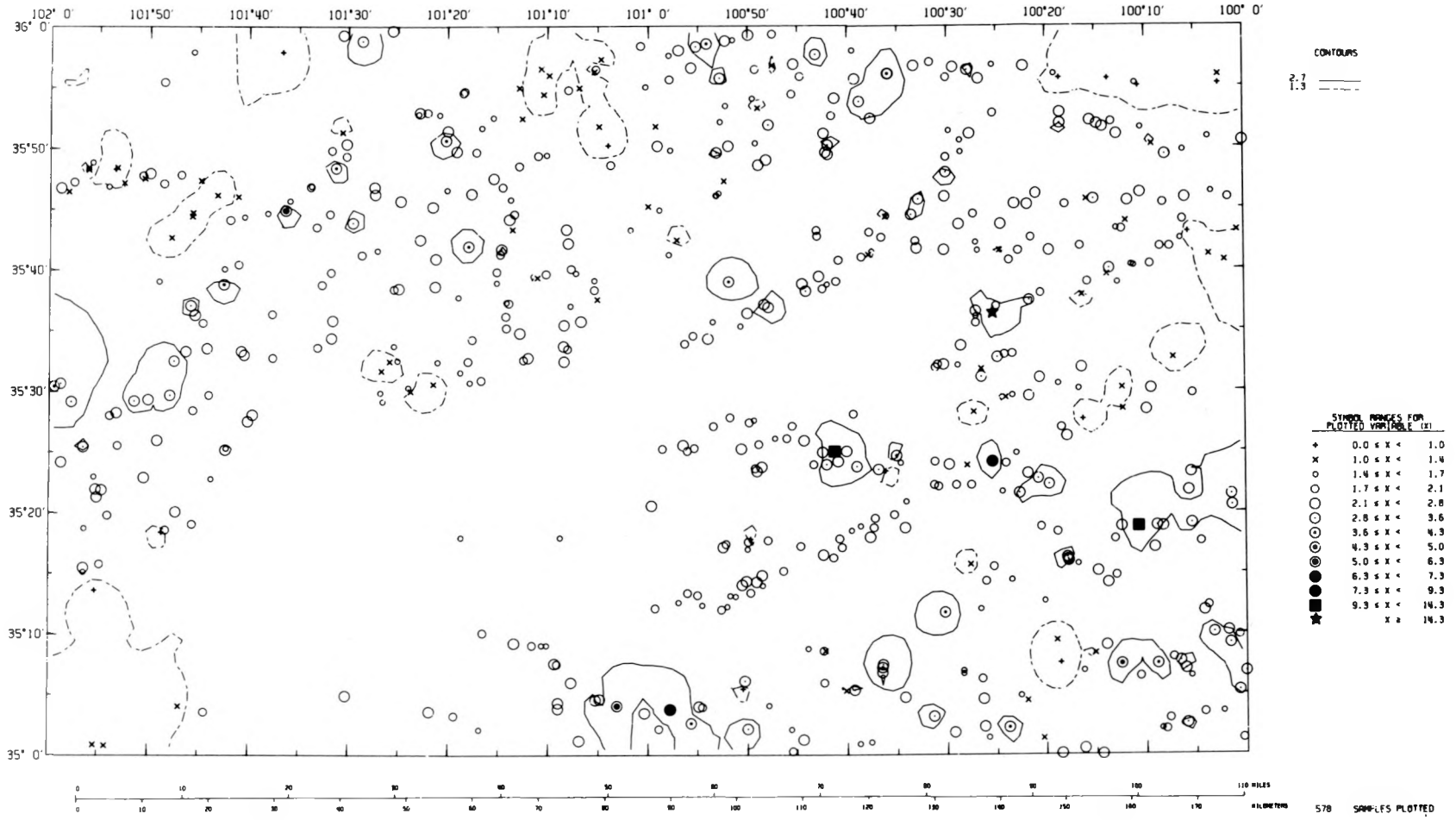
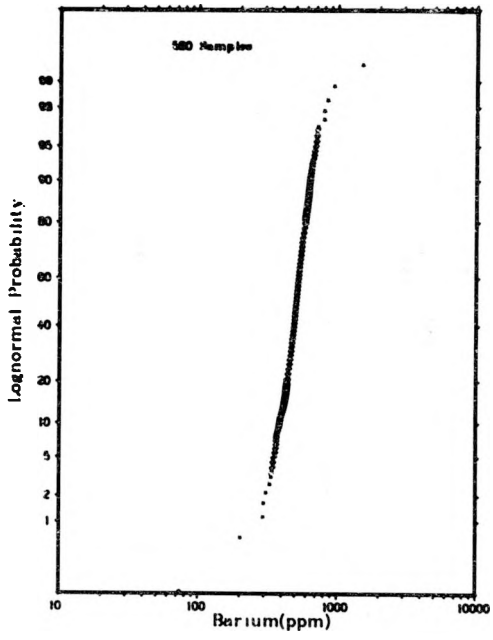
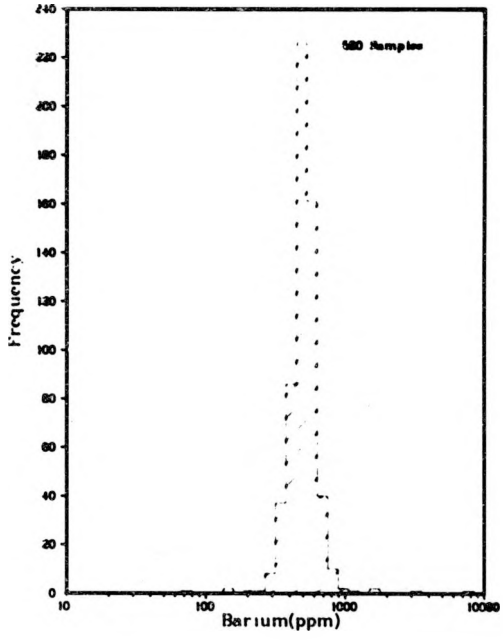


Figure B-5b

GEOCHEMICAL DISTRIBUTION OF ARSENIC (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE





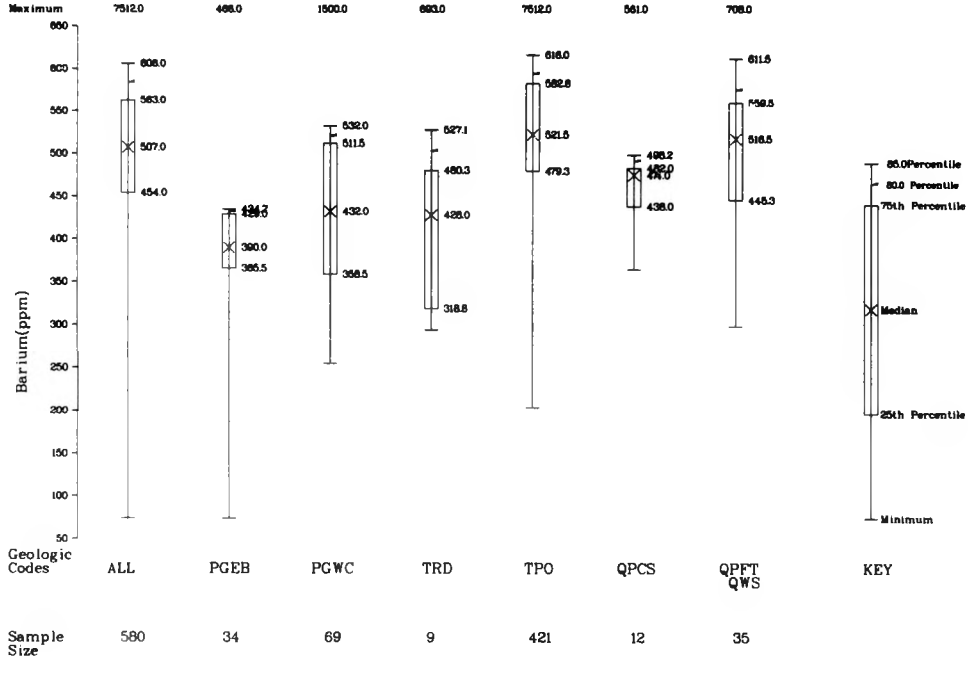


Figure B-6a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR BARIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

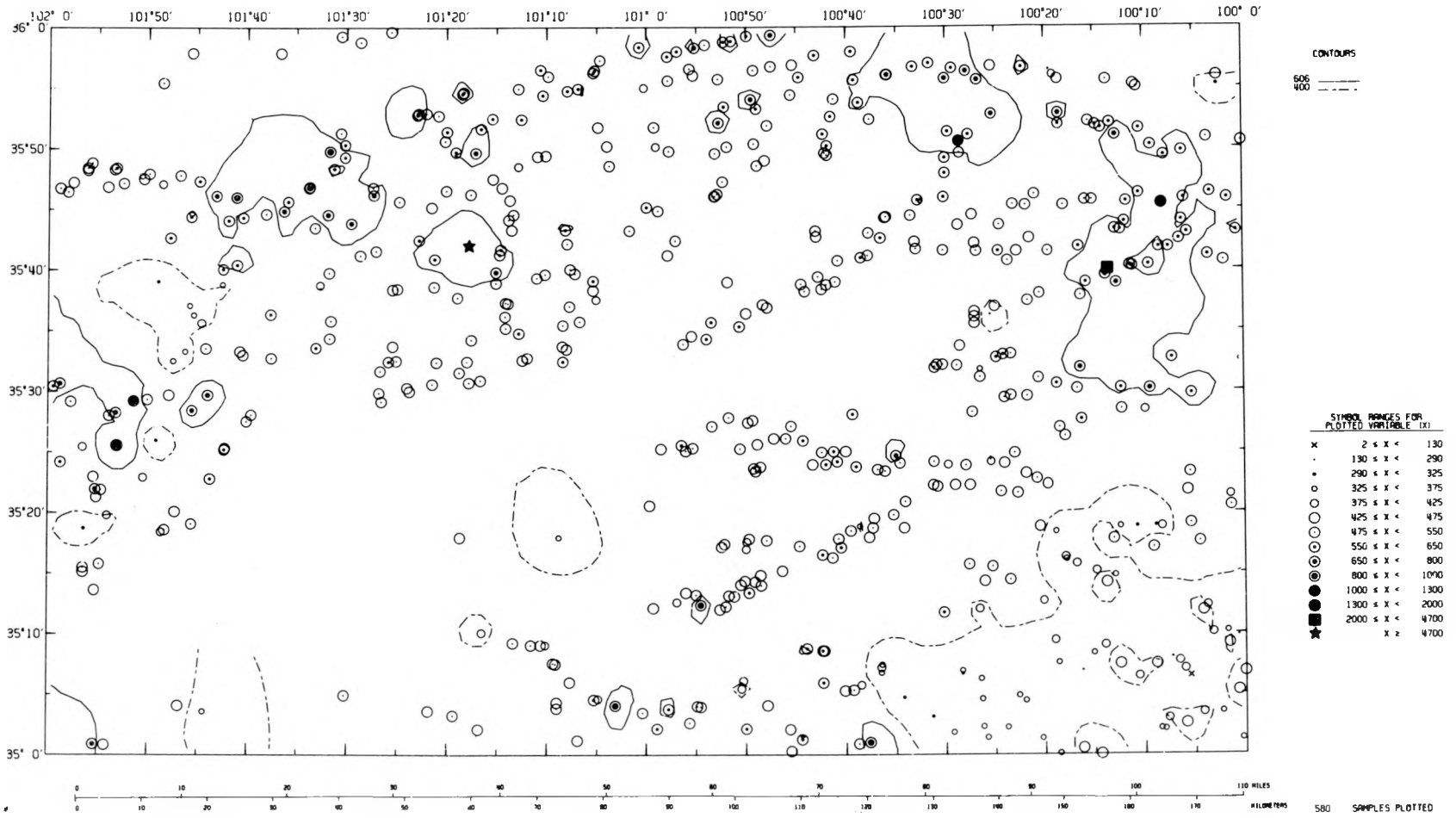
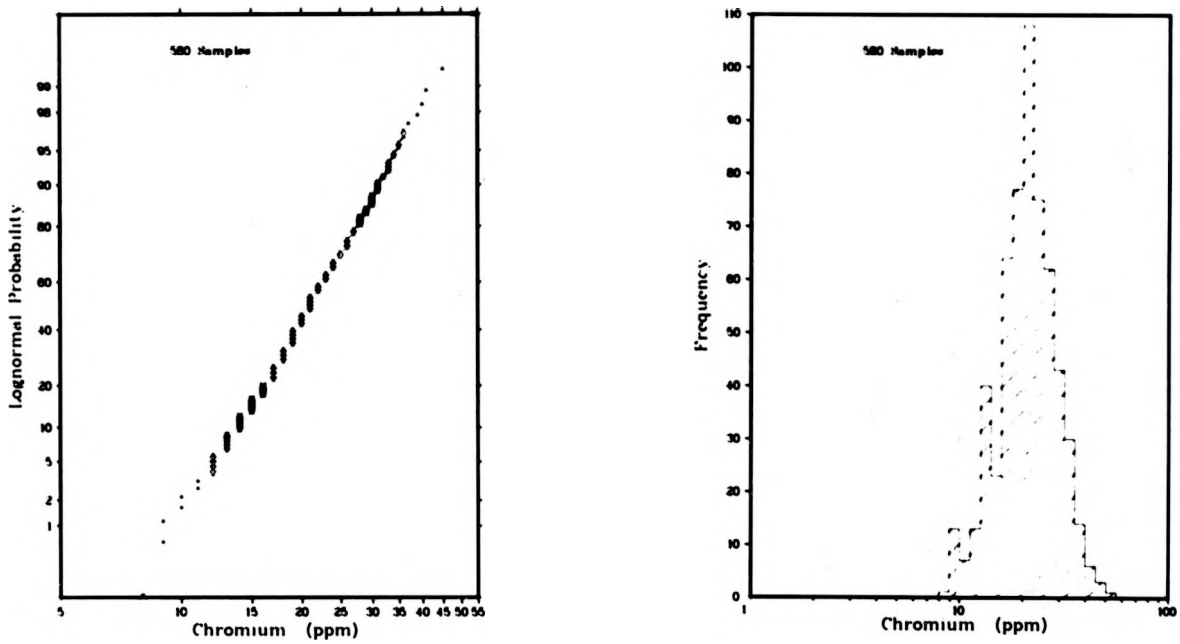


Figure B-6b

GEOCHEMICAL DISTRIBUTION OF BARIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



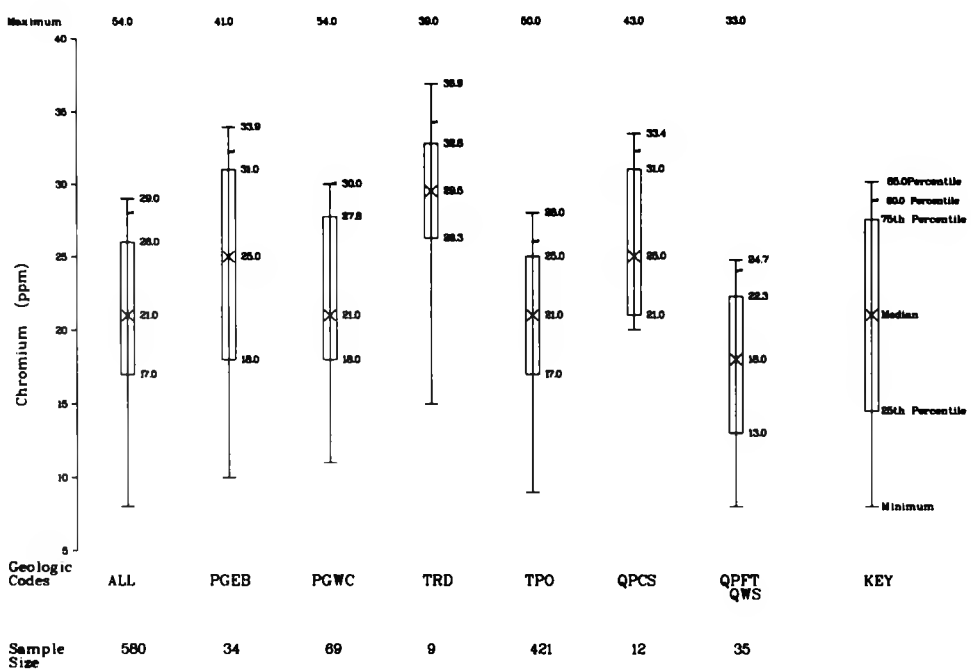


Figure B-7a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR CHROMIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

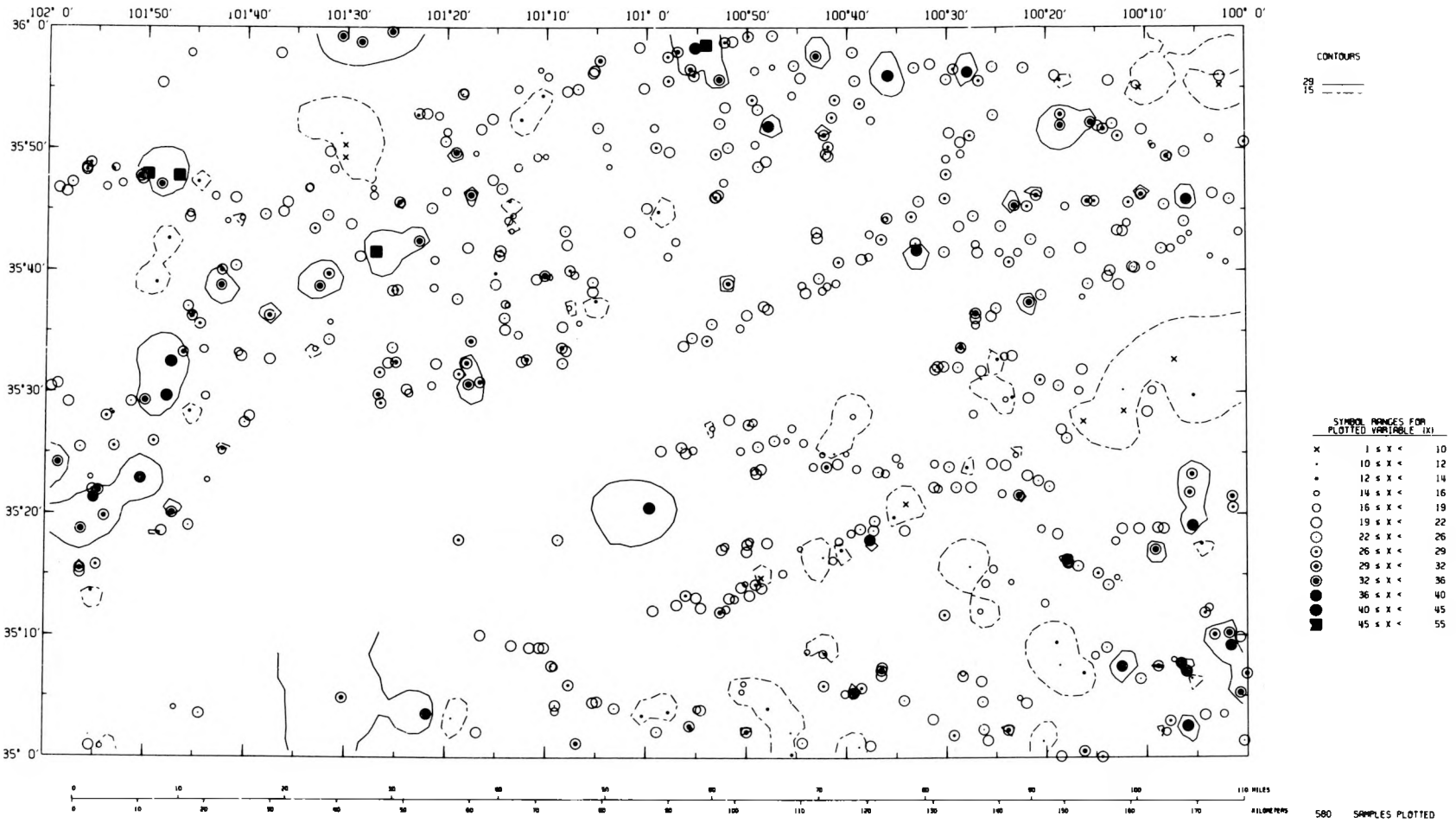


Figure B-7b

GEOCHEMICAL DISTRIBUTION OF CHROMIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

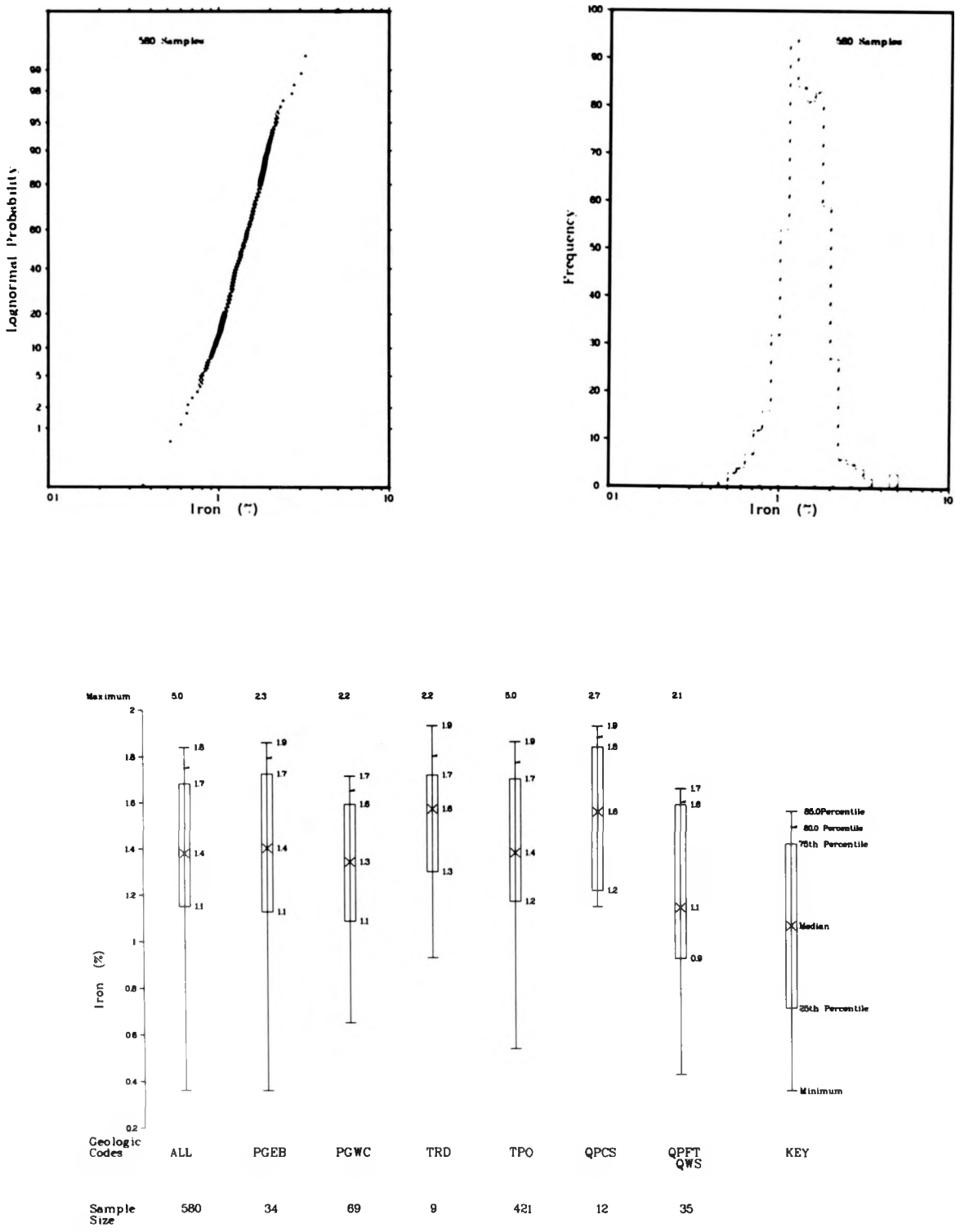


Figure B-8a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR IRON (%)
IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

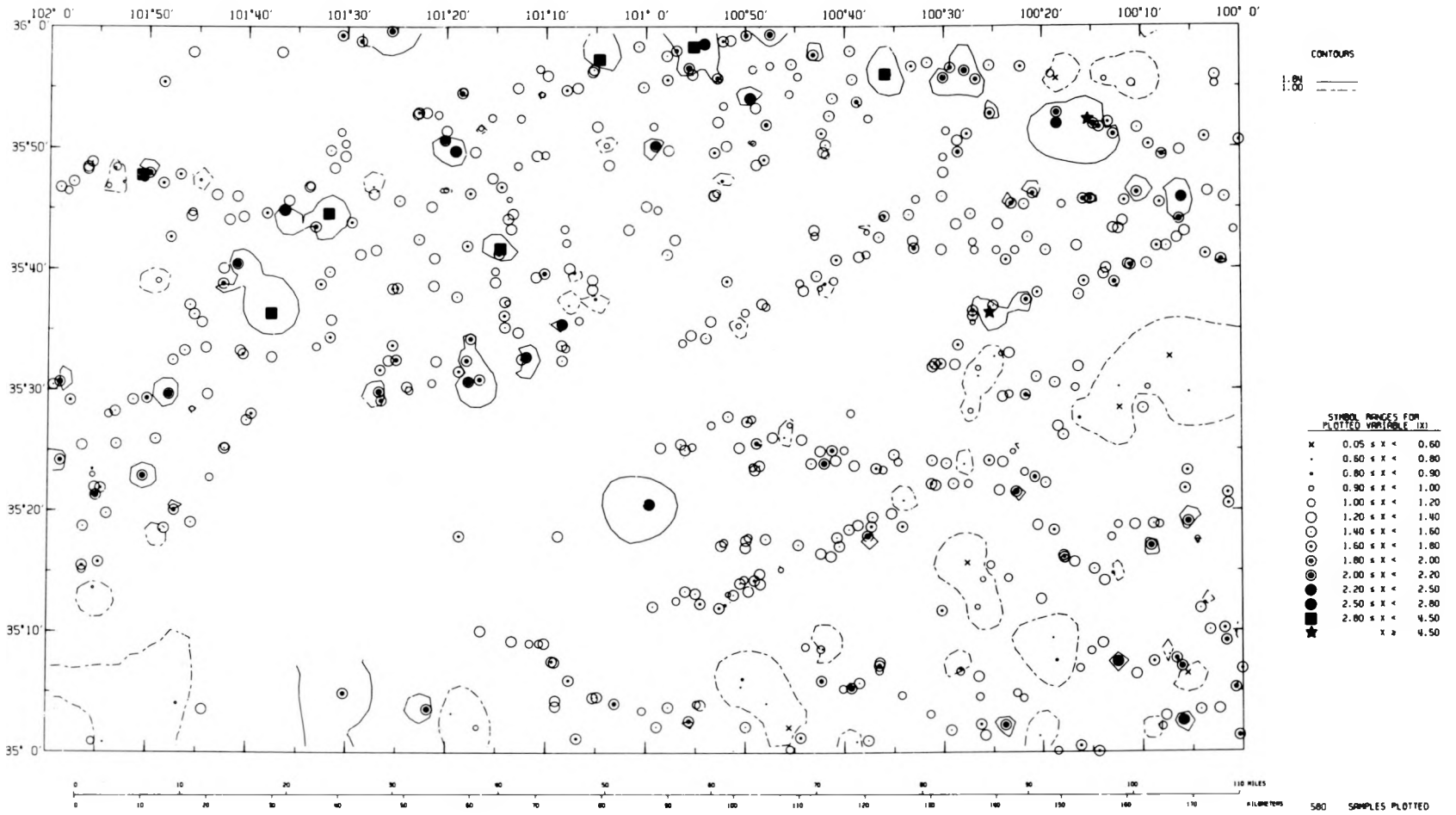


Figure B-8b

GEOCHEMICAL DISTRIBUTION OF IRON (%) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

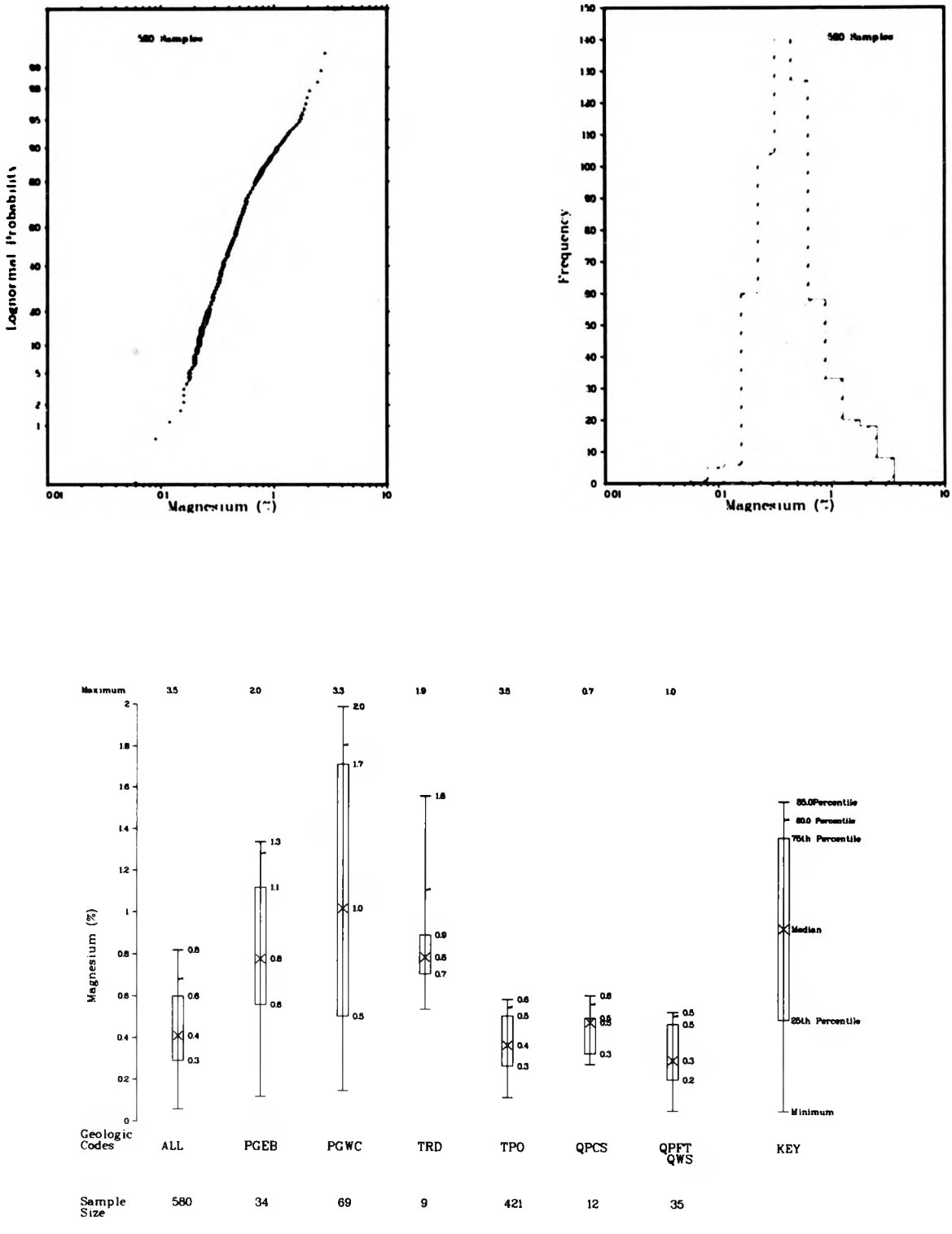


Figure B-9a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR MAGNESIUM (%) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

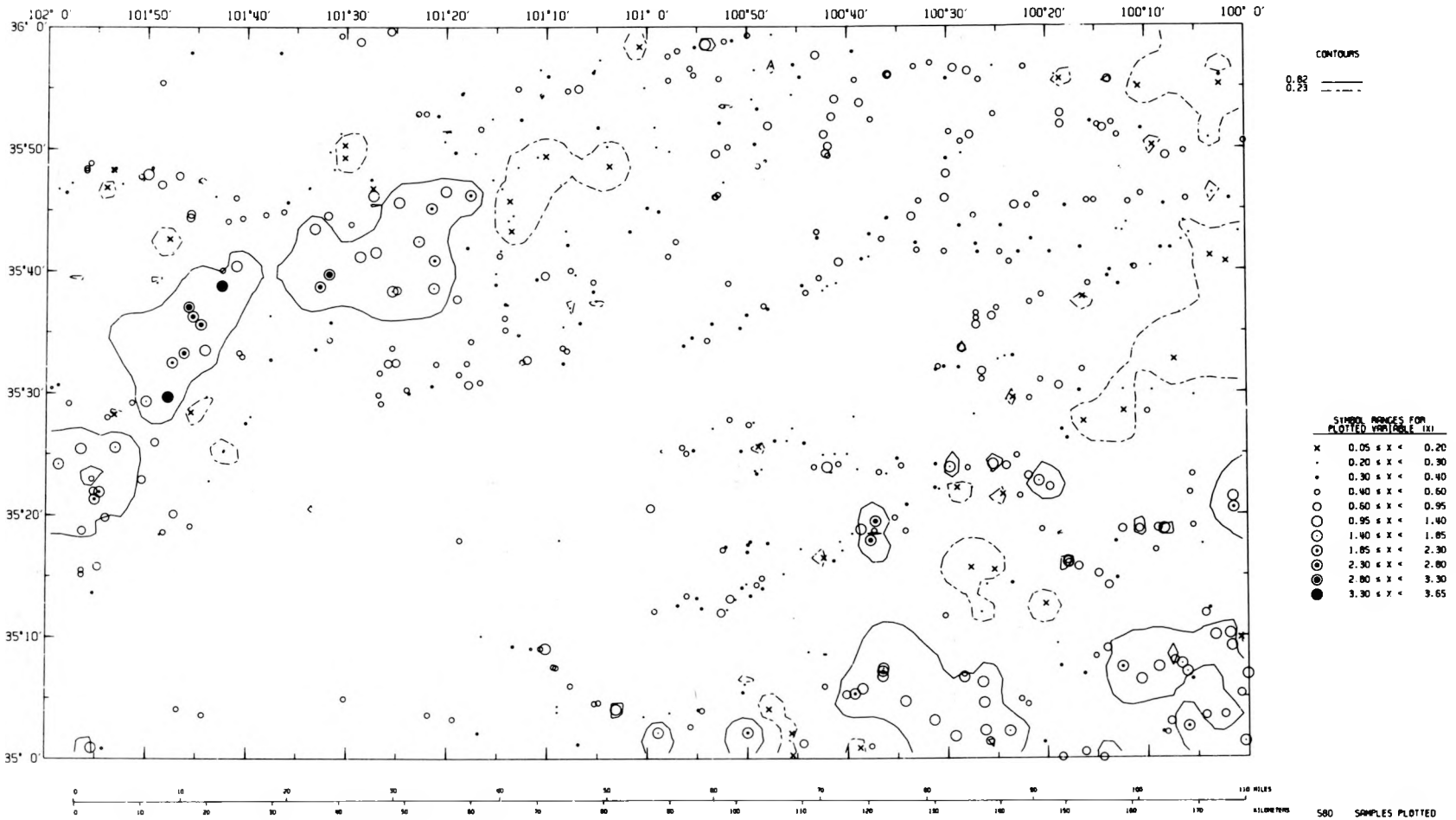
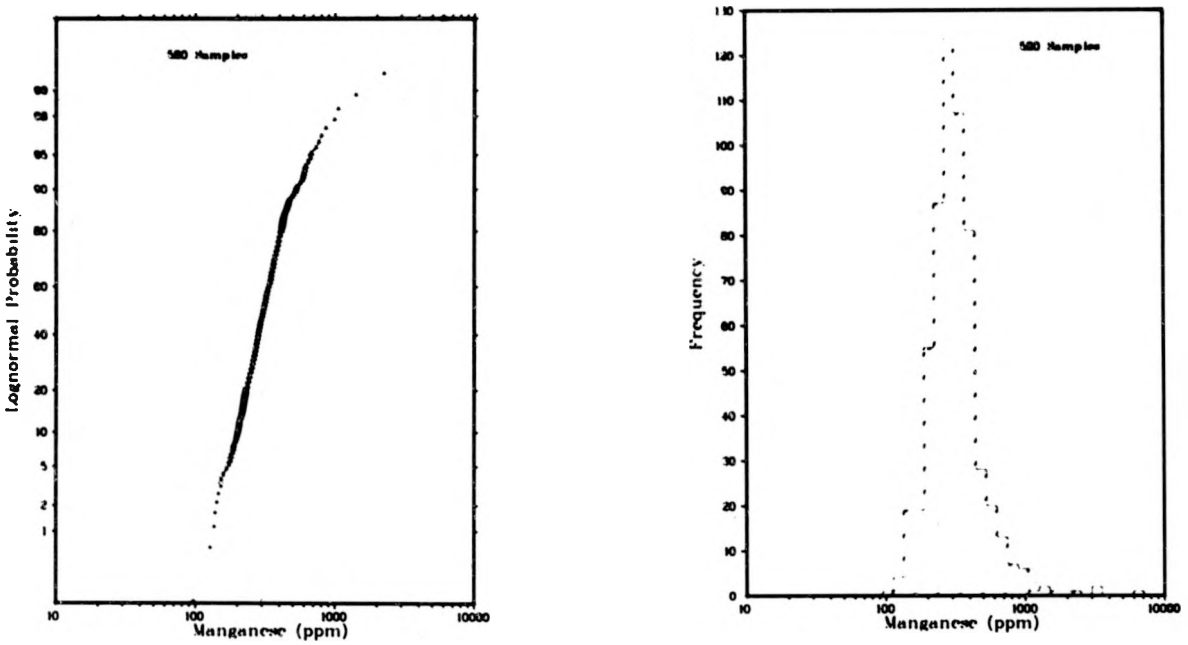


Figure B-9b

GEOCHEMICAL DISTRIBUTION OF MAGNESIUM (%) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



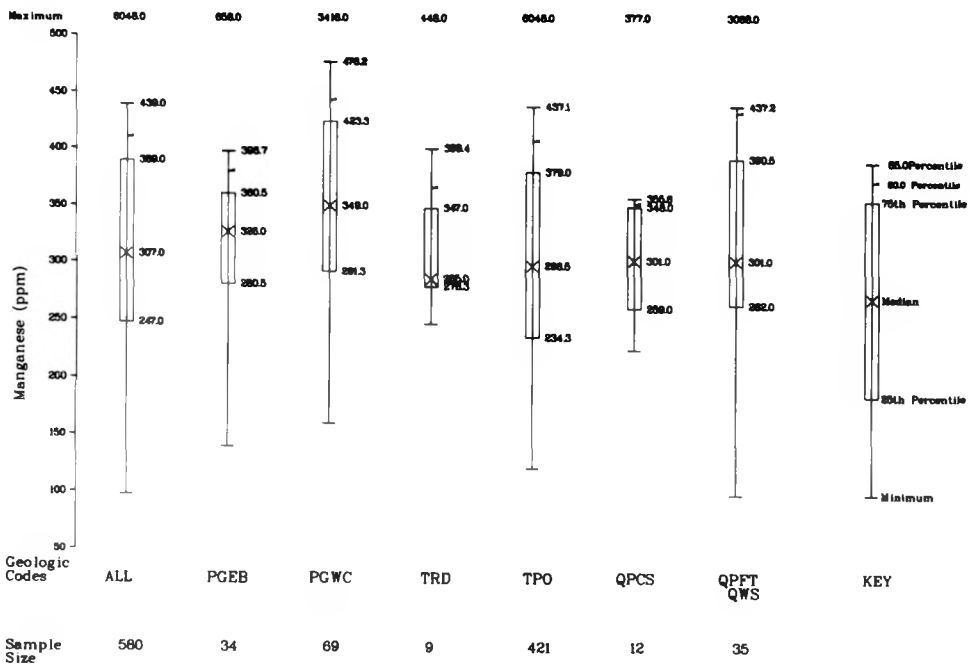


Figure B-10a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR MANGANESE (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

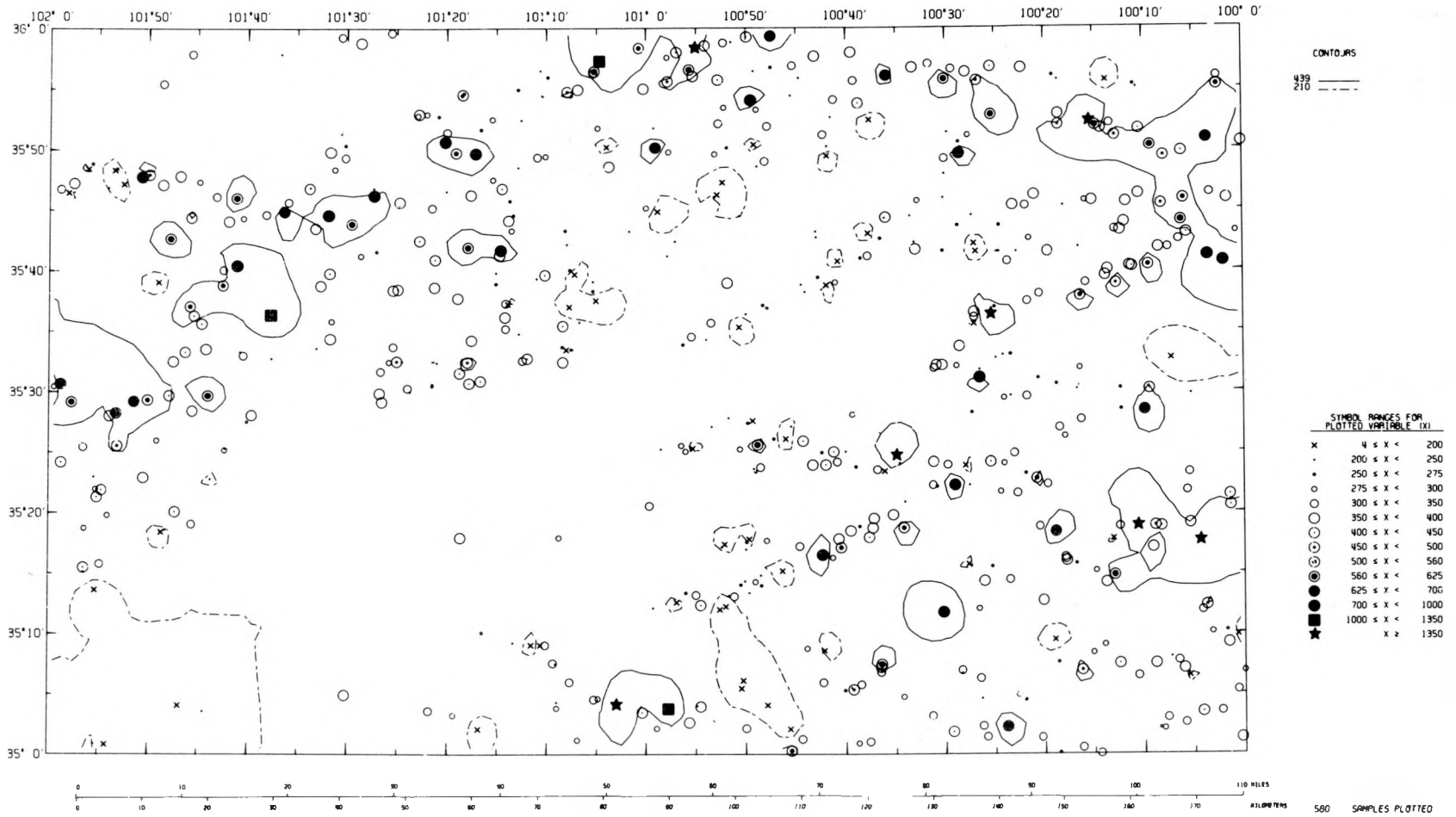
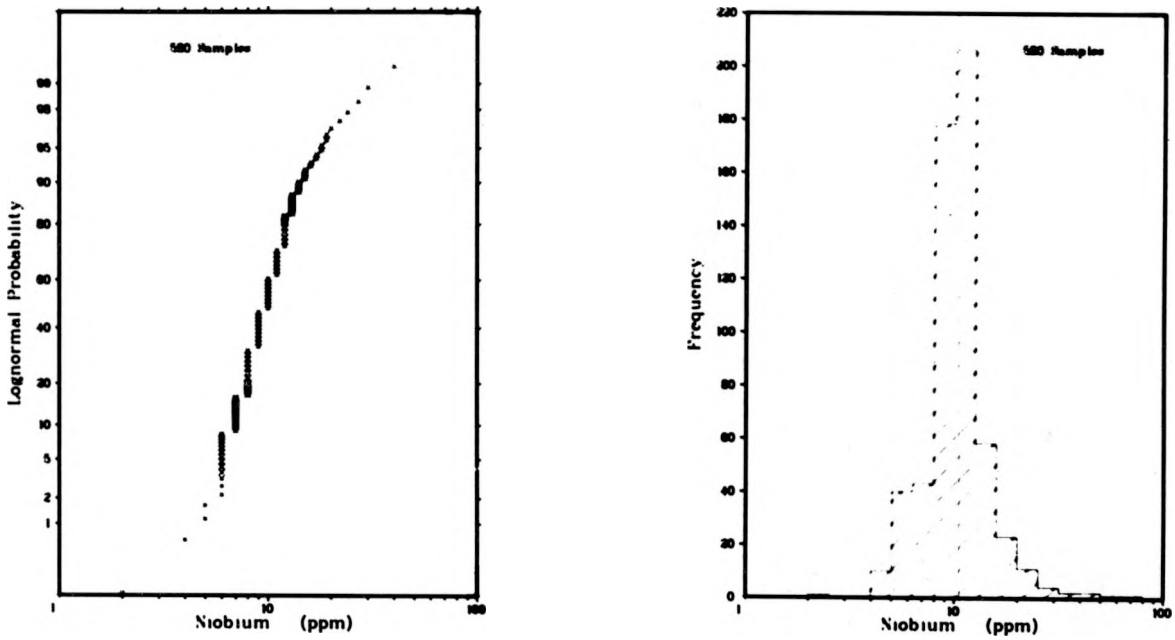


Figure B-10b

GEOCHEMICAL DISTRIBUTION OF MANGANESE (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



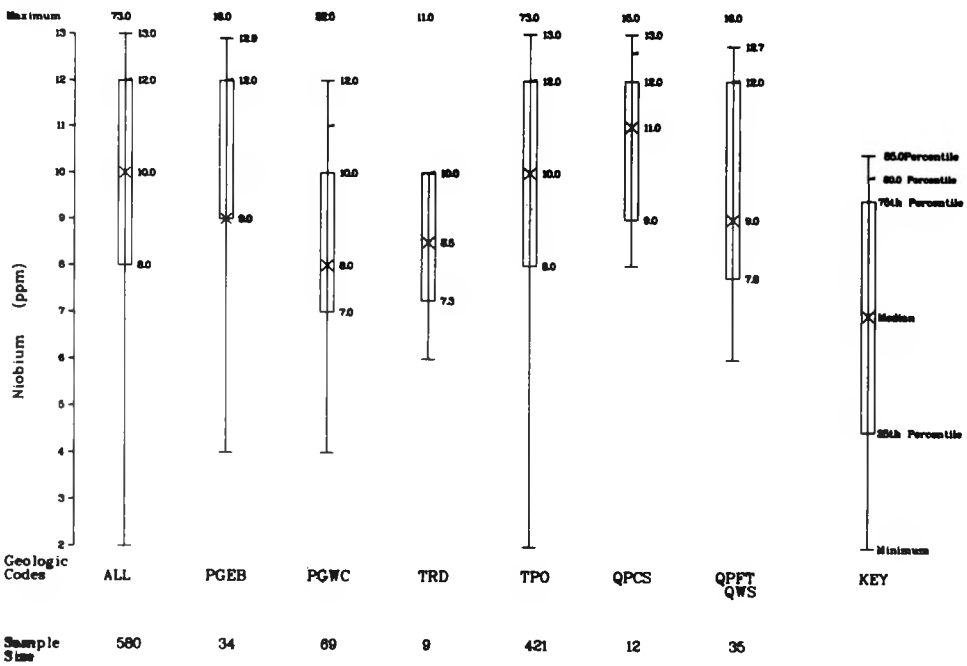


Figure B-11a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR NIOBIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

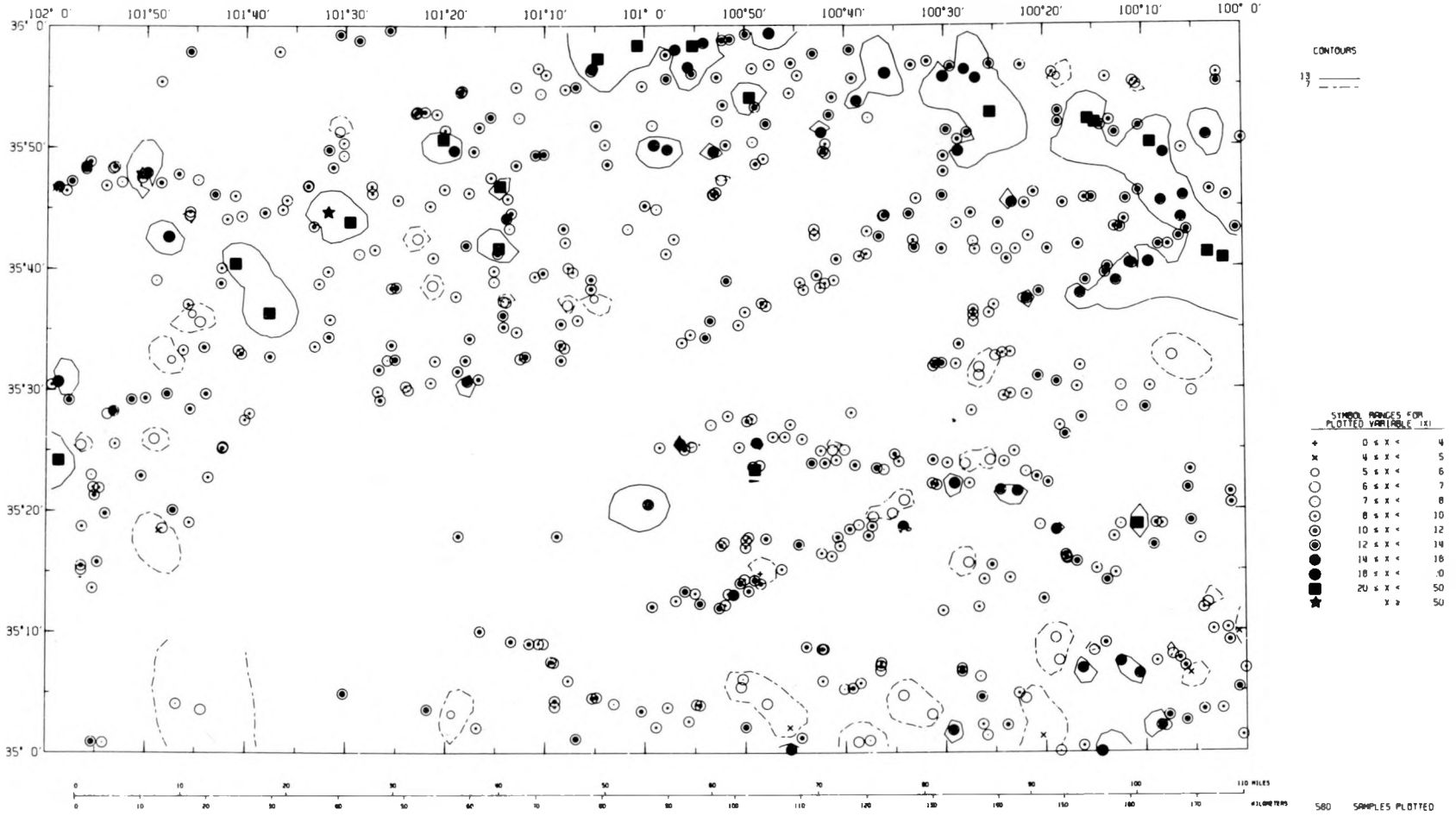
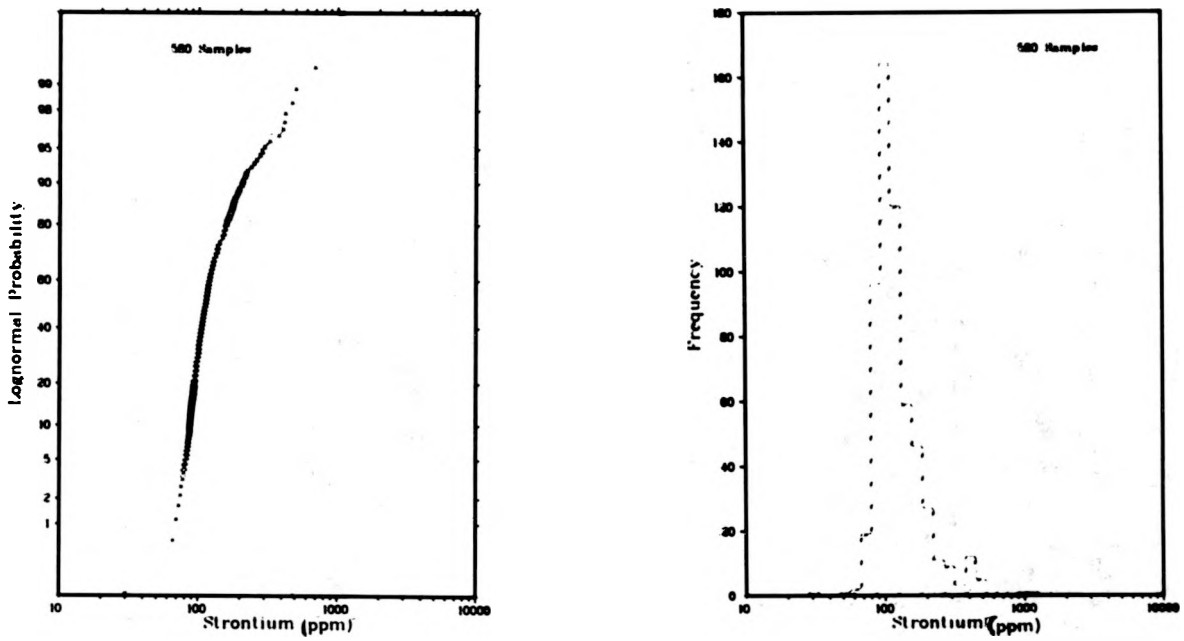


Figure B-11b

GEOCHEMICAL DISTRIBUTION OF NIOBIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



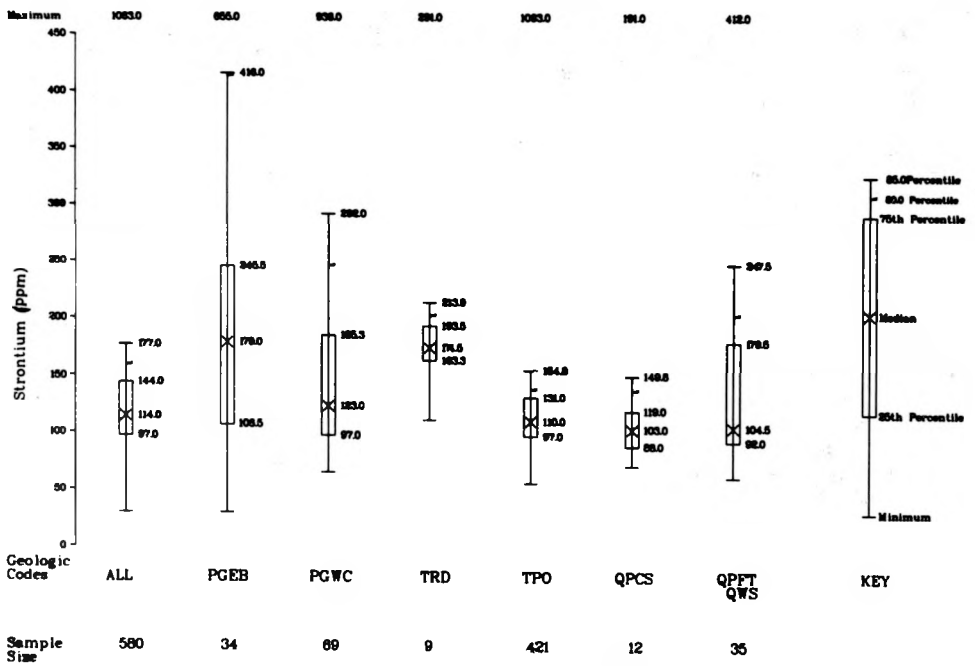


Figure B-12a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR STRONTIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

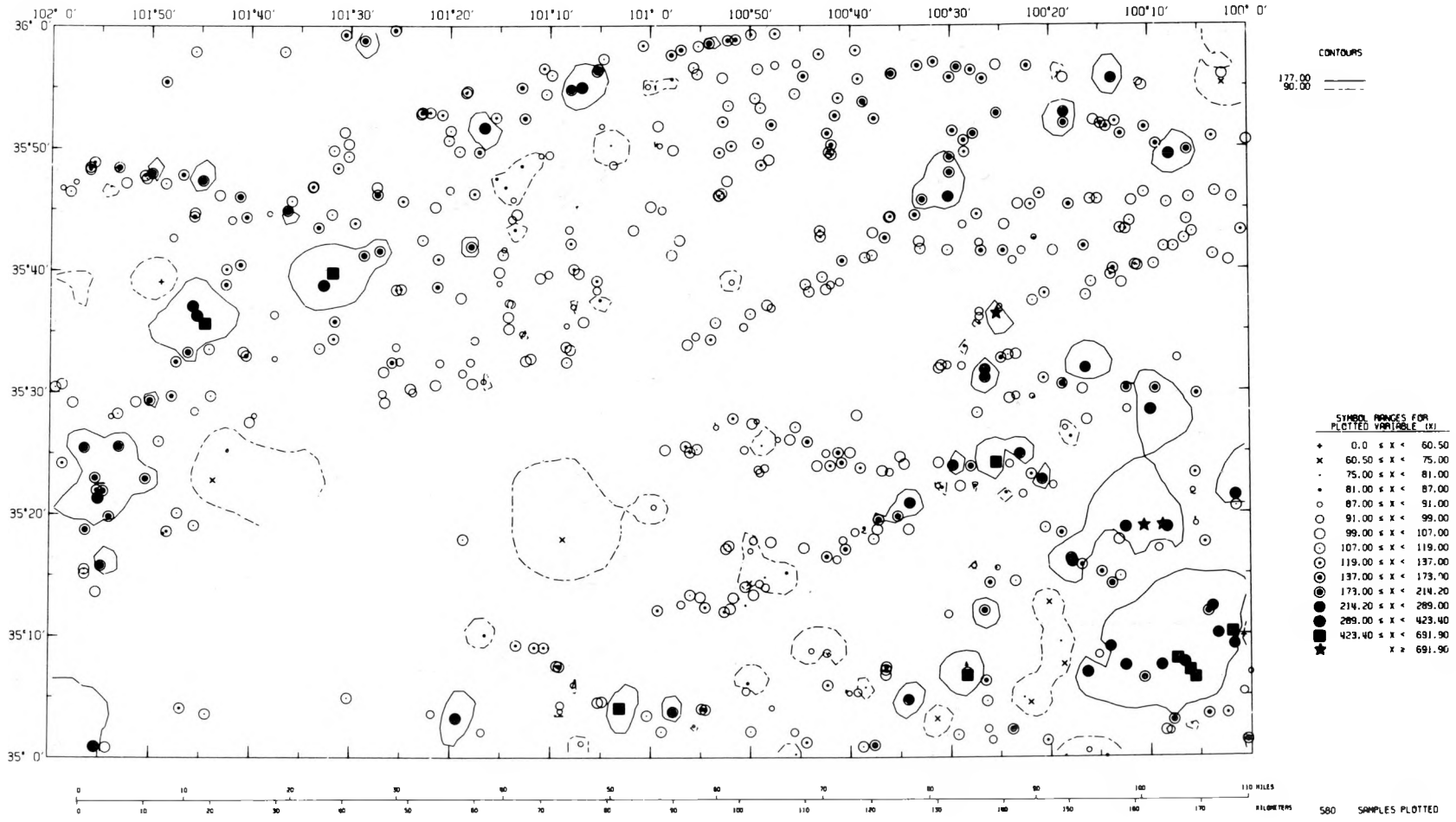
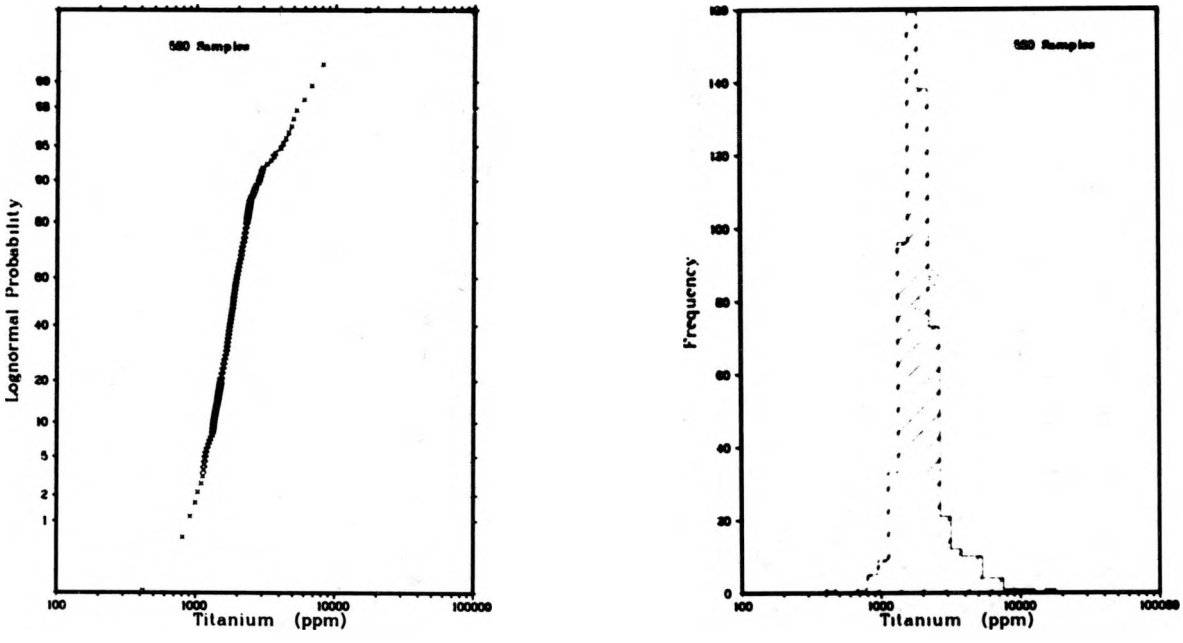


Figure B-12b

GEOCHEMICAL DISTRIBUTION OF STRONTIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE



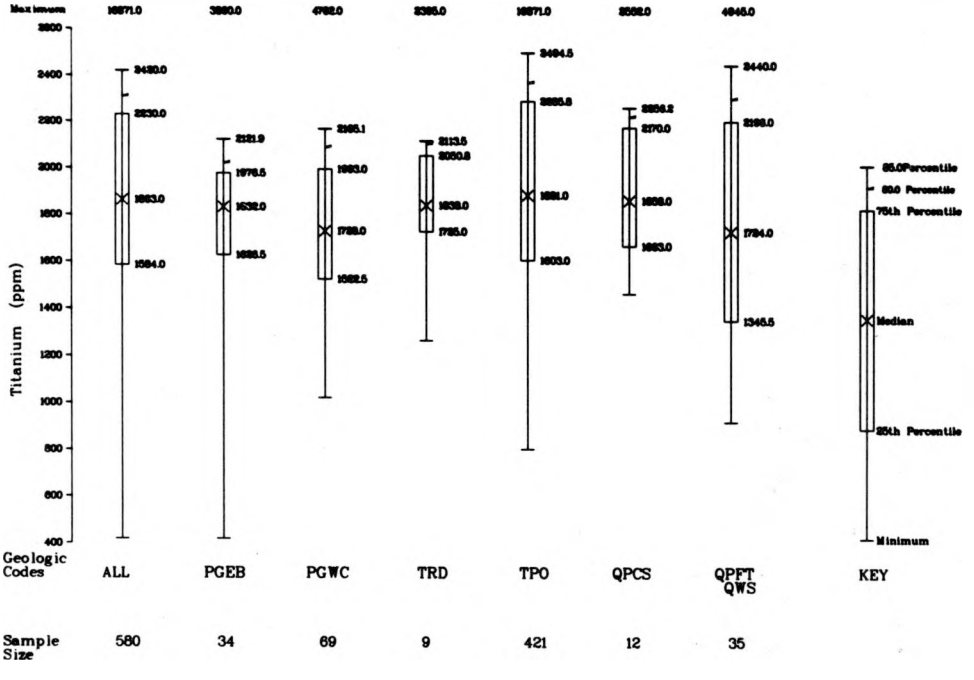


Figure B-13a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR TITANIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

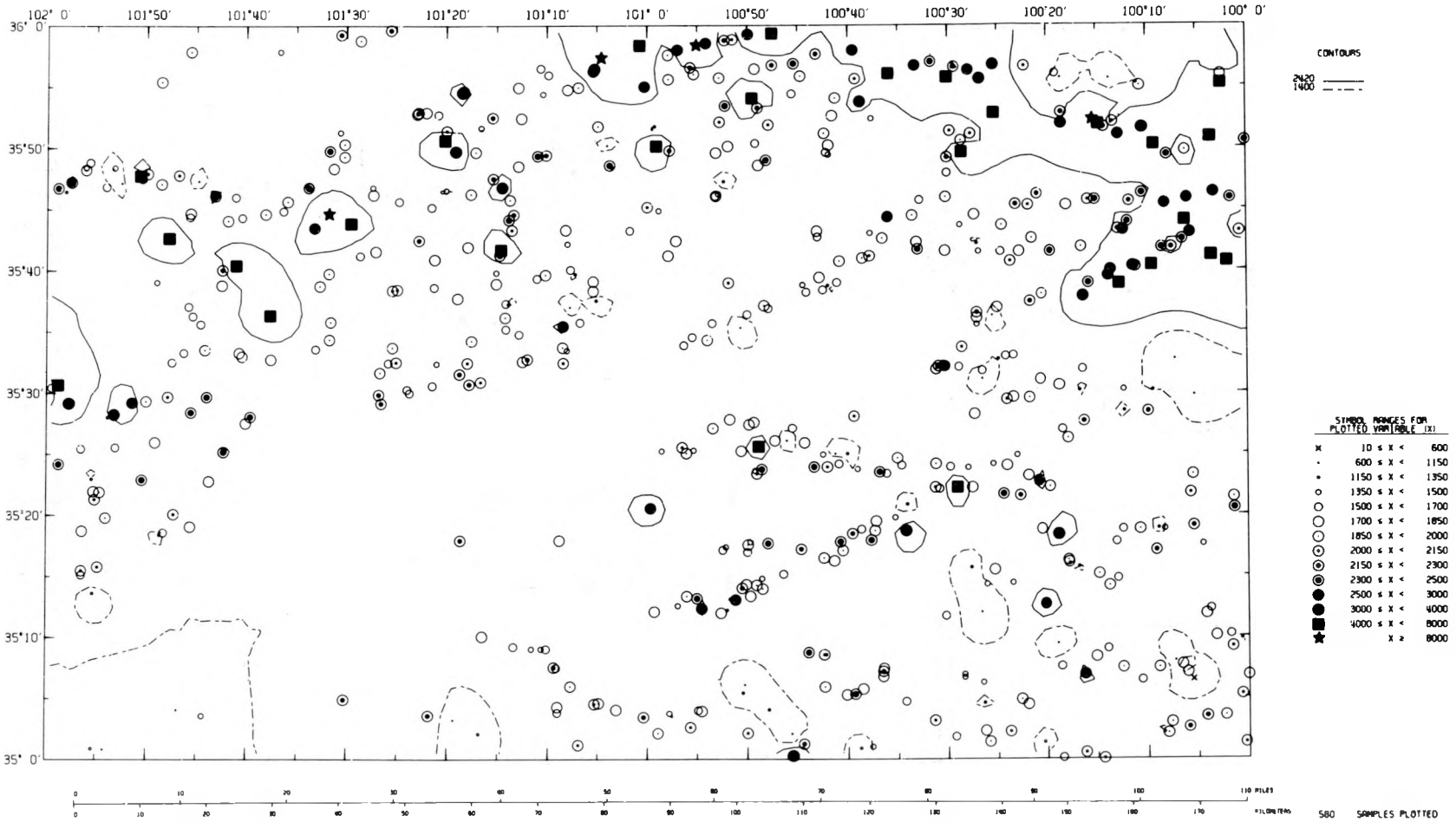


Figure B-13b

GEOCHEMICAL DISTRIBUTION OF TITANIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

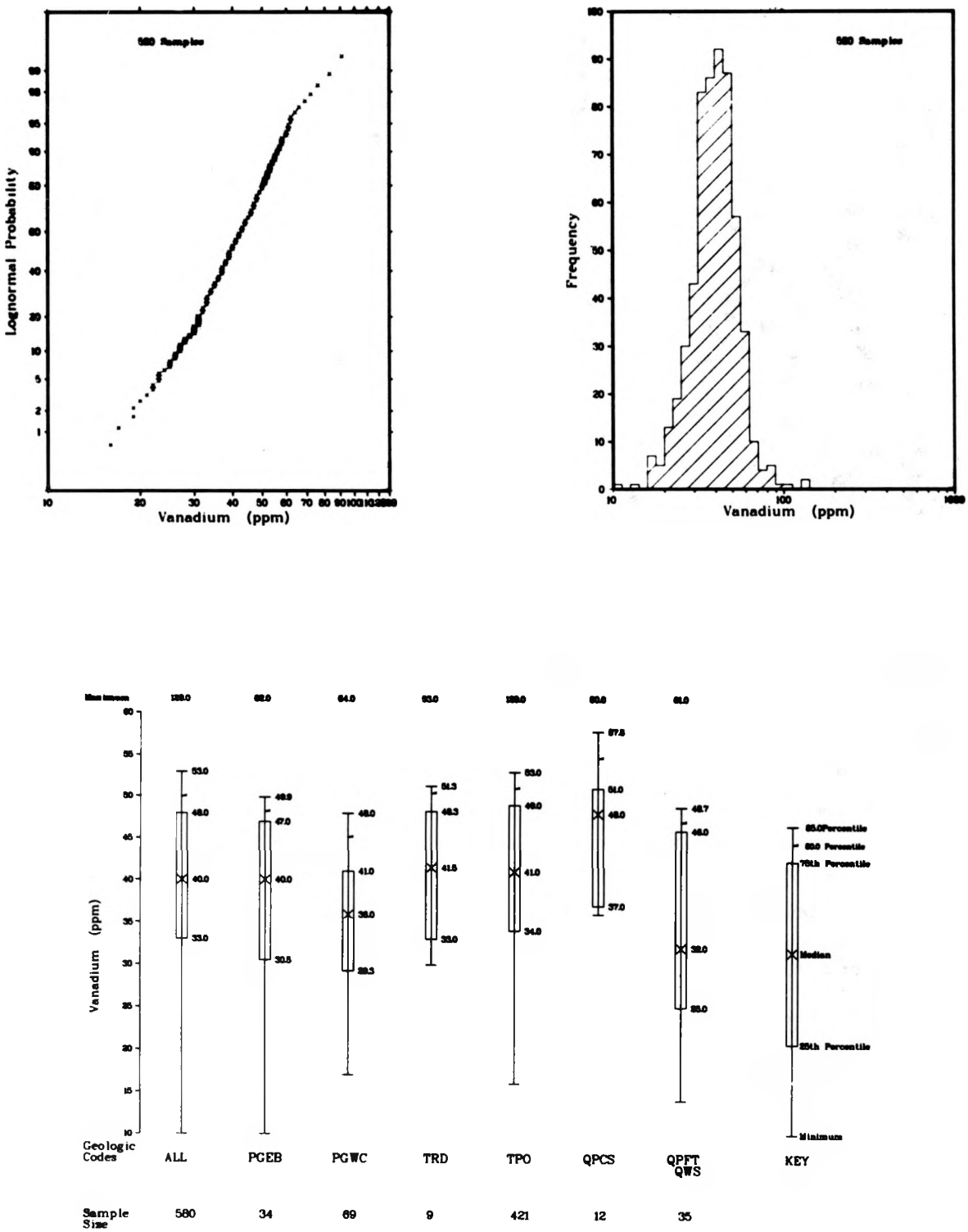


Figure B-14a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR VANADIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

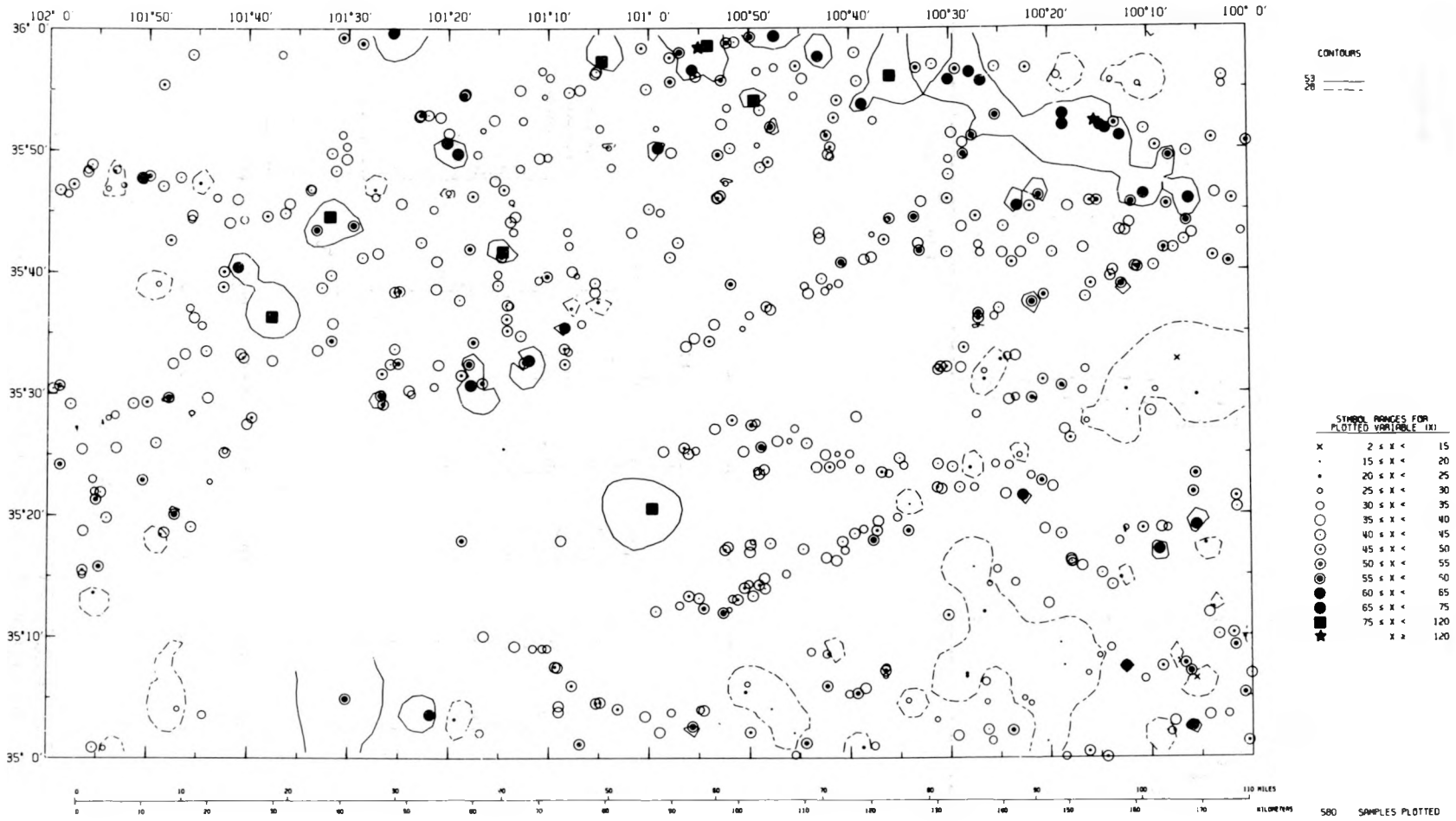


Figure B-14b

GEOCHEMICAL DISTRIBUTION OF VANADIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

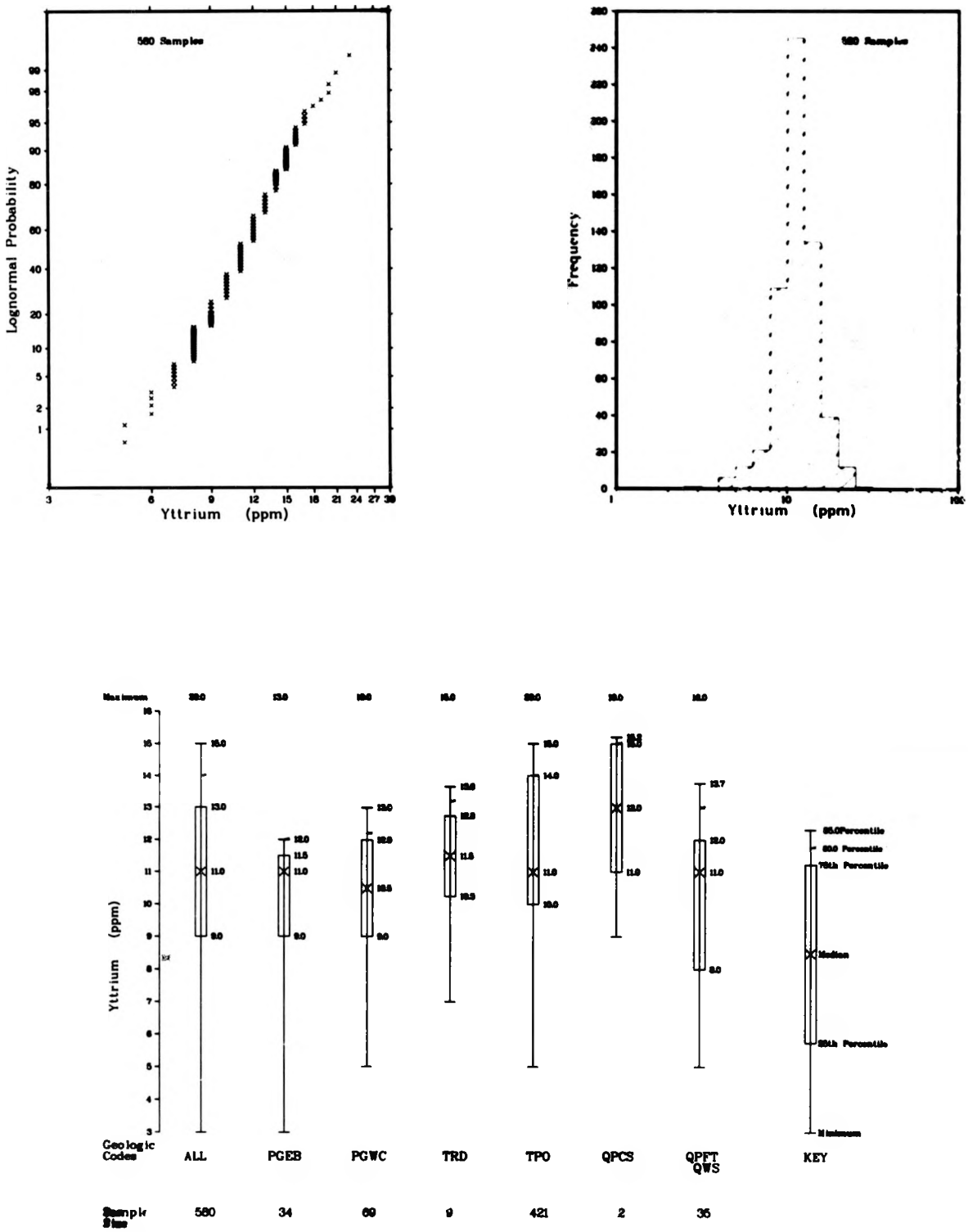


Figure B-15a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR YTTRIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

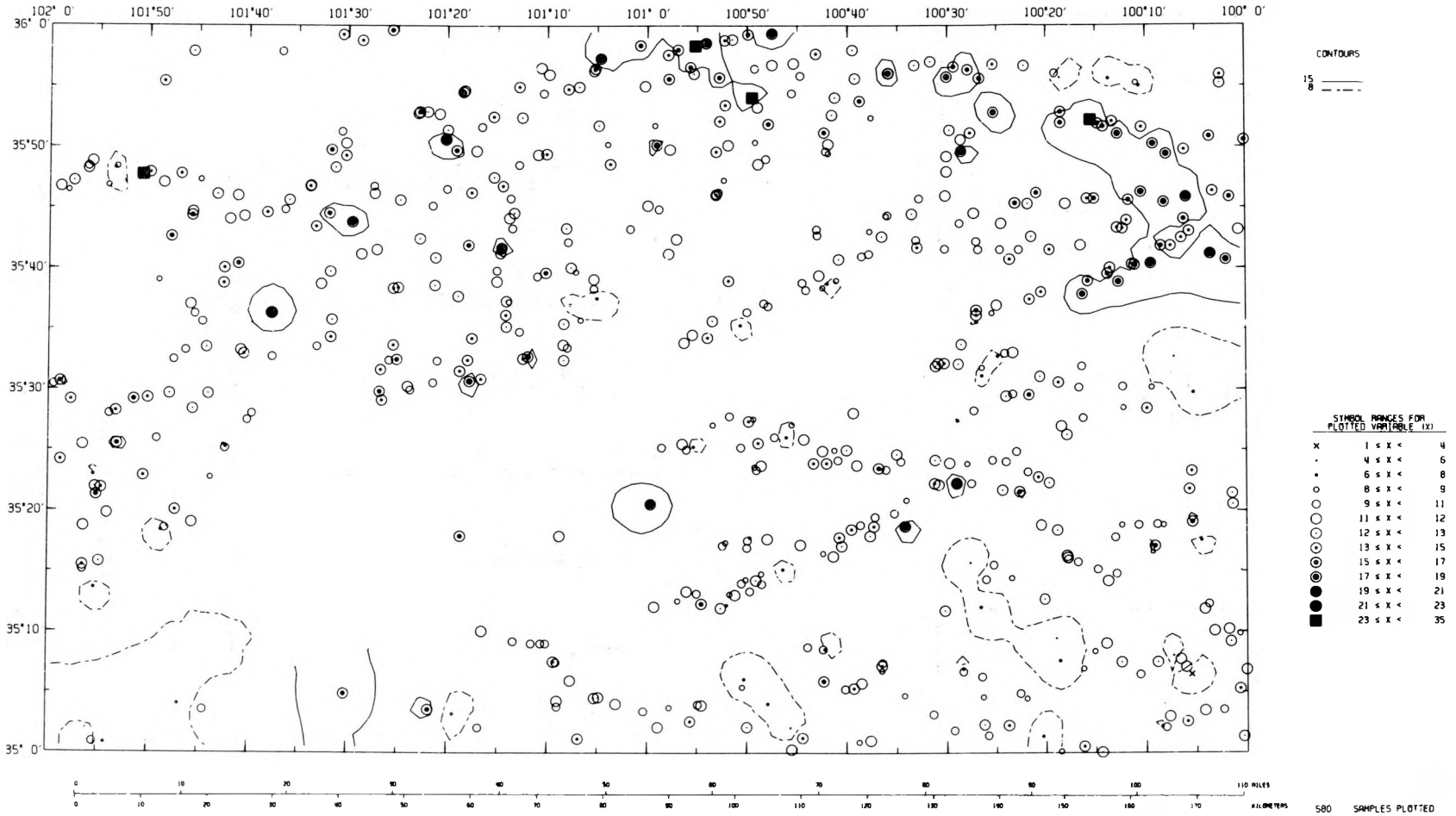


Figure B-15b

GEOCHEMICAL DISTRIBUTION OF YTTRIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

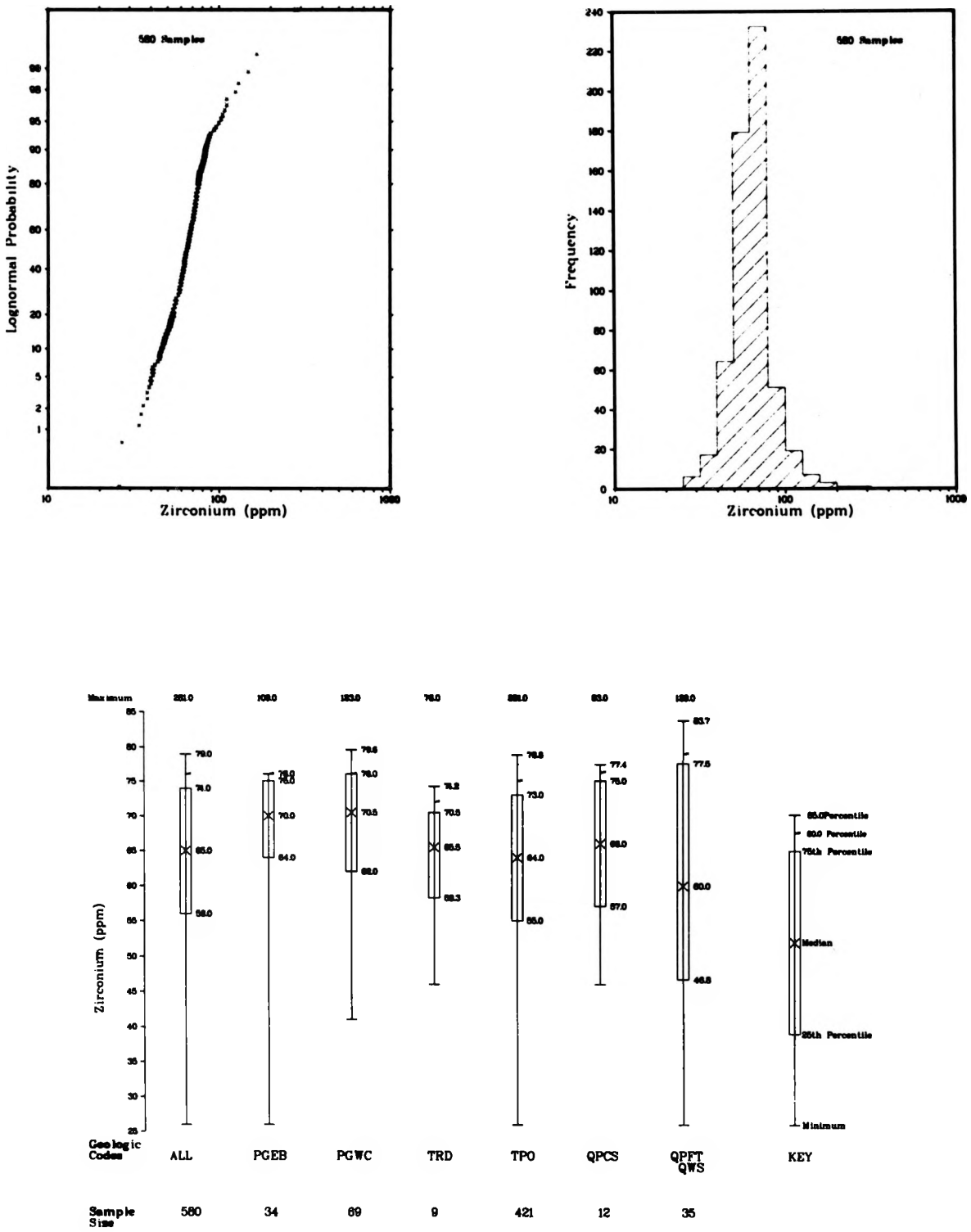


Figure B-16a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR ZIRCONIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

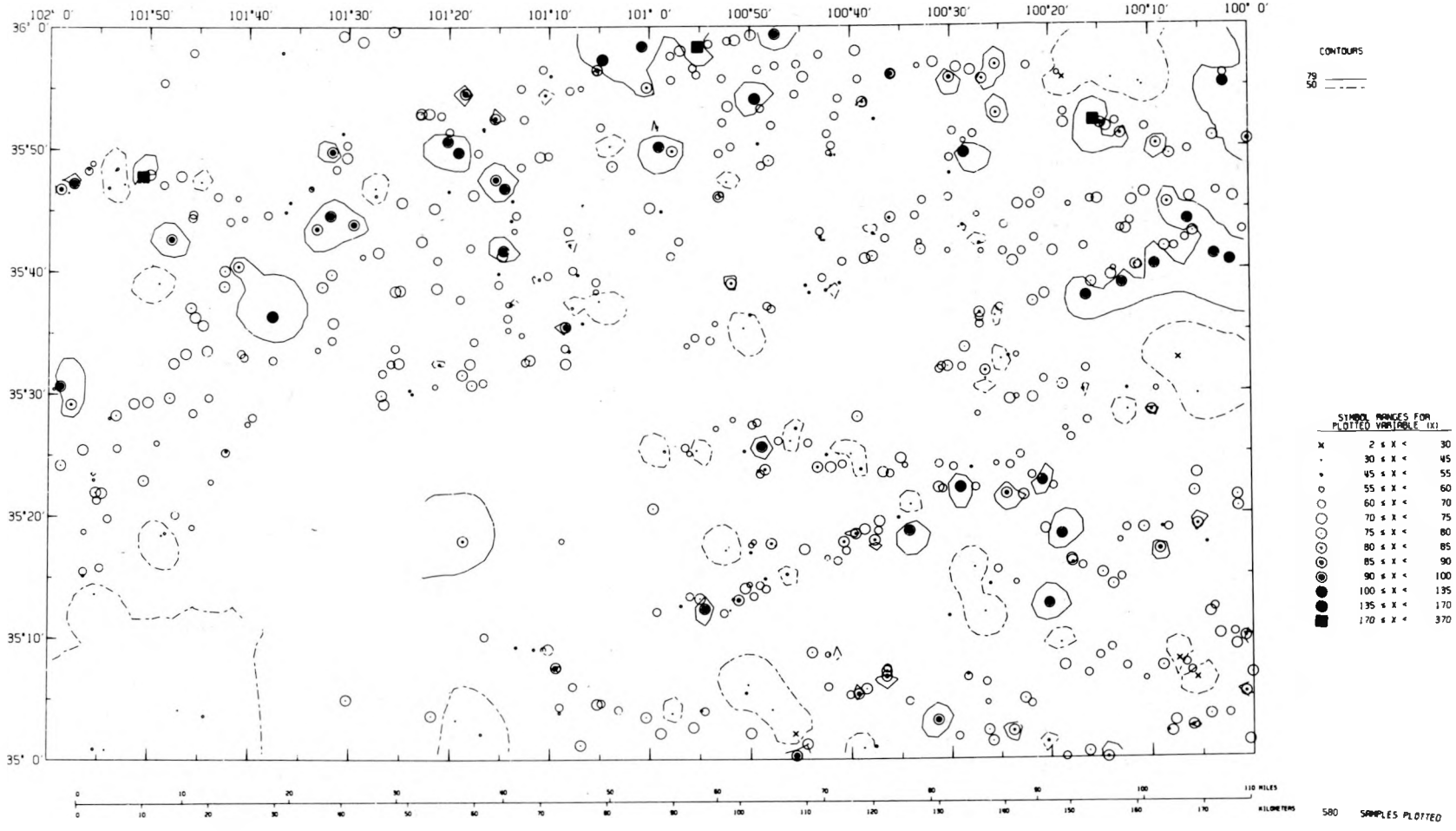


Figure B-16b

GEOCHEMICAL DISTRIBUTION OF ZIRCONIUM (PPM) IN STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

Table B-3

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZN (PPM)
18224	48-35.420	-101.705	-3-15-	1.6	4.3	6	0.37	2.1	600	1.4	280	69
18225	48-35.422	-101.704	-3-15-	0.79	4.4	5	0.18	1.6	430	1.1	210	50
18227	48-35.380	-101.729	-3-15-	0.84	3.6	3	0.23	1.6	590	1.0	210	57
18228	48-35.459	-101.668	-3-15-	1.4	2.6	4	0.56	2.2	520	1.5	270	56
18229	48-35.468	-101.660	-3-15-	1.3	5.2	4	0.25	2.1	490	1.8	370	61
18231	48-35.495	-101.733	-3-12-	1.6	3.7	6	0.42	2.0	700	1.3	570	65
18232	48-35.495	-101.733	-3-12-	0.94	2.7	3	0.35	2.0	600	1.1	270	51
18237	48-35.382	-101.841	-3-15-	1.6	2.7	9	0.61	2.3	420	2.0	350	76
18239	48-35.606	-101.627	-3-15-	3.8	9.6	11	0.39	1.8	570	3.0	1100	160
18243	48-35.725	-101.553	-3-15-	2.2	3.3	5	0.67	1.9	520	1.8	390	85
18244	48-35.674	-101.684	-3-15-	2.1	5.3	8	0.39	1.9	650	2.2	750	83
18247	48-35.735	-101.698	-3-15-	1.6	4.5	7	0.35	1.9	650	1.2	380	66
18248	48-35.750	-101.743	-3-15-	1.3	2.0	6	0.66	1.6	510	1.3	440	60
18249	48-35.647	-101.708	-3-12-	2.6	3.2	9	0.80	3.8	370	1.9	500	75
18250	48-35.668	-101.707	-3-15-	2.0	3.2	5	0.63	1.4	630	1.4	340	75
18252	48-35.703	-101.510	-3-12-	2.0	3.1	10	0.64	2.9	640	2.3	460	79
18253	48-35.743	-101.531	-3-15-	2.6	8.5	6	0.31	1.9	720	3.2	1000	110
18254	48-35.746	-101.531	-3-12-	2.3	5.6	8	0.41	1.8	700	1.9	790	73
18256	48-35.769	-101.719	-3-15-	1.5	4.3	7	0.34	1.0	700	1.2	350	68
18258	48-35.767	-101.685	-3-12-	1.4	2.1	6	0.65	1.3	640	1.3	610	55
18260	48-35.965	-101.611	-3-15-	1.2	2.3	6	0.51	0.9	470	1.3	250	54
18261	48-35.987	-101.597	-3-12-	1.8	2.8	11	0.63	1.5	540	1.9	340	74
18264	48-35.594	-101.743	-3-15-	1.5	2.0	6	0.74	1.7	400	1.3	420	74
18266	48-35.744	-101.635	-3-15-	1.5	2.7	9	0.54	1.6	520	1.7	340	61
18271	48-35.646	-101.544	-3-15-	1.4	2.4	6	0.60	1.8	400	1.6	360	75
18272	48-35.663	-101.529	-3-15-	1.4	2.6	6	0.54	1.7	490	1.6	420	76
18273	48-35.748	-101.605	-3-12-	1.3	2.0	7	0.64	5.2	700	2.7	690	53
18279	48-35.761	-101.598	-3-15-	1.6	2.2	8	0.74	1.5	640	1.3	300	52
18281	48-35.780	-101.563	-3-15-	0.88	2.8	8	0.31	1.8	680	1.3	360	55
18282	48-35.781	-101.562	-3-15-	1.5	2.2	7	0.70	1.5	850	1.1	220	49
18283	48-35.830	-101.528	-3-15-	2.8	4.5	9	0.63	1.8	810	1.5	380	98
18287	48-35.789	-101.747	-3-12-	1.2	2.6	5	0.47	1.3	560	0.83	280	42
18291	48-35.806	-101.521	-3-15-	1.4	2.7	7	0.54	3.6	580	1.3	290	61
18292	48-35.855	-101.510	-3-15-	1.3	2.1	4	0.60	1.0	490	1.0	210	54
18293	48-35.839	-101.503	-3-15-	1.6	3.0	3	0.54	2.5	590	1.1	260	65
18294	48-35.822	-101.503	-3-15-	1.5	4.4	3	0.35	2.0	620	1.3	320	71
18299	48-35.973	-101.012	-3-15-	2.3		5		1.7	640	1.6	540	100
18303	48-35.783	-101.121	-3-12-	0.84	2.0	5	0.42	1.1	460	0.64	120	39
18305	48-35.263	-101.914	-3-15-	1.5	2.7	9	0.57	2.0	550	1.7	340	69
18306	48-35.258	-101.941	-3-15-	1.9	2.7	7	0.71	2.2	500	1.7	420	66
18307	48-35.252	-101.941	-3-15-	1.2	2.5	5	0.48	1.4	470	1.2	250	51
18309	48-35.312	-101.940	-3-15-	1.6	5.2	7	0.31	1.5	300	1.5	290	58
18311	48-35.330	-101.901	-3-15-	1.3	2.5	7	0.53	1.9	390	1.6	280	63
18313	48-35.347	-101.917	-3-15-	2.5	3.7	5	0.68	1.9	360	1.9	300	72
18314	48-35.355	-101.919	-3-15-	1.5	2.3	8	0.67	2.2	450	2.2	450	68
18316	48-35.433	-101.819	-3-15-	0.76	1.8	3	0.42	2.4	290	1.6	280	59
18318	48-35.307	-101.811	-3-12-	0.66	3.8	2	0.17	0.9	380	0.78	180	38
18319	48-35.310	-101.805	-3-15-	0.90	2.3	8	0.39	2.0	480	1.2	220	51
18321	48-35.318	-101.760	-3-15-	1.0	2.5	5	0.40	1.7	510	1.5	330	59
18322	48-35.335	-101.788	-3-15-	1.7	2.9	8	0.59	2.6	430	2.0	410	65
18324	48-35.435	-101.869	-3-12-	1.0	2.5	4	0.40	1.5	430	1.1	280	46
18325	48-35.489	-101.834	-3-15-	1.4	2.5	8	0.56	2.7	500	1.8	540	70
18326	48-35.495	-101.798	-3-15-	0.88	3.0	7	0.29	3.1	450	2.2	440	76
18327	48-35.487	-101.857	-3-15-	1.5	4.9	11	0.30	2.9	1100	1.5	670	74
18329	48-35.559	-101.736	-3-15-	1.6	2.7	8	0.59	2.2	510	1.3	350	74

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
18330	48-35.555	-101.679	-3-15-	1.8	2.3	10	0.80	2.5	520	1.3	250	60
18331	48-35.550	-101.674	-3-15-	1.6	2.5	8	0.65	2.1	540	1.6	310	66
18332	48-35.560	-101.551	-3-15-	0.95	2.2	6	0.43	1.8	580	1.2	220	58
18333	48-35.573	-101.528	-3-15-	1.4	2.4	10	0.57	2.3	500	1.8	350	67
18338	48-35.597	-101.526	-3-15-	1.6	3.5	6	0.46	2.1	550	1.2	300	72
18339	48-35.738	-101.522	-3-15-	2.2	3.1	6	0.71	4.3	420	1.7	400	79
18342	48-35.739	-101.674	-3-12-	1.4	2.5	5	0.56	1.6	550	1.2	290	58
18346	48-35.651	-101.816	-3-12-	1.0	1.7	6	0.61	1.4	300	0.90	180	40
18354	48-35.711	-101.796	-3-15-	2.5	5.4	6	0.47	1.1	570	1.7	590	90
18356	48-35.745	-101.760	-3-15-	1.3	2.0	7	0.63	1.0	570	1.0	290	68
18358	48-35.740	-101.761	-3-15-	1.5	2.1	8	0.71	1.3	570	1.3	430	67
18381	48-35.882	-101.380	-3-15-	1.7	3.5	8	0.48	2.1	790	1.7	380	79
18382	48-35.880	-101.382	-3-15-	1.4	3.5	6	0.40	1.5	580	1.2	280	65
18383	48-35.882	-101.367	-3-15-	1.4	2.7	9	0.54	1.8	540	1.3	290	71
18384	48-35.879	-101.347	-3-15-	1.4	2.5	9	0.54	1.4	530	1.2	250	60
18392	48-35.541	-101.139	-3-15-	1.7	3.3	7	0.52	2.7	560	1.5	360	73
18393	48-35.558	-101.133	-3-15-	0.96	1.9	3	0.51	1.8	490	1.1	190	54
18394	48-35.562	-101.140	-3-15-	1.6	2.6	6	0.61	2.7	550	1.5	270	65
18395	48-35.595	-101.137	-3-15-	1.6	4.3	7	0.37	2.5	510	1.2	300	62
18396	48-35.591	-101.139	-3-15-	1.8	7.3	5	0.25	2.6	490	2.3	410	94
18397	48-35.596	-101.111	-3-15-	1.7	3.5	5	0.48	2.3	520	1.2	220	54
18399	48-35.617	-101.128	-3-15-	1.5	1.9	6	0.78	1.6	520	0.77	140	46
18401	48-35.227	-101.922	-3-15-	0.92	3.4	4	0.27	0.9	470	0.80	140	41
18415	48-35.068	-101.782	-3-15-	1.2	3.0	5	0.40	1.1	470	0.87	130	36
18417	48-35.015	-101.923	-3-15-	0.52	2.5	5	0.21	1.1	800	1.2	220	48
18419	48-35.014	-101.904	-3-15-	1.2	2.3	4	0.50	1.1	430	0.75	140	36
18435	48-35.546	-101.626	-3-15-	1.2	3.0	6	0.40	1.9	530	1.2	230	60
18438	48-35.064	-101.150	-3-15-	1.4	3.9	8	0.37	2.7	520	1.2	290	52
18439	48-35.072	-101.150	-3-15-	0.41	2.2	10	0.19	2.7	450	1.2	240	62
18443	48-35.020	-101.115	-3-15-	0.55	2.4	10	0.23	2.4	460	1.6	290	75
18450	48-35.151	-101.193	-3-15-	1.4	2.3	8	0.63	1.9	520	1.2	190	54
18451	48-35.154	-101.223	-3-15-	1.3	2.5	8	0.54	2.2	510	1.3	230	54
18455	48-35.151	-101.177	-3-15-	1.0	1.7	8	0.61	1.4	440	1.2	190	55
18456	48-35.151	-101.169	-3-15-	1.1	2.2	5	0.52	1.5	360	1.3	300	70
18460	48-35.125	-101.152	-3-15-	1.1	2.4	3	0.47	2.0	500	1.3	200	55
18461	48-35.126	-101.156	-3-15-	1.1	2.8	7	0.39	2.1	490	1.8	330	85
18468	48-35.224	-101.065	-3-15-	0.79	2.6	4	0.30	1.9	470	1.2	210	57
18473	48-35.077	-101.081	-3-15-	1.6	2.5	9	0.66	2.4	400	1.5	300	67
18474	48-35.076	-101.088	-3-15-	1.7	3.1	6	0.54	2.8	560	1.6	320	71
18475	48-35.100	-101.128	-3-15-	1.5	2.2	7	0.68	2.5	450	1.7	340	67
18477	48-35.065	-101.065	-3-12-	1.2	1.5	6	0.79	2.2	510	0.96	190	43
18480	48-35.068	-101.052	-3-12-	1.8	2.9	7	0.63	3.6	840	1.8	1400	66
18483	48-35.058	-101.006	-3-12-	1.8	4.1	5	0.45	2.2	520	1.1	410	77
18508	48-35.505	-101.399	-3-15-	1.0	2.3	5	0.44	1.4	440	1.4	320	53
18509	48-35.500	-101.395	-3-12-	1.4	1.9	3	0.73	1.2	460	1.2	220	51
18511	48-35.486	-101.442	-3-12-	1.8	2.6	11	0.67	1.6	500	1.8	400	70
18514	48-35.299	-101.311	-3-12-	1.7	3.0	10	0.57	1.5	460	1.8	350	83
18515	48-35.498	-101.446	-3-12-	2.1	2.5	7	0.83	1.5	510	2.1	390	75
18516	48-35.510	-101.357	-3-15-	1.5	2.0	7	0.76	1.1	500	1.1	210	55
18517	48-35.526	-101.312	-3-12-	1.9	2.4	10	0.81	1.5	500	1.8	430	76
18518	48-35.512	-101.296	-3-12-	1.4	2.4	14	0.58	1.5	540	2.2	420	76
18519	48-35.515	-101.277	-3-12-	1.4	2.2	10	0.66	1.9	480	1.9	420	68
18524	48-35.542	-101.417	-3-15-	1.4	2.4	11	0.57	1.4	490	1.8	470	70
18525	48-35.541	-101.430	-3-15-	1.3	2.2	6	0.60	1.0	590	1.2	280	60
18526	48-35.528	-101.444	-3-12-	1.2	2.4	8	0.50	1.1	500	1.7	310	64

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
18531	48-35.540	-101.350	-3-15-	1.2	1.9	9	0.62	1.5	490	1.2	210	48
18533	48-35.541	-101.299	-3-15-	1.7	2.5	8	0.69	1.8	500	1.9	470	71
18537	48-35.571	-101.292	-3-15-	1.7	2.4	8	0.70	1.9	480	1.9	390	61
18539	48-35.588	-101.351	-3-12-	1.1	2.0	5	0.53	1.2	580	0.97	200	50
18545	48-35.562	-101.423	-3-12-	1.4	2.1	6	0.67	1.5	430	1.6	330	67
18547	48-35.593	-101.388	-3-15-	1.8	2.2	6	0.83	1.8	460	1.5	320	66
18549	48-35.642	-101.313	-3-12-	1.5	2.0	8	0.77	1.6	490	1.2	310	54
18551	48-35.629	-101.315	-3-15-	1.4	2.2	4	0.65	1.6	530	1.6	350	62
18553	48-35.649	-101.251	-3-15-	1.3	2.5	9	0.53	1.6	500	1.4	270	62
18558	48-35.640	-101.423	-3-15-	1.6	2.6	8	0.62	1.8	500	1.8	350	74
18559	48-35.641	-101.415	-3-15-	1.5	2.5	10	0.60	2.1	510	1.7	420	76
18561	48-35.693	-101.451	-3-12-	1.7	2.7	7	0.64	1.5	480	1.3	270	70
18562	48-35.706	-101.414	-3-12-	1.8	2.7	7	0.68	2.0	520	1.5	440	71
18563	48-35.687	-101.477	-3-15-	1.5	2.1	7	0.70	2.0	540	1.2	280	59
18566	48-35.664	-101.251	-3-15-	0.94	2.4	5	0.39	2.0	720	1.1	220	46
18567	48-35.644	-101.354	-3-15-	1.4	2.3	4	0.61	2.3	530	1.3	380	73
18573	48-35.733	-101.313	-3-15-	1.7	2.2	6	0.77	2.3	2400	1.3	470	68
18575	48-35.699	-101.298	-3-12-	1.8	2.6	8	0.70	3.7	7500	1.7	600	64
18576	48-35.682	-101.353	-3-15-	1.6	2.4	6	0.68	2.3	640	1.3	400	67
18577	48-35.703	-101.337	-3-12-	1.7	2.3	5	0.74	1.8	450	1.4	290	69
18579	48-35.708	-101.379	-3-15-	1.4	3.3	6	0.44	2.2	600	1.5	440	71
18580	48-35.603	-101.236	-3-15-	1.4	2.5	8	0.56	1.7	500	1.7	350	66
18581	48-35.587	-101.235	-3-15-	1.2	2.3	7	0.54	1.8	520	1.5	320	58
18582	48-35.580	-101.213	-3-15-	1.2	2.2	7	0.56	2.2	570	1.3	240	55
18583	48-35.622	-101.235	-3-15-	1.3	2.3	8	0.55	1.4	510	1.4	310	55
18584	48-35.621	-101.231	-3-15-	1.3	3.1	7	0.41	1.7	510	0.98	150	45
18587	48-35.546	-101.199	-3-15-	1.6	2.6	12	0.62	2.1	550	2.4	410	78
18588	48-35.543	-101.207	-3-15-	1.6	2.7	6	0.59	2.0	490	1.7	320	69
18589	48-35.287	-100.769	-3-12-	1.2	2.0	5	0.61	2.2	560	0.89	150	45
18590	48-35.422	-100.816	-3-12-	1.4	2.4	6	0.57	2.6	610	1.1	220	63
18591	48-35.427	-100.814	-3-15-	4.6	14.	6	0.32	1.7	430	1.9	620	130
18592	48-35.435	-100.767	-3-15-	1.0	1.9	5	0.55	1.8	520	0.78	130	38
18609	48-35.082	-101.504	-3-15-	0.39	3.0	11	0.13	2.2	480	1.9	380	77
18617	48-35.060	-101.740	-3-12-	0.81	1.5	6	0.54	1.9	330	1.2	200	48
18628	48-35.168	-101.275	-3-15-	1.4	3.7	7	0.39	2.0	390	1.3	270	65
18643	48-35.035	-101.281	-3-15-	1.1	2.0	7	0.53	1.4	470	0.99	200	45
18649	48-35.060	-101.364	-3-15-	1.4	3.1	11	0.46	2.4	450	2.1	320	76
18651	48-35.054	-101.323	-3-15-	0.94	1.5	5	0.63	1.7	510	0.68	280	35
18658	48-35.017	-101.275	-3-15-	1.9	2.4	8	0.79	3.6	430	1.9	300	73
18664	48-35.383	-101.924	-3-15-	1.2	2.1	5	0.56	1.6	440	0.93	250	46
18665	48-35.365	-101.911	-3-15-	0.89	2.2	9	0.40	2.4	490	1.6	430	71
18666	48-35.366	-101.921	-3-15-	1.1	2.2	6	0.50	2.6	690	1.2	280	76
18668	48-35.426	-101.885	-3-15-	1.2	2.2	8	0.53	1.7	1500	1.4	460	68
18669	48-35.403	-101.979	-3-15-	2.0	2.6	10	0.77	2.2	560	2.0	410	77
18670	48-35.424	-101.942	-3-15-	1.4	2.5	5	0.55	2.8	420	1.3	320	72
18676	48-35.471	-101.887	-3-12-	2.0	4.2	7	0.47	2.7	720	1.4	670	77
18677	48-35.451	-101.782	-3-12-	1.8	4.5	9	0.40	3.0	500	1.0	330	79
18680	48-35.474	-101.759	-3-15-	1.8	4.0	5	0.44	1.9	690	0.96	390	67
18686	48-35.467	-101.898	-3-15-	1.0	2.0	9	0.52	1.7	520	1.0	360	50
18694	48-35.618	-101.763	-3-15-	2.0	2.3	6	0.85	2.8	340	1.4	540	77
18695	48-35.605	-101.756	-3-15-	2.1	2.1	4	1.0	2.9	370	1.6	450	74
18696	48-35.612	-101.756	-3-15-	1.6	2.0	7	0.79	2.4	360	1.3	420	59
18700	48-35.486	-101.962	-3-12-	1.8	3.3	6	0.56	3.1	490	1.8	570	83
18701	48-35.511	-101.980	-3-15-	2.0	6.1	7	0.33	3.2	790	2.9	670	110
18702	48-35.507	-101.991	-3-15-	1.6	2.1	5	0.74	3.7	630	1.4	280	50

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT (PPM)	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
18708	48-35.542	-101.791	-3-15-	1.7	2.1	3	0.79	3.2	370	1.6	400	72
18710	48-35.555	-101.771	-3-15-	1.9	2.0	6	0.94	2.5	360	1.6	430	70
18713	48-35.779	-101.981	-3-15-	2.0	6.5	4	0.31	2.1	500	1.5	320	88
18714	48-35.774	-101.968	-3-15-	1.4	1.9	6	0.74	1.3	520	1.0	170	40
18715	48-35.787	-101.959	-3-15-	1.9	5.7	3	0.33	1.7	450	1.6	360	100
18716	48-35.807	-101.887	-3-15-	1.6	2.9	5	0.57	1.1	620	1.0	270	46
18717	48-35.805	-101.890	-3-15-	0.44	2.4	<2	0.18	0.7	530	0.85	140	31
18719	48-35.814	-101.928	-3-15-	0.63	2.3	5	0.36	1.6	490	1.4	260	55
18720	48-35.807	-101.935	-3-15-	1.2	2.0	6	0.60	1.3	510	1.2	180	52
18721	48-35.804	-101.935	-3-15-	1.0	2.7	9	0.39	1.1	470	1.4	230	63
18723	48-35.781	-101.901	-3-15-	0.59	3.1	2	0.19	1.4	450	0.98	220	49
18724	48-35.787	-101.876	-3-15-	1.1	1.7	3	0.68	1.2	560	0.79	150	31
18725	48-35.786	-101.875	-3-15-	0.71	1.6	6	0.44	1.3	510	0.87	140	36
18728	48-35.792	-101.841	-3-15-	0.84	2.7	5	0.31	1.3	430	1.1	220	52
18729	48-35.796	-101.844	-3-15-	4.8	21.	8	0.23	1.9	340	3.1	990	280
18730	48-35.799	-101.832	-3-12-	2.0	2.7	7	0.74	2.6	510	2.0	460	74
18732	48-35.785	-101.809	-3-15-	1.3	2.4	6	0.52	2.0	420	1.7	350	63
18733	48-35.792	-101.782	-3-12-	1.4	4.9	6	0.29	1.5	540	1.2	420	75
18734	48-35.797	-101.780	-3-15-	1.8	2.3	4	0.78	1.7	530	1.8	360	70
18757	48-35.965	-101.760	-3-12-	1.7	3.4	8	0.51	1.6	460	1.4	310	69
18764	48-35.924	-101.809	-3-15-	1.4	2.8	7	0.50	1.7	500	1.7	300	69
18776	48-35.873	-101.075	-3-15-	1.5	2.3	5	0.67	1.4	510	1.5	320	65
18777	48-35.863	-101.081	-3-15-	1.4	2.7	8	0.51	1.2	460	1.2	280	66
18779	48-35.837	-101.066	-3-15-	0.93	2.2	6	0.42	0.9	430	0.90	170	36
18783	48-35.941	-101.087	-3-12-	2.4	4.4	4	0.54	1.7	570	1.5	590	86
18784	48-35.938	-101.089	-3-15-	1.3	3.6	5	0.36	1.0	580	1.3	330	88
18786	48-35.916	-101.114	-3-15-	1.6	3.2	6	0.51	1.2	620	1.3	390	59
18787	48-35.955	-101.078	-3-15-	2.5	10.	6	0.24	1.2	520	3.0	1300	150
18800	48-35.291	-101.198	-3-12-	2.0	3.1	6	0.64	1.8	440	1.8	370	74
18802	48-35.299	-101.146	-3-15-	0.96	2.6	10	0.37	1.6	360	1.2	290	55
18806	48-35.988	-101.509	-3-15-	1.4	3.0	7	0.48	2.5	480	1.8	330	70
18840	48-35.731	-101.492	-3-15-	2.2	6.2	9	0.36	3.0	800	1.8	600	90
18847	48-35.792	-101.256	-3-15-	1.5	4.7	11	0.32	2.2	430	1.3	290	94
18849	48-35.771	-101.293	-3-15-	2.0	2.8	8	0.71	2.7	530	1.8	380	72
18855	48-35.753	-101.358	-3-15-	1.6	2.3	9	0.69	2.3	450	1.2	310	72
18856	48-35.776	-101.334	-3-15-	1.0	2.4	6	0.42	1.6	510	0.96	230	53
18863	48-35.780	-101.456	-3-12-	0.89	3.2	9	0.28	2.6	540	0.79	200	40
18864	48-35.770	-101.455	-3-12-	1.4	2.5	7	0.56	2.7	770	1.2	520	49
18869	48-35.761	-101.412	-3-15-	0.53	4.0	10	0.13	2.1	480	1.5	380	74
18873	48-35.980	-101.477	-3-12-	2.2	3.1	9	0.71	3.2	480	1.8	370	70
18875	48-35.994	-101.426	-3-12-	0.83	3.3	9	0.25	2.5	480	2.0	330	75
18881	48-35.844	-101.336	-3-15-	3.3	9.1	8	0.36	4.0	540	2.4	730	130
18882	48-35.857	-101.333	-3-15-	2.0	4.2	4	0.47	2.4	560	1.3	330	63
18885	48-35.861	-101.276	-3-12-	1.3	2.2	7	0.58	1.5	620	0.93	260	49
18886	48-35.875	-101.257	-3-15-	1.7	4.5	9	0.37	1.6	580	1.2	290	86
18888	48-35.828	-101.285	-3-12-	0.99	2.7	5	0.37	1.9	700	1.2	820	66
18889	48-35.829	-101.318	-3-15-	1.5	4.8	9	0.32	2.7	610	2.6	530	100
18893	48-35.909	-101.307	-3-15-	1.6	5.8	9	0.27	1.9	620	2.0	470	96
18894	48-35.911	-101.305	-3-15-	1.7	3.2	6	0.54	1.9	600	1.2	260	64
18901	48-35.901	-100.825	-3-15-	2.4	9.6	12	0.25	1.4	650	2.7	860	160
18902	48-35.868	-100.816	-3-15-	1.3	3.6	7	0.35	1.1	590	1.4	290	66
18903	48-35.980	-100.871	-3-15-	1.2	2.8	8	0.44	2.5	610	1.6	320	62
18904	48-35.976	-100.902	-3-15-	2.2	3.4	12	0.64	3.8	480	2.8	380	62
18905	48-35.972	-100.920	-3-15-	4.1	15.	13	0.28	3.0	650	4.5	1500	230
18906	48-35.967	-100.949	-3-15-	1.7	3.1	10	0.54	2.3	570	1.9	420	73

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
18907	48-35.960	-100.965	-3-15-	1.5	2.8	9	0.54	1.6	560	1.5	290	65
18908	48-35.988	-100.832	-3-15-	1.5	3.0	7	0.50	2.1	570	1.8	400	73
18909	48-35.989	-100.792	-3-12-	2.0	6.1	9	0.33	1.9	660	2.2	680	100
18910	48-35.981	-100.858	-3-15-	1.6	3.7	7	0.42	1.5	640	1.2	240	73
18914	48-35.934	-100.922	-3-15-	2.6	2.5	6	1.1		470	1.6	360	62
18916	48-35.943	-100.928	-3-15-	2.5	3.1	9	0.82	2.1	510	2.0	570	66
18917	48-35.927	-100.964	-3-15-	2.0	3.0	7	0.68	2.0	490	1.8	460	63
18918	48-35.929	-100.968	-3-12-	1.3	2.1	6	0.62	0.9	540	0.99	220	51
18924	48-35.917	-101.004	-3-15-	1.7	5.5	3	0.32	1.4	400	1.5	380	82
18925	48-35.863	-100.987	-3-15-	0.61	2.3	4	0.27	1.3	490	1.0	220	47
18929	48-35.830	-100.962	-3-15-	1.3	2.8	6	0.45	1.6	530	1.2	290	80
18930	48-35.824	-100.980	-3-15-	1.3	3.2	10	0.42	3.8	560	2.1	350	85
18931	48-35.836	-100.984	-3-15-	2.2	8.0	9	0.27	2.6	420	2.4	660	130
18934	48-35.827	-100.885	-3-15-	1.2	2.2	8	0.53	2.9	510	1.6	280	68
18935	48-35.836	-100.865	-3-15-	0.88	2.4	7	0.37	2.2	500	1.3	270	66
18947	48-35.768	-100.886	-3-15-	1.0	2.0	7	0.52	1.5	540	1.2	200	57
18948	48-35.768	-100.885	-3-15-	1.4	2.3	6	0.60	1.4	530	1.5	240	70
18949	48-35.771	-100.881	-3-15-	1.1	2.0	6	0.54	1.4	530	1.2	200	55
18950	48-35.788	-100.872	-3-15-	0.93	1.9	4	0.49	1.3	530	0.81	130	40
18951	48-35.869	-100.879	-3-15-	1.9	3.0	5	0.65	1.5	650	1.3	300	69
18952	48-35.891	-100.870	-3-15-	1.6	3.7	9	0.43	1.4	590	1.1	300	74
18970	48-35.565	-100.938	-3-15-	1.1	2.8	7	0.41	1.9	500	1.1	260	57
18971	48-35.572	-100.899	-3-15-	1.4	2.3	9	0.63	2.4	560	1.6	230	66
18973	48-35.595	-100.891	-3-15-	1.1	2.4	8	0.45	1.6	610	1.2	330	57
18974	48-35.590	-100.845	-3-15-	1.2	2.3	8	0.52	1.4	490	0.97	190	54
18975	48-35.589	-100.844	-3-15-	2.7	2.1	4	1.3	1.4	550	0.93	180	36
18982	48-35.576	-100.924	-3-15-	1.5	2.4	5	0.65	2.0	470	1.3	310	62
18991	48-35.707	-100.951	-3-15-	1.4	2.3	8	0.62	1.2	490	1.4	210	63
18994	48-35.687	-100.964	-3-15-	1.3	2.2	6	0.60	1.6	470	1.4	250	60
19003	48-35.748	-100.980	-3-15-	1.0	2.2	5	0.46	1.4	500	1.0	160	54
19005	48-35.753	-100.999	-3-15-	0.97	3.0	9	0.32	1.3	590	1.3	280	71
19009	48-35.916	-101.214	-3-15-	0.94	2.3	6	0.41	1.3	500	1.3	270	63
19011	48-35.942	-101.177	-3-15-	1.4	3.0	6	0.47	1.3	580	1.1	230	61
19014	48-35.933	-101.164	-3-15-	0.70	2.1	7	0.33	1.2	550	1.2	260	54
19016	48-35.907	-101.173	-3-15-	0.80	2.6	3	0.31	1.1	590	0.96	210	46
19017	48-35.913	-101.132	-3-15-	1.7	2.7	7	0.61	1.7	560	1.7	470	63
19019	48-35.893	-101.153	-3-15-	1.3	2.6	6	0.50	0.8	600	1.1	320	62
19020	48-35.874	-101.209	-3-15-	1.4	2.7	6	0.52	1.3	550	1.1	250	63
19025	48-35.827	-100.476	-3-15-	3.1	8.9	7	0.35	1.4	540	1.8	800	170
19040	48-35.722	-100.214	-3-15-	1.7	2.9	8	0.58	1.6	620	1.3	330	65
19041	48-35.732	-100.198	-3-15-	1.8	2.9	5	0.63	1.3	580	1.3	390	61
19042	48-35.738	-100.165	-3-15-	1.7	3.0	4	0.57	1.2	580	1.3	390	62
19043	48-35.667	-100.226	-3- -	1.3	2.8	7	0.46	3.1	3200	1.5	390	58
19045	48-35.504	-100.205	-3-12-	0.89	2.2	4	0.40	1.0	640	0.79	260	53
19047	48-35.036	-100.982	-3-12-	1.6	2.0	5	0.80	1.9	560	1.6	280	72
19049	48-35.823	-101.182	-3-15-	1.5	4.3	6	0.36	1.8	430	1.3	310	73
19051	48-35.824	-101.168	-3-15-	1.1	3.4	4	0.31	1.6	470	1.1	290	64
19055	48-35.809	-101.214	-3-15-	1.1	3.2	5	0.33	1.7	400	1.1	250	64
19056	48-35.780	-101.241	-3-15-	1.8	7.7	6	0.24	2.0	440	1.6	410	120
19057	48-35.763	-101.228	-3-15-	1.3	3.1	5	0.42	1.6	440	0.98	270	52
19060	48-35.810	-101.062	-3-15-	1.5	6.0	5	0.25	1.8	480	1.3	360	77
19061	48-35.810	-101.058	-3-15-	1.5	5.5	7	0.27	2.0	550	1.4	460	96
19071	48-35.640	-100.707	-3-15-	1.3	2.8	3	0.48	1.8	560	0.97	220	51
19072	48-35.646	-100.699	-3-15-	0.87	1.8	4	0.48	1.5	480	0.86	140	44
19073	48-35.650	-100.684	-3-15-	1.1	2.9	5	0.38	1.7	520	1.1	250	54

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
19075	48-35.683	-100.642	-3-15-	1.4	3.3	4	0.42	2.0	550	1.2	260	74
19076	48-35.693	-100.641	-3-15-	1.4	3.7	5	0.38	1.4	560	1.1	280	76
19084	48-35.710	-100.609	-3-15-	1.8	3.0	6	0.61	2.0	580	1.5	270	66
19085	48-35.705	-100.552	-3-15-	1.4	3.0	7	0.48	1.8	460	1.3	240	59
19088	48-35.695	-100.550	-3-15-	1.6	2.9	7	0.55	2.3	520	1.9	350	77
19090	48-35.693	-100.504	-3-15-	1.4	2.4	7	0.57	2.3	500	1.4	260	56
19096	48-35.741	-100.559	-3-15-	1.9	2.6	11	0.73	3.0	480	1.6	240	63
19097	48-35.717	-100.629	-3-15-	1.4	2.6	8	0.55	1.8	500	0.91	180	45
19099	48-35.647	-100.741	-3-15-	1.5	2.0	5	0.76	2.1	490	1.1	240	51
19100	48-35.720	-100.717	-3-15-	1.3	2.4	6	0.55	1.7	510	1.3	220	61
19101	48-35.712	-100.716	-3-15-	1.1	2.3	6	0.47	1.7	460	1.1	210	46
19102	48-35.739	-100.600	-3-15-	1.2	5.3	6	0.23	1.4	480	1.7	380	74
19103	48-35.738	-100.602	-3-15-	0.62	4.0	2	0.15	1.1	470	0.95	230	49
19112	48-35.536	-100.515	-3-15-	1.7	3.2	6	0.54	1.7	500	1.7	360	67
19114	48-35.536	-100.505	-3-15-	1.9	3.5	5	0.53	2.1	520	1.8	350	77
19115	48-35.532	-100.519	-3-15-	1.5	3.0	5	0.49	1.9	550	1.5	320	63
19128	48-35.686	-100.630	-3-15-	1.2	3.1	4	0.40	1.1	540	1.2	310	75
19131	48-35.519	-100.442	-3-15-	0.82		5		2.8	520	0.60	770	35
19132	48-35.530	-100.442	-3-15-	1.2	1.8	5	0.68	1.2	360	0.92	240	82
19133	48-35.562	-100.476	-3-15-	1.6	2.2	7	0.75	2.6	430	1.8	350	79
19134	48-35.593	-100.451	-3-15-	0.90	1.1	5	0.82	2.0	430	0.90	190	68
19135	48-35.605	-100.425	-3-15-	1.9	2.2	7	0.87	19.	200	5.0	6000	38
19136	48-35.609	-100.451	-3-15-	1.7	2.8	11	0.60	3.0	470	1.9	400	84
19137	48-35.602	-100.451	-3-15-	1.3	2.6	8	0.51	1.6	470	1.7	300	68
19138	48-35.634	-100.342	-3-15-	1.4	2.5	10	0.56	1.7	540	1.6	300	71
19139	48-35.624	-100.362	-3-15-	1.8	2.7	10	0.67	2.8	530	2.0	340	75
19141	48-35.532	-100.273	-3-12-	1.6	2.4	6	0.68	2.7	710	1.2	300	61
19143	48-35.728	-100.409	-3-15-	1.8	2.5	5	0.71	2.2	500	1.3	270	61
19144	48-35.692	-100.448	-3-15-	1.6	2.2	5	0.73	1.4	480	1.0	190	56
19145	48-35.626	-101.084	-3-15-	0.68	2.0	<2	0.34	1.3	400	0.84	150	34
19146	48-35.722	-101.225	-3-15-	1.2	3.1	5	0.38	1.3	440	1.2	290	59
19147	48-35.736	-101.230	-3-15-	1.2	4.5	6	0.26	2.1	490	1.5	380	53
19148	48-35.743	-101.222	-3-15-	1.2	3.5	2	0.35	1.6	530	1.3	270	67
19151	48-35.639	-101.089	-3-15-	1.1	3.0	6	0.36	1.8	450	1.3	250	56
19152	48-35.715	-101.231	-3-12-	1.8	2.1	2	0.84	1.4	590	1.0	380	43
19153	48-35.695	-101.243	-3-15-	3.0	9.3	7	0.32	3.5	630	3.2	840	130
19154	48-35.688	-101.245	-3-15-	0.99	4.0	8	0.25	1.9	610	1.8	390	73
19158	48-35.656	-101.183	-3-15-	1.1	2.3	6	0.50	1.2	500	1.2	240	47
19166	48-35.721	-101.028	-3-15-	0.73	2.4	3	0.30	1.4	500	1.2	220	55
19169	48-35.703	-101.132	-3-15-	1.8	1.9	7	0.96	2.6	540	1.0	210	47
19170	48-35.662	-101.119	-3-15-	1.2	2.0	6	0.58	1.6	510	0.86	150	46
19179	48-35.652	-101.089	-3-15-	1.6	2.6	9	0.62	1.4	590	1.3	230	66
19180	48-35.657	-101.103	-3-15-	1.1	7.0	13	0.16	1.9	630	1.6	430	120
19181	48-35.722	-101.135	-3-15-	0.73	3.0	9	0.24	2.3	620	1.1	260	62
19183	48-35.661	-101.169	-3-15-	0.62	2.3	11	0.27	1.7	520	1.9	410	68
19184	48-35.668	-101.127	-3-15-	0.68	2.1	8	0.32	2.0	500	1.3	270	64
19185	48-35.198	-100.976	-3-15-	1.4	2.1	8	0.66	1.9	450	1.1	190	51
19186	48-35.206	-100.909	-3-12-	1.0	6.9	8	0.15	1.6	660	1.7	430	110
19187	48-35.208	-100.907	-3-15-	0.43	3.4	6	0.13	3.5	560	1.3	280	61
19188	48-35.219	-100.862	-3-15-	0.83	1.6	7	0.52	1.6	540	0.94	220	50
19189	48-35.204	-100.867	-3-15-	0.64	1.7	6	0.38	1.4	490	0.80	120	40
19190	48-35.200	-100.877	-3-12-	1.6	2.4	9	0.66	1.9	460	1.6	150	63
19191	48-35.247	-100.809	-3-15-	1.1	2.3	<2	0.47	2.7	440	1.3	200	46
19192	48-35.233	-100.808	-3-15-	1.3	4.0	9	0.33	1.6	500	1.3	250	66
19193	48-35.223	-100.828	-3-15-	1.3	3.7	8	0.36	1.9	550	1.2	230	60

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. D. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
19194	48-35.218	-100.853	-3-15-	1.8	5.5	8	0.33	1.6	520	1.4	320	8?
19195	48-35.202	-100.988	-3-15-	1.6	2.8	3	0.57	1.9	440	1.5	230	6?
19200	48-35.238	-100.818	-3-15-	1.3	2.9	8	0.47	2.3	470	1.7	280	64
19201	48-35.239	-100.835	-3-15-	1.9	4.6	4	0.41	2.3	430	1.1	230	58
19202	48-35.234	-100.842	-3-15-	1.8	4.0	5	0.45	2.4	550	1.5	260	7?
19204	48-35.067	-100.915	-3-12-	0.99	2.9	4	0.34	2.4	530	1.1	240	53
19218	48-35.220	-100.917	-3-15-	1.6	5.8	3	0.27	1.8	520	1.6	310	7?
19219	48-35.223	-100.934	-3-15-	1.4	2.6	8	0.53	1.9	450	1.5	270	61
19220	48-35.210	-100.949	-3-15-	1.0	2.4	6	0.42	1.6	410	1.1	190	5?
19222	48-35.691	-100.171	-3-12-	2.3	5.4		0.42	1.0				
19223	48-35.671	-100.185	-3-15-	1.5	2.8	7	0.52	1.4	590	1.8	420	6?
19224	48-35.672	-100.189	-3-15-	1.5	3.0	10	0.50	1.5	590	1.6	350	75
19225	48-35.659	-100.230	-3-15-	2.0	3.1	8	0.65	1.2	690	1.5	400	7?
19226	48-35.648	-100.212	-3-15-	2.1	4.9	7	0.43	1.5	670	1.9	490	100
19228	48-35.697	-100.141	-3-15-	1.8	2.7	7	0.65	1.8	590	1.7	370	7?
19230	48-35.697	-100.125	-3-15-	1.5	2.9	6	0.51	1.7	620	1.4	300	68
19234	48-35.717	-100.094	-3-15-	1.4	3.2	8	0.45	0.9	630	1.3	430	75
19236	48-35.686	-100.059	-3-15-	2.4	5.4	7	0.44	1.2	590	1.8	740	110
19239	48-35.708	-100.107	-3-15-	1.9	2.6	7	0.72	1.4	630	1.4	310	6?
19243	48-35.678	-100.033	-3-15-	2.2	6.1	8	0.36	1.0	540	1.9	780	12?
19247	48-35.721	-100.205	-3-15-	1.9	3.2	4	0.60	1.9	620	1.4	400	7?
19251	48-35.734	-100.103	-3-15-	2.0	3.3	4	0.60	1.9	570	2.1	610	11?
19252	48-35.673	-100.158	-3-15-	2.1	5.4	3	0.39	1.8	580	1.5	530	110
19254	48-35.452	-100.758	-3-15-	1.1	2.7	4	0.43	1.9	530	0.97	200	4?
19256	48-35.435	-100.787	-3-15-	1.0	5.8	5	0.18	1.5	470	1.3	270	6?
19257	48-35.460	-100.822	-3-15-	1.0	3.4	3	0.30	1.4	460	1.0	200	64
19259	48-35.295	-100.799	-3-15-	1.4	4.4	7	0.32	2.0	550	1.4	280	81
19260	48-35.297	-100.828	-3-15-	1.0	2.0	4	0.52	0.8	440	1.0	150	55
19261	48-35.293	-100.832	-3-15-	1.0	2.9	5	0.36	1.8	410	1.3	260	59
19263	48-35.290	-100.869	-3-15-	1.1	2.0	3	0.53	1.9	480	1.1	180	4?
19264	48-35.286	-100.874	-3-15-	1.1	2.2	6	0.50	2.6	430	1.5	230	44
19267	48-35.283	-100.833	-3-15-	0.93	2.4	5	0.39	1.6	410	1.3	230	52
19271	48-35.253	-100.773	-3-15-	1.3	2.6	6	0.50	1.8	460	0.99	170	45
19277	48-35.343	-100.994	-3-15-	1.5	2.7	9	0.54	2.5	470	2.7	350	79
19278	48-35.421	-100.975	-3-15-	0.99	2.2	7	0.45	1.7	440	1.2	220	46
19280	48-35.457	-100.830	-3-15-	1.3	4.8	10	0.28	2.0	480	1.8	270	62
19281	48-35.464	-100.862	-3-15-	1.1	2.9	7	0.38	1.8	510	1.5	240	56
19282	48-35.452	-100.890	-3-15-	1.3	4.0	4	0.31	1.9	480	1.2	220	5?
19284	48-35.448	-100.888	-3-15-	0.84	2.0	5	0.42	1.6	500	1.1	220	44
19286	48-35.422	-100.922	-3-15-	1.0	2.4	4	0.43	1.9	500	1.1	190	4?
19287	48-35.418	-100.934	-3-15-	1.2	2.7	9	0.44	2.0	510	1.4	280	57
19288	48-35.426	-100.941	-3-15-	1.4	3.3	8	0.42	2.2	570	1.5	300	6?
19291	48-35.396	-100.809	-3-15-	1.9	5.7	4	0.33	2.2	520	1.5	340	82
19292	48-35.421	-100.843	-3-15-	3.0	3.2	5	0.93	2.2	500	1.4	300	52
19295	48-35.390	-100.817	-3-15-	2.7	3.5	9	0.77	2.7	510	1.5	260	67
19296	48-35.394	-100.820	-3-15-	0.94	1.8	6	0.52	1.9	540	1.0	210	47
19311	48-35.146	-100.732	-3-12-	1.9	4.5	5	0.42	1.6	620	1.1	280	77
19312	48-35.143	-100.706	-3-12-	1.5	3.8	5	0.41	1.7	560	1.1	230	59
19313	48-35.143	-100.703	-3-12-	1.2	1.9	6	0.65	1.2	450	0.66	140	41
19320	48-35.096	-100.642	-3-15-	1.5	2.3	4	0.63		410	1.5	300	76
19321	48-35.089	-100.655	-3-15-	1.9	2.8	6	0.68	3.0	510	2.1	470	E7
19322	48-35.088	-100.669	-3-15-	1.1	2.8	6	0.39	1.2	470	1.1	270	65
19324	48-35.021	-100.740	-3-15-	1.6	2.9	8	0.57	2.1	620	1.6	310	79
19328	48-35.015	-100.646	-3-15-	0.80	2.2	6	0.36	1.4	510	0.79	250	41
19331	48-35.017	-100.627	-3-15-	1.1	2.2	6	0.51	1.4	940	1.5	320	54

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
19339	48-35.099	-100.705	-3-15-	1.4	2.6	9	0.55	1.7	560	1.8	350	69
19340	48-35.897	-100.228	-3-15-	1.3	3.9	8	0.34	2.0	510	1.5	340	68
19341	48-35.920	-100.042	-3-15-	1.8	0.6	6	0.28	0.4	300	1.1	520	130
19342	48-35.932	-100.042	-3-12-	1.4	2.3	6	0.63	1.3	490	1.4	320	63
19352	48-35.853	-100.705	-3-15-	2.6	2.4	9	1.1	2.2	560	1.8	310	63
19353	48-35.824	-100.698	-3-15-	2.4	2.0	6	1.2	2.5	480	1.0	150	47
19354	48-35.827	-100.702	-3-15-	1.0	2.1	9	0.49	2.4	490	1.3	210	57
19355	48-35.837	-100.698	-3-15-	1.3	2.5	4	0.52	3.2	560	1.4	240	66
19356	48-35.931	-100.745	-3-15-	1.3	2.9	3	0.44	2.0	580	1.2	230	70
19357	48-35.961	-100.719	-3-15-	1.4	2.5	6	0.56	3.2	560	2.0	370	60
19360	48-35.965	-100.737	-3-15-	1.7	5.4	6	0.31	2.2	580	1.6	380	100
19363	48-35.901	-100.687	-3-15-	0.88	2.1	8	0.42	2.3	490	1.5	300	67
19364	48-35.950	-100.686	-3-15-	1.0	4.4	6	0.23	2.0	590	1.6	350	81
19367	48-35.952	-100.644	-3-15-	2.3	3.1	9	0.73	3.7	510	2.2	490	71
19368	48-35.966	-100.658	-3-15-	1.8	5.5	7	0.33	1.5	550	1.5	360	73
19377	48-35.766	-100.503	-3-12-	2.3	3.3	8	0.70	2.5	590	1.5	240	68
19380	48-35.762	-100.547	-3-15-	1.8	2.2	4	0.84	2.8	620	1.1	290	63
19388	48-35.820	-100.501	-3-15-	1.8	3.4	5	0.54	1.9	580	1.1	350	63
19389	48-35.799	-100.501	-3-15-	1.3	2.0	6	0.63	3.2	550	1.3	220	53
19391	48-35.896	-100.646	-3-15-	1.7	3.7	9	0.47	3.1	640	1.9	400	83
19393	48-35.927	-100.654	-3-15-	1.0	2.7	4	0.39	2.6	620	1.5	310	65
19395	48-35.934	-100.598	-3-15-	1.7	2.7	7	0.62	3.2	660	1.7	340	61
19396	48-35.934	-100.599	-3-15-	4.7	4.1	7	1.2	3.6	640	2.9	610	85
19399	48-35.877	-100.692	-3-15-	1.9	2.6	8	0.75	2.0	560	1.5	220	63
19401	48-35.945	-100.555	-3-15-	1.6	3.3	4	0.50	2.2	620	1.6	360	58
19402	48-35.950	-100.528	-3-15-	1.2	3.1	3	0.40	1.7	610	1.4	310	71
19405	48-35.873	-100.627	-3-15-	1.8	2.4	5	0.77	2.7	520	1.0	160	54
19406	48-35.929	-100.501	-3-15-	2.6	5.0	7	0.52	1.7	660	2.1	620	89
19415	48-35.679	-100.680	-3-15-	1.7	2.4	8	0.69	2.0	530	1.7	200	64
19426	48-35.657	-100.713	-3-15-	1.4	2.2	5	0.63	2.4	510	1.4	250	61
19427	48-35.637	-100.735	-3-15-	1.4	2.2	5	0.62	3.0	500	1.2	230	52
19433	48-35.699	-100.671	-3-15-	0.85	1.7	<2	0.50	1.3	420	0.64	140	29
19443	48-35.872	-100.868	-3-15-	1.6	2.5	8	0.64	1.9		1.4	290	65
19449	48-35.941	-100.821	-3-15-	3.6	2.0	4	1.8	2.0	510	1.0	220	60
19451	48-35.948	-100.806	-3-15-	5.0	3.5	8	1.4	2.6	520	2.0	440	77
19455	48-35.865	-100.798	-3-15-	1.2	2.4	10	0.51	2.8	530	1.9	330	69
19458	48-35.934	-100.905	-3-15-	3.4	2.1	7	1.6	2.0	510	1.3	270	55
19460	48-35.929	-100.880	-3-15-	0.99	2.3	9	0.43	3.0	520	1.9	420	64
19464	48-35.907	-100.759	-3-15-	1.5	2.4	5	0.62	2.0	550	1.1	230	63
19465	48-35.946	-100.792	-3-15-	0.81	3.3	5	0.25	1.1	480	1.0	260	63
19467	48-35.948	-100.756	-3-15-	1.3	3.6	5	0.37	2.5	460	1.5	310	65
19470	48-35.810	-100.815	-3-15-	1.2	2.6	7	0.47	2.1	500	1.4	240	62
19472	48-35.817	-100.802	-3-15-	1.6	5.2	5	0.32	2.5	460	1.6	330	79
19475	48-35.840	-100.820	-3-15-	0.98	2.3	<2	0.43	1.5	550	0.94	180	52
19485	48-35.619	-100.805	-3-15-	1.4	3.4	7	0.41	2.6	480	1.4	250	61
19486	48-35.615	-100.798	-3-15-	1.1	2.8	5	0.38	3.2	470	1.1	260	65
19491	48-35.607	-100.833	-3-15-	1.0	2.1	8	0.49	2.7	470	1.0	220	50
19494	48-35.650	-100.864	-3-15-	1.3	2.8	8	0.48	3.9	430	1.8	390	81
19495	48-35.927	-100.446	-3-15-	2.0	3.8	8	0.52	2.7	680	1.9	450	81
19496	48-35.939	-100.465	-3-15-	2.0	3.0	8	0.66	2.9	680	2.2	370	71
19497	48-35.943	-100.489	-3-15-	1.8	2.6	6	0.70	2.3	640	1.8	340	71
19499	48-35.944	-100.371	-3-15-	1.6	2.9	6	0.57	2.1	620	1.7	390	64
19500	48-35.946	-100.423	-3-15-	2.0	4.1	6	0.49	1.6	440	1.6	430	84
19511	48-35.881	-100.308	-3-15-	2.1	2.7	7	0.79	2.4	670	2.0	370	61
19512	48-35.866	-100.308	-3-15-	1.9	3.1	4	0.62	2.9	550	2.2	490	72

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
19517	48-35.870	-100.258	-3-15-	3.4	12.	8	0.28	2.1	500	4.7	1900	180
19525	48-35.762	-100.252	-3-15-	1.8	3.1	7	0.58	2.8	550	1.9	390	74
19526	48-35.762	-100.264	-3-15-	1.8	2.4	8	0.73	1.3	540	1.8	290	67
19529	48-35.755	-100.300	-3-15-	1.6	2.4	6	0.68	1.9	550	1.1	240	58
19531	48-35.770	-100.350	-3-15-	1.5	2.8	10	0.55	2.5	510	2.0	370	77
19533	48-35.755	-100.365	-3-15-	1.7	2.6	8	0.66	2.2	530	1.6	340	63
19534	48-35.934	-100.318	-3-15-	1.5	2.2	4	0.67	1.4	550	1.2	270	57
19535	48-35.928	-100.309	-3-12-	0.63	1.8	4	0.35	0.6	440	0.57	220	26
19541	48-35.856	-100.496	-3-15-	1.4	3.8	8	0.37	1.6	630	1.2	250	68
19543	48-35.756	-100.386	-3-15-	1.5	2.6	11	0.53	2.5	510	2.0	350	71
19545	48-35.880	-100.422	-3-15-	1.9	4.5	8	0.42	1.9	710	1.9	590	82
19546	48-35.852	-100.461	-3-15-	1.5	2.7	7	0.57	2.4	620	1.7	290	64
19548	48-35.843	-100.477	-3-15-	1.2	3.7	6	0.33	1.6	1200	1.2	260	59
19551	48-35.399	-100.722	-3-15-	1.6	5.1	7	0.32	2.0	470	1.4	380	80
19552	48-35.399	-100.700	-3-15-	1.5	3.4	8	0.44	3.4	560	2.1	420	72
19553	48-35.403	-100.681	-3-15-	1.2	2.2	5	0.54	2.7	580	1.2	320	62
19554	48-35.396	-100.650	-3-15-	1.1	2.5	5	0.44	3.2	580	1.2	260	46
19555	48-35.392	-100.614	-3-15-	1.5	3.4	5	0.44	3.2	510	1.7	340	74
19556	48-35.416	-100.626	-3-12-	1.4	4.4	8	0.32	2.1	540	1.4	330	71
19557	48-35.417	-100.667	-3-15-	0.70	1.8	6	0.39	2.6	470	1.1	200	41
19558	48-35.390	-100.602	-3-15-	1.2	2.2	7	0.54	0.5	500	1.1	200	60
19562	48-35.325	-100.620	-3-15-	1.6	2.2	3	0.74	1.7	430	1.4	360	72
19563	48-35.314	-100.644	-3-15-	1.3	1.9	6	0.68	1.6	360	1.3	270	73
19565	48-35.299	-100.628	-3-12-	1.5	2.4	7	0.64	2.4	440	2.2	420	83
19566	48-35.312	-100.622	-3-15-	1.4	2.4	9	0.57	1.8	530	1.7	370	69
19573	48-35.297	-100.679	-3-15-	1.4	4.2	6	0.34	2.0	510	1.6	360	83
19574	48-35.308	-100.659	-3-15-	1.3	3.6	7	0.36	1.8	510	1.4	370	81
19580	48-35.411	-100.584	-3-15-	1.2	3.5	9	0.35	3.7	710	1.5	2200	71
19581	48-35.348	-100.568	-3-15-	1.1	2.3	5	0.46	1.4	530	0.67	220	39
19582	48-35.330	-100.588	-3-15-	1.4	2.3	4	0.61	1.9	490	1.2	370	54
19584	48-35.312	-100.570	-3-15-	2.0	7.0	8	0.28	2.1	460	1.8	530	110
19585	48-35.285	-100.675	-3-15-	1.6	3.6	5	0.45	1.7	590	1.4	510	67
19586	48-35.271	-100.689	-3-15-	1.3	3.0	8	0.44	1.9	510	1.3	290	63
19597	48-35.403	-100.520	-3-15-	1.2	3.2	8	0.38	1.7	540	1.5	360	61
19598	48-35.401	-100.577	-3-15-	1.3	2.4	6	0.53	1.5	510	1.2	220	56
19599	48-35.369	-100.514	-3-15-	1.1	2.7	5	0.41	1.8	460	1.3	270	62
19600	48-35.371	-100.521	-3-15-	1.5	2.7	9	0.55	1.9	480	1.7	320	75
19602	48-35.432	-100.738	-3-12-	1.5	2.8	6	0.54	2.6	600	1.4	410	63
19610	48-35.287	-100.744	-3-15-	1.5	4.8	6	0.32	1.9	510	1.4	310	74
19611	48-35.275	-100.706	-3-12-	1.3	3.3	5	0.38	2.7	570	1.2	590	55
19625	48-35.545	-100.120	-3-12-	0.62	1.4	4	0.44	1.0	590	0.43	97	26
19628	48-35.503	-100.157	-3-12-	0.94	2.2	4	0.43	2.4	680	0.94	440	56
19637	48-35.719	-100.012	-3-15-	2.2	3.5	7	0.63	1.3	610	1.0	300	66
19649	48-35.503	-100.278	-3-15-	1.0	2.2	7	0.46	1.4	530	1.0	210	48
19651	48-35.510	-100.312	-3-15-	4.1	5.2	8	0.79	1.6	560	1.5	270	77
19652	48-35.518	-100.344	-3-12-	1.1	2.4	9	0.44	2.4	530	1.5	260	62
19657	48-35.535	-100.481	-3-15-	1.1	2.7	8	0.41	1.6	530	1.3	280	66
19670	48-35.917	-100.177	-3-12-	0.97	2.6	3	0.37	0.6	510	0.70	210	35
19671	48-35.921	-100.182	-3-15-	1.1	2.6	5	0.43	1.5	450	1.0	270	42
19673	48-35.927	-100.228	-3-15-	2.1	2.6	5	0.83	0.6	530	0.91	160	39
19680	48-35.842	-100.002	-3-15-	1.5	2.9	7	0.52	2.1	530	1.8	390	87
19684	48-35.847	-100.060	-3-15-	1.7	4.4	5	0.38	1.6	550	1.6	650	75
19685	48-35.829	-100.102	-3-15-	1.6	2.9	9	0.55	1.4	650	1.4	450	63
19687	48-35.823	-100.132	-3-15-	2.1	3.1	11	0.66	2.8	600	1.9	450	75
19690	48-35.764	-100.027	-3-15-	2.2	3.4	7	0.64	1.9	600	1.6	380	72

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
19691	48-35.772	-100.055	-3-15-	1.3	3.2	8	0.42	1.6	590	1.2	300	62
19694	48-35.764	-100.099	-3-15-	2.0	3.2	10	0.63	2.4	590	2.3	530	74
19695	48-35.771	-100.174	-3-15-	1.6	3.0	9	0.53	2.3	610	2.0	400	73
19697	48-35.757	-100.136	-3-15-	1.7	4.0	9	0.42	2.0	1500	1.8	460	84
19699	48-35.760	-100.195	-3-15-	1.8	2.7	12	0.66	2.5	570	1.8	370	70
19703	48-35.837	-100.154	-3-12-	1.9	5.2	4	0.36	1.2	600	1.6	610	64
19704	48-35.860	-100.173	-3-15-	1.9	4.2	9	0.46	1.4	590	1.4	420	68
19706	48-35.851	-100.213	-3-15-	2.3	3.1	7	0.74	2.2	710	1.9	470	84
19707	48-35.868	-100.222	-3-15-	1.5	2.5	8	0.60	2.0	550	1.6	330	64
19708	48-35.861	-100.237	-3-15-	1.7	3.1	10	0.55	2.7	600	2.0	420	71
19709	48-35.865	-100.246	-3-15-	2.1	5.3	8	0.39	2.1	560	2.1	590	88
19719	48-35.703	-100.451	-3-15-	1.0	1.7	5	0.60	1.4	450	1.1	200	45
19720	48-35.717	-100.379	-3-12-	1.2	4.0	7	0.30	0.9	510	1.0	290	62
19722	48-35.692	-100.380	-3-15-	1.4	2.7	5	0.51	1.8	470	1.2	240	63
19723	48-35.692	-100.411	-3-15-	1.3	2.2	5	0.57	1.2	560	1.1	210	60
19727	48-35.742	-100.455	-3-15-	1.5	2.3	6	0.64	1.7	470	1.4	220	59
19729	48-35.728	-100.479	-3-15-	0.28	2.4	7	0.12	2.1	460	1.2	270	49
19731	48-35.692	-100.327	-3-15-	1.8	3.0	6	0.60	2.1	520	1.4	360	72
19732	48-35.698	-100.275	-3-12-	1.6	2.2	6	0.73	1.7	570	1.2	240	62
19733	48-35.649	-100.263	-3-15-	1.5	2.7	6	0.57	2.0	650	1.6	330	75
19735	48-35.631	-100.272	-3-12-	1.6	4.4	5	0.37	1.1	540	1.4	510	100
19736	48-35.616	-100.303	-3-15-	1.7	2.7	6	0.62	2.0	480	1.4	250	75
19767	48-35.063	-100.963	-3-12-	1.0	2.4	5	0.42	7.8	630	1.4	1100	42
19768	48-35.044	-100.928	-3-15-	1.9	2.5	8	0.75	3.7	480	1.9	360	71
19769	48-35.066	-100.909	-3-12-	2.1	3.1	7	0.67	1.9	540	1.3	360	63
19777	48-35.153	-100.027	-3-15-	1.8	2.3	8	0.80	3.5	470	1.9	360	73
19779	48-35.164	-100.012	-3-12-	1.1	2.3	8	0.49	1.7	140	0.78	140	84
19781	48-35.168	-100.054	-3-12-	1.6	2.4	7	0.66	3.0	410	1.6	290	71
19784	48-35.170	-100.030	-3-12-	1.6	2.1	7	0.77	2.5	370	1.8	260	63
19785	48-35.114	-100.001	-3-15-	1.5	2.3	6	0.65	3.0	440	1.6	280	76
23600	48-35.416	-100.707	-3-15-	1.3	2.2	6	0.59	2.1	520	1.3	270	52
23601	48-35.417	-100.687	-3-12-	1.2	1.7	4	0.70	14.	610	1.9	410	44
23605	48-35.468	-100.656	-3-12-	1.3	2.9	7	0.45	2.0	570	1.2	280	79
23607	48-35.491	-100.401	-3-15-	1.6	2.6	4	0.61	1.2	490	1.3	290	71
23608	48-35.494	-100.390	-3-15-	1.1	2.8	7	0.39	1.6	520	1.0	240	56
23610	48-35.493	-100.363	-3-15-	1.5	2.4	8	0.63	2.6	530	1.9	320	71
23611	48-35.314	-100.342	-3-12-	0.99	2.1	6	0.47	1.9	430	1.3	320	70
23613	48-35.307	-100.314	-3-12-	1.9	7.0	4	0.27	1.9	350	1.6	660	110
23617	48-35.401	-100.401	-3-15-	1.6	2.3	6	0.70	1.8	460	1.2	290	62
23619	48-35.471	-100.455	-3-12-	1.3	2.9	7	0.46	1.0	510	0.96	260	56
23622	48-35.461	-100.271	-3-12-	1.8	3.7	2	0.48	0.9	580	0.84	330	61
23623	48-35.472	-100.255	-3-12-	2.0	5.7	7	0.36	0.7	490	1.2	620	100
23625	48-35.500	-100.290	-3-12-	1.2	4.2	4	0.29	0.7	490	0.78	270	56
23629	48-35.438	-100.298	-3-15-	1.4	2.6	7	0.56	2.4	490	1.6	280	69
23635	48-35.362	-100.407	-3-15-	1.9	4.6	8	0.42	1.4	490	1.3	290	88
23636	48-35.415	-100.384	-3-12-	1.7	2.1	5	0.80	1.4	520	0.94	320	62
23637	48-35.398	-100.466	-3-15-	1.4	2.4	6	0.60	1.3	530	0.72	180	52
23639	48-35.399	-100.496	-3-15-	2.4	3.0	6	0.82	2.4	420	1.5	330	66
23641	48-35.450	-100.307	-3-15-	1.6	2.5	6	0.65	1.5	480	1.3	300	59
23644	48-35.371	-100.484	-3-15-	3.0	7.8	8	0.39	1.8	440	1.6	770	140
23646	48-35.371	-100.459	-3-15-	1.6	2.8	5	0.58	1.7	470	1.2	240	60
23648	48-35.262	-100.461	-3-12-	0.96	1.8	3	0.53	1.1	480	0.52	200	39
23651	48-35.259	-100.422	-3-15-	1.5	2.7	6	0.55	1.9	530	1.2	260	60
23656	48-35.403	-100.424	-3-15-	6.9	7.1	4	0.97	7.6	390	1.7	410	55
23658	48-35.387	-100.365	-3-15-	1.6	2.7	5	0.58	2.3	460	1.2	260	62

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
23661	48-35.380	-100.347	-3-15-	3.0	4.1	5	0.72	3.2	520	1.9	530	110
23662	48-35.372	-100.328	-3-15-	1.5	2.4	8	0.63	2.9	460	1.5	350	60
23663	48-35.124	-100.608	-3-12-	1.6	2.2	6	0.72	3.1	370	1.3	600	68
23664	48-35.120	-100.609	-3-15-	1.9	2.8	7	0.70	3.0	420	1.9	380	81
23665	48-35.113	-100.609	-3-15-	1.3	2.2	4	0.58	2.6	330	1.2	340	86
23670	48-35.196	-100.504	-3-15-	1.6	2.3	7	0.68	3.0	600	1.6	910	54
23674	48-35.079	-100.571	-3-15-	2.0	2.1	4	0.94	2.7	310	1.0	290	63
23676	48-35.053	-100.523	-3-15-	1.7	2.2	3	0.77	2.9	310	1.1	310	92
23678	48-35.015	-100.528	-3-15-	2.3	2.6	5	0.87	3.0	320	1.7	460	75
23679	48-35.051	-100.594	-3-12-	2.8	8.8	8	0.32	2.1	410	1.4	460	130
23683	48-35.091	-100.841	-3-15-	1.3	2.1	7	0.63	0.9	360	0.72	150	49
23684	48-35.102	-100.838	-3-15-	1.4	2.0	7	0.70	2.9	420	0.84	140	34
23688	48-35.068	-100.798	-3-12-	1.4	1.6	4	0.87	1.5	470	0.60	150	41
23693	48-35.035	-100.760	-3-12-	2.3	1.5	2	1.5	1.4	460	0.54	140	28
23695	48-35.005	-100.758	-3-12-	2.2	7.1	5	0.31	1.7	440	1.1	530	94
23696	48-35.002	-100.762	-3-12-	0.86	2.9	<2	0.30	2.0	400	0.76	340	49
23697	48-35.036	-100.833	-3-15-	1.7	2.4	7	0.71	3.3	600	1.6	300	74
23703	48-35.212	-100.336	-3-15-	2.0	4.7	9	0.42	1.5	410	1.2	360	110
23704	48-35.230	-100.381	-3-15-	1.0	2.4	7	0.43	2.1	470	0.91	650	48
23705	48-35.241	-100.392	-3-12-	1.2	2.1	6	0.59	1.6	350	1.1	330	55
23708	48-35.227	-100.374	-3-15-	1.2	2.5	7	0.49	1.8	440	0.96	230	71
23709	48-35.239	-100.435	-3-12-	1.7	2.4	9	0.71	1.8	450	0.90	370	53
23713	48-35.201	-100.444	-3-12-	1.4	2.2	7	0.62	1.5	390	0.92	280	41
23718	48-35.158	-100.316	-3-15-	0.66	1.1	5	0.60	1.1	390	0.65	160	41
23721	48-35.122	-100.286	-3-12-	1.4	2.7	7	0.52	1.4	360	0.81	700	68
23723	48-35.127	-100.310	-3-15-	1.0	2.1	2	0.49	0.8	350	0.80	260	74
23725	48-35.023	-100.339	-3-12-	0.65	1.4	4	0.46	1.3	340	0.65	320	47
23727	48-35.002	-100.308	-3-15-	1.4	1.8	7	0.77	2.2	360	1.1	260	61
23728	48-35.009	-100.270	-3-15-	1.9	2.2	4	0.86	2.4	430	1.8	330	76
23729	48-35.116	-100.271	-3-15-	1.2	2.9	6	0.42	1.4	260	1.0	500	66
23730	48-35.082	-100.378	-3-15-	0.89	2.1	6	0.42	1.4	330	1.1	290	77
23731	48-35.038	-100.397	-3-12-	1.6	2.3	9	0.72	3.0	370	2.2	690	83
23738	48-35.105	-100.442	-3-15-	1.8	2.1	6	0.85	1.8	340	1.3	310	63
23741	48-35.032	-100.432	-3-15-	1.5	3.5	6	0.42	1.8	270	1.2	630	110
23742	48-35.039	-100.438	-3-15-	1.3	1.9	6	0.69	2.4	370	1.0	310	76
23743	48-35.024	-100.431	-3-15-	1.5	2.2	9	0.66	1.6	370	1.3	310	76
23748	48-35.140	-100.252	-3-12-	1.1	2.3	4	0.49	1.2	370	1.0	280	65
23749	48-35.075	-100.367	-3-15-	1.0	1.7	3	0.61	1.3	350	1.1	270	62
23751	48-35.077	-100.440	-3-15-	1.5	1.5	3	0.97	2.2	340	1.2	250	56
23763	48-35.546	-100.415	-3-12-	1.8	2.1	<2	0.84	3.0	620	0.75	230	38
23764	48-35.550	-100.403	-3-15-	1.8	2.8	4	0.63	1.8	560	0.99	200	52
23765	48-35.551	-100.390	-3-15-	1.5	2.6	6	0.57	2.0	490	1.2	250	59
23766	48-35.598	-100.364	-3-15-	1.7	2.4	6	0.70	2.3	430	1.5	260	67
23768	48-35.710	-100.359	-3-15-	1.3	2.8	9	0.45	2.0	450	1.5	290	64
23769	48-35.679	-100.395	-3-15-	1.9	2.9	7	0.52	1.9	500	1.0	340	74
23774	48-35.616	-100.417	-3-15-	1.4	2.2	4	0.62	1.8	460	1.4	250	61
23784	48-35.272	-100.298	-3-15-	2.0	2.4	6	0.82	3.0	390	1.5	310	73
23785	48-35.267	-100.296	-3-15-	1.0	1.5	5	0.67	2.8	300	1.1	390	50
23786	48-35.269	-100.297	-3-12-	1.6	2.0	6	0.81	3.1	360	1.6	310	72
23799	48-35.253	-100.247	-3-15-	1.8	2.7	6	0.68	2.3	380	1.4	280	75
23800	48-35.314	-100.207	-3-15-	1.4	2.8	6	0.52	2.3	350	1.0	300	67
23802	48-35.314	-100.179	-3-15-	2.0	3.1	5	0.65	9.7	320	1.3	3400	75
23803	48-35.315	-100.148	-3-15-	2.1	2.2	3	0.95	3.5	320	1.4	490	52
23804	48-35.314	-100.138	-3-15-	1.2	1.7	6	0.71	2.3	380	1.0	450	61
23805	48-35.342	-100.023	-3-15-	2.8		7		2.9	500	1.7	440	76

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE AMARILLO QUADRANGLE

AMARILLO QUAD - SEDIMENTS

OR SAMPLE NUMBER	D. O. E. SAMPLE NUMBER ST LAT	LONG	L TY REP	U-FL (PPM)	U-NT	TH (PPM)	U/TU	AS (PPM)	BA (PPM)	FE (%)	MN (PPM)	ZR (PPM)
23806	48-35.350	-100.023	-3-15-	0.80	1.5	3	0.53	2.1	420	0.73	400	52
23807	48-35.357	-100.024	-3-15-	1.9	2.6	5	0.73	3.2	420	1.6	430	77
23822	48-35.475	-100.204	-3-15-	1.2	2.3	2	0.52	1.3	520	0.52	270	43
23823	48-35.474	-100.165	-3-15-	2.7	3.7	4	0.74	2.7	420	1.3	640	83
23824	48-35.484	-100.105	-3-15-	1.4	2.5	2	0.56	1.7	570	0.65	190	57
23825	48-35.496	-100.088	-3-15-	1.2	2.1	3	0.59	2.0	620	0.62	210	42
23826	48-35.388	-100.091	-3-15-	1.6	2.2	0	0.74	2.7	530	1.7	320	74
23829	48-35.318	-100.090	-3-15-	1.9	2.5	8	0.78	3.0	490	2.1	400	84
23831	48-35.297	-100.218	-3-15-	1.2	2.1	5	0.59	1.7	480	1.0	190	59
23837	48-35.363	-100.095	-3-15-	1.6	2.8	7	0.59	2.6	470	1.7	300	75
23839	48-35.285	-100.152	-3-12-	1.8	2.7	8	0.65	2.4	480	2.0	360	85
23841	48-35.293	-100.075	-3-12-	1.8	2.9	<2	0.60	1.8	520	0.97	3100	54
23849	48-35.031	-100.488	-3-15-	1.5		5		2.2	370	1.4	420	65
23851	48-35.112	-100.473	-3-12-	1.7	2.3	2	0.74	1.4	300	1.0	230	63
23852	48-35.116	-100.473	-3-15-	1.7	2.2	5	0.76	1.4	350	0.86	310	46
23854	48-35.360	-100.379	-3-15-	2.1	2.9	7	0.72	3.1	500	2.1	330	79
23857	48-35.263	-100.280	-3-12-	1.4	2.4	6	0.60	1.6	400	1.4	270	67
23900	48-35.022	-100.006	-3-12-	2.7	4.1	6	0.65	2.0	370	1.8	360	72
23903	48-35.059	-100.039	-3-12-	1.1	3.0	7	0.37	1.6	370	1.2	350	66
23905	48-35.058	-100.070	-3-12-	1.5	2.0	8	0.73	2.0	420	1.4	410	76
23908	48-35.065	-100.060	-3-12-	1.6	2.7	7	0.59	1.6	420	1.3	390	74
23910	48-35.035	-100.134	-3-12-	1.3	2.6	7	0.51	1.8	370	1.1	260	70
23911	48-35.036	-100.141	-3-12-	1.7	1.6	3	1.1	1.4	350	0.77	270	45
23913	48-35.001	-100.240	-3-15-	1.9	2.5	7	0.78	2.4	440	1.6	310	83
23918	48-35.050	-100.128	-3-12-	1.2	2.6	6	0.47	1.9	420	1.4	350	73
23920	48-35.108	-100.177	-3-12-	1.9	1.9	7	1.0	1.9	410	1.2	350	59
23926	48-35.125	-100.208	-3-12-	1.9	2.3	9	0.81	4.7	430	2.2	400	66
23929	48-35.125	-100.148	-3-15-	1.8	2.3	6	0.80	3.9	430	1.7	350	75
23930	48-35.118	-100.101	-3-12-	1.2	2.1	6	0.56	3.3	420	2.2	380	64
23933	48-35.237	-100.230	-3-12-	0.82	2.7	8	0.30	2.2	440	1.4	400	75
23934	48-35.247	-100.216	-3-12-	0.26	3.0	6	0.09	1.9	370	0.86	610	66
23942	48-35.043	-100.099	-3-12-	2.6	2.6	8	1.0	3.0	440	2.3	350	81
23943	48-35.151	-100.233	-3-12-	1.9	2.1	3	0.90	2.6	400	1.2	280	67
23944	48-35.198	-100.070	-3-12-	1.8	2.3	6	0.76	2.5	430	1.4	320	70
23945	48-35.205	-100.063	-3-12-	1.5	2.5	5	0.61	2.0	390	0.86	460	64
23947	48-35.129	-100.110	-3-12-	2.3	2.3	8	1.0	3.1	390	2.0	340	67
23948	48-35.134	-100.122	-3-12-	0.58	1.1	5	0.53	1.7	150	0.65	240	27
23949	48-35.108	-100.092	-3-12-	0.34	0.40	5	0.85	1.6	74	0.36	180	26
23953	48-35.088	-100.012	-3-15-	2.2	2.7	8	0.81	2.8	460	1.9	350	81

APPENDIX C

MICROFICHE OF FIELD AND LABORATORY DATA

APPENDIX C

MICROFICHE OF FIELD AND LABORATORY DATA

LIST OF TABLES

Table C-1

COMPUTER CODE LIST OF GEOCHEMICAL VARIABLES

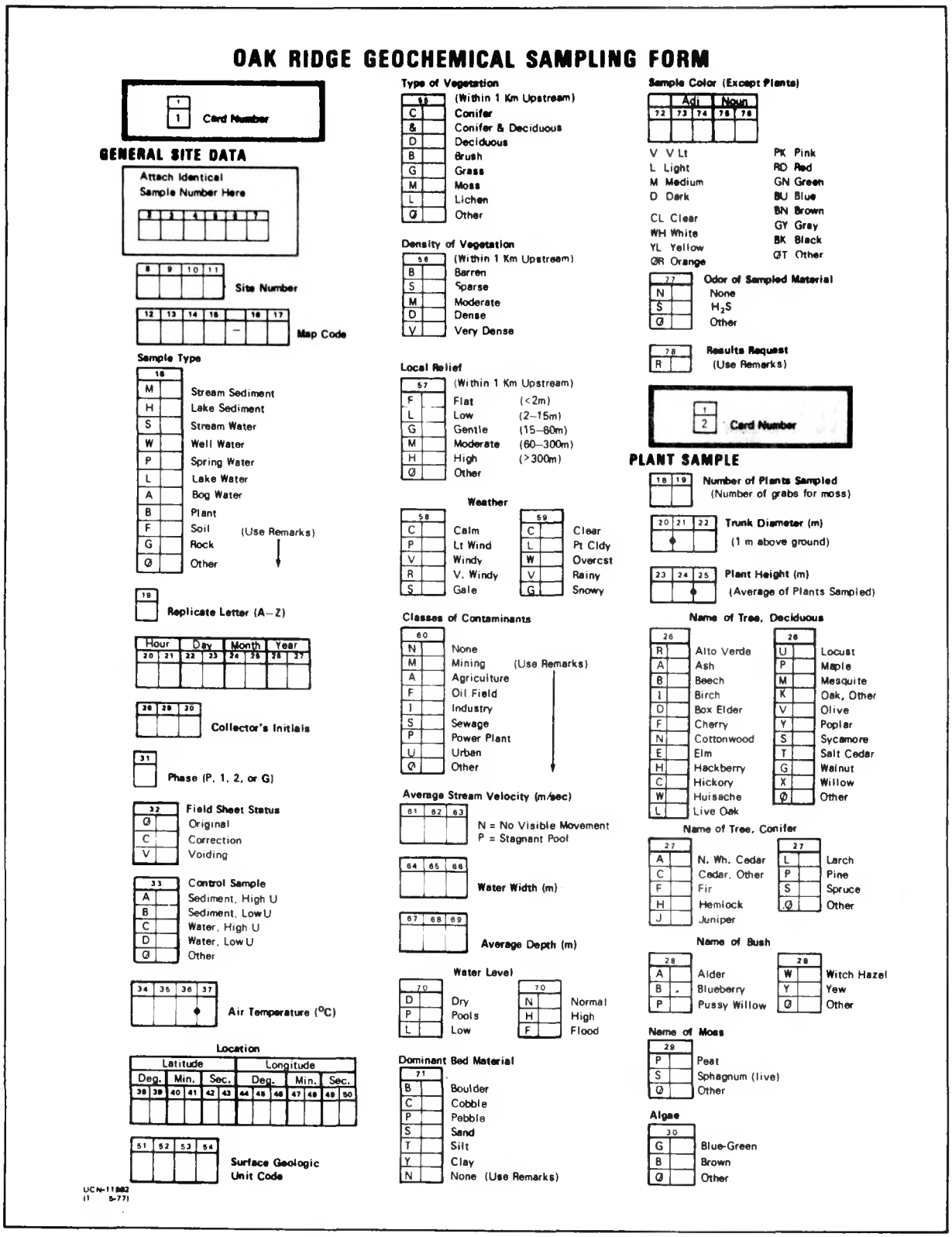
Variable[a]	Code	Variable[a]	Code
Uranium Measured by Fluorometry[b]	U-FL	Thorium	TH
		Titanium	TI
Uranium Measured by Mass Spectrometry[b]	U-MS	Vanadium	V
		Yttrium	Y
Uranium Measured by Neutron Activation	U-NT	Zinc	ZN
		Zirconium	ZR
Arsenic	AS	Sulfate (ppm)	SO, SO_4
Selenium	SE	Chloride (ppm)	CL
Silver	AG	Specific Conductance (μmhos/cm)	SP
Aluminum	AL	Conductivity from Lab (μmhos/cm)	CT-L
Boron	B	Conductivity from Field (μmhos/cm)	CT-F
Barium	BA	Dissolved Oxygen (ppm)	DO
Beryllium	BE	Temperature (°C)	TP, TEMP
Calcium	CA	pH	PH
Cerium	CE	pH Measured by Lo Ion Paper	PH-P
Cobalt	CO	Total Alkalinity (ppm)	T-AK
Chromium	CR	M Alkalinity (ppm)	M-AK
Copper	CU	P Alkalinity (ppm)	P-AK, LIP
Iron	FE	Carbonate (ppm)	CB
Potassium	K	$CB = \begin{cases} 0 & \text{if } pH \leq 8.3 \\ \frac{3.42 \times M\text{-}AK}{5.61 + 10^{(11-pH)}} & \text{if } pH > 8.3 \end{cases}$	
Lithium	LI		
Magnesium	MG		
Manganese	MN		
Molybdenum	MO	Bicarbonate (ppm)	BC
Sodium	NA	$BC = \begin{cases} \frac{2.62 \times M\text{-}AK}{4.3 + 10^{(7-pH)}} & \text{if } pH \leq 8.3 \\ 0.61 \times M\text{-}AK - CB & \text{if } pH > 8.3 \end{cases}$	
Niobium	NB		
Nickel	NI		
Phosphorus	P	U-NT/U-FL	U/U, TU/U
Lead	PB	U-FL/U-NT	U/TU
Platinum	PT	TH/U-NT	TH/U
Scandium	SC	1,000·U/SP	U/SP
Silicon	SI	1,000·U/B	U/B
Strontium	SR	1,000·U/SO	U/SO, USO

(a) If natural logarithm of variable is used, L or L- precedes the variable code.

(b) If method is not specified for waters, U-FL is used, except where value is below laboratory detection limit in which case U-MS is substituted if it is available.

Table C-2

OAK RIDGE GEOCHEMICAL SAMPLING FORM
SHOWING FIELD DATA RECORDED ON MICROFICHE



OAK RIDGE GEOCHEMICAL SAMPLING FORM

1 — Card Number (1)

GENERAL SITE DATA

Attach Identical Sample Number Here (1 2 3 4 5 6 7)

8 9 10 11 — Site Number

12 13 14 15 – 16 17 — Map Code

Sample Type (18)

M	Stream Sediment
H	Lake Sediment
S	Stream Water
W	Well Water
P	Spring Water
L	Lake Water
A	Bog Water
B	Plant
F	Soil
G	Rock
Ø	Other

(Use Remarks)

19 — Replicate Letter (A–Z)

Hour 20 21 | Day 22 23 | Month 24 25 | Year 26 27

28 29 30 — Collector's Initials

31 — Phase (P, 1, 2, or G)

Field Sheet Status (32)

Ø	Original
C	Correction
V	Voiding

Control Sample (33)

A	Sediment, High U
B	Sediment, Low U
C	Water, High U
D	Water, Low U
Ø	Other

34 35 36 37 — Air Temperature (°C)

Location

Latitude				Longitude			
Deg.		Min.	Sec.	Deg.		Min.	Sec.
38	39	40 41	42 43	44	45 46	47 48	49 50

51 52 53 54 — Surface Geologic Unit Code

UCN-11882 (1 5-77)

Type of Vegetation (58) (Within 1 Km Upstream)

C	Conifer
&	Conifer & Deciduous
D	Deciduous
B	Brush
G	Grass
M	Moss
L	Lichen
Ø	Other

Density of Vegetation (56) (Within 1 Km Upstream)

B	Barren
S	Sparse
M	Moderate
D	Dense
V	Very Dense

Local Relief (57) (Within 1 Km Upstream)

F	Flat	(<2m)
L	Low	(2–15m)
G	Gentle	(15–60m)
M	Moderate	(60–300m)
H	High	(>300m)
Ø	Other	

Weather

(58)		(59)	
C	Calm	C	Clear
P	Lt Wind	L	Pt Cldy
V	Windy	W	Overcst
R	V. Windy	V	Rainy
S	Gale	G	Snowy

Classes of Contaminants (60) (Use Remarks)

N	None
M	Mining
A	Agriculture
F	Oil Field
I	Industry
S	Sewage
P	Power Plant
U	Urban
Ø	Other

Average Stream Velocity (m/sec) (61 62 63)

N = No Visible Movement
P = Stagnant Pool

64 65 66 — Water Width (m)

67 68 69 — Average Depth (m)

Water Level (70)

D	Dry
P	Pools
L	Low
N	Normal
H	High
F	Flood

Dominant Bed Material (71)

B	Boulder
C	Cobble
P	Pebble
S	Sand
T	Silt
Y	Clay
N	None (Use Remarks)

Sample Color (Except Plants) (72 73 74 75 76) — Adj / Noun

V V Lt — PK Pink
L Light — RD Red
M Medium — GN Green
D Dark — BU Blue
CL Clear — BN Brown
WH White — GY Gray
YL Yellow — BK Black
ØR Orange — ØT Other

Odor of Sampled Material (77)

N	None
S	H_2S
Ø	Other

Results Request (78) R — (Use Remarks)

1 — Card Number (2)

PLANT SAMPLE

18 19 — Number of Plants Sampled (Number of grabs for moss)

20 21 22 — Trunk Diameter (m) (1 m above ground)

23 24 25 — Plant Height (m) (Average of Plants Sampled)

Name of Tree, Deciduous (26)

R	Alto Verde	U	Locust
A	Ash	P	Maple
B	Beech	M	Mesquite
I	Birch	K	Oak, Other
D	Box Elder	V	Olive
F	Cherry	Y	Poplar
N	Cottonwood	S	Sycamore
E	Elm	T	Salt Cedar
H	Hackberry	G	Walnut
C	Hickory	X	Willow
W	Huisache	Ø	Other
L	Live Oak		

Name of Tree, Conifer (27)

A	N. Wh. Cedar	L	Larch
C	Cedar, Other	P	Pine
F	Fir	S	Spruce
H	Hemlock	Ø	Other
J	Juniper		

Name of Bush (28)

A	Alder	W	Witch Hazel
B	Blueberry	Y	Yew
P	Pussy Willow	Ø	Other

Name of Moss (29)

P	Peat
S	Sphagnum (live)
Ø	Other

Algae (30)

G	Blue-Green
B	Brown
Ø	Other

Table C-2, Continued

OAK RIDGE GEOCHEMICAL SAMPLING FORM
SHOWING FIELD DATA RECORDED ON MICROFICHE

STREAM OR LAKE SEDIMENT

Sample Condition (31)
- D — Dry
- W — wet

Sample Treatment (32)
- N — None
- S — Sieved
- Ø — Other

(33 34) Number of Grabs

(35 36) % Organic Material (Field Estimate)

GENERAL WATER SAMPLES

Water Sample Treatment (37)
- N — None
- F — Filtered Only
- C — Acidified Only
- A — Acidified and Filtered
- Ø — Other

(38 39 40) Depth of Visibility (m) — C = Clear

(41 42 43 44 45) Conductivity (μmhos/cm)

(46 47 48) Dissolved O_2 (ppm)

(49 50 51) Temperature (°C)

(52 53 54) pH

(55) P — pH by Lo-Ion Paper

(56 57 58 59) Total Alkalinity (ppm)

(60 61 62 63) P Alkalinity (ppm)

(64 65 66 67) M Alkalinity (ppm)

Appearance of Water (68)
- C — Clear
- M — Murky
- A — Algal
- Ø — Other

(69 70 71 72 73) Discharge (liters/min)

REMARKS (Card 4)

(74 75 76 77) Identification of Producing Horizon (Geologic Unit Code)

Confidence of Producing Horizon Identification (78)
- H — High Degree
- R — Probable
- S — Possible

Source of Producing Horizon Identification (79)
- P — Publication
- W — Owner
- U — User
- G — Geologic Inference
- Ø — Other

(1 3) Card Number

WELL WATER

Type of Well (18)
- D — Drilled
- P — Drive Point
- G — Dug
- U — Unknown
- Ø — Other

Power Classification (19)
- A — Artesian Flow
- E — Electric
- G — Gasoline
- W — Wind
- H — Hand
- Ø — Other

Casing (20)
- N — None (Below Water Table)
- S — Steel
- G — Galvanized
- P — Plastic
- U — Unknown
- Ø — Other

Pipe Composition (21)
- F — Steel
- Z — Galvanized
- C — Copper
- P — Plastic
- U — Unknown
- Ø — Other

Sample Location (22 23 24)
Meters from Well Head
H = Holding Tank (Use Remarks)

Where Sample Taken With Respect To Pressure Tank (25)
- B — Before
- A — After
- N — No Pressure Tank
- F — From Pressure Tank (Use Remarks)

Use of Well (26)
- M — Municipal
- H — Household
- S — Stock
- I — Irrigation
- A — All of above
- X — H and S
- Y — H and I
- Z — S and I
- N — None
- Ø — Other

Frequency of Pumping (27)
- C — Constant (hourly)
- F — Frequent (daily)
- I — Infrequent (weekly)
- R — Rare (no recent use)

Depth to top of Producing Horizon (28 29 30 31) (Meters)

Confidence of Producing Depth (32)
- H — High
- R — Probable
- S — Possible

Source of Producing Depth Information (33)
- P — Publication
- W — Owner
- U — User
- G — Geologic Inference
- Ø — Other

Total Well Depth (34 35 36 37) (Meters)

Confidence of Total Depth (38)
- H — High
- R — Probable
- S — Possible

Source of Total Depth Information (39)
- P — Publications
- W — Owner
- U — User
- G — Geologic Inference
- Ø — Other

LAKE WATER

Type of Lake (55)
- N — Natural
- M — Manmade

Lake Area (56 57 58 59) (sq km)

MICROFICHE OF FIELD AND LABORATORY DATA

CONTENTS