K/UR-145

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NATIONAL URANIUM RESOURCE EVALUATION PROGRAM

**HYDROGEOCHEMICAL AND STREAM SEDIMENT
RECONNAISSANCE BASIC DATA FOR
DODGE CITY NTMS QUADRANGLE, KANSAS**

Uranium Resource Evaluation Project

December 31, 1980

**OPERATED BY
UNION CARBIDE CORPORATION
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Date of Issue: December 31, 1980

Report Number: K/UR-145

Subject Category: UC-51, Nuclear Raw Materials

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Union Carbide Corporation, Nuclear Division
Oak Ridge Gaseous Diffusion Plant
Oak Ridge, Tennessee

Prepared for the U.S. Department of Energy
Assistant Secretary for Resource Applications
Grand Junction Office, Colorado
under U.S. Government Contract W-7405 eng 26

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ABSTRACT

Results of a reconnaissance geochemical survey of the Dodge City Quadrangle are reported. Field and laboratory data are presented for 756 groundwater and 321 stream sediment samples. Statistical and areal distributions of uranium and possible uranium-related variables are displayed. A generalized geologic map of the survey area is provided, and pertinent geologic factors which may be of significance in evaluating the potential for uranium mineralization are briefly discussed.

Groundwater data indicate that the most promising areas for uranium mineralization are as follows: (1) in the north central area of the quadrangle within close proximity to the Arkansas River, mostly from waters of the Ogallala Formation; (2) in the west central area, from groundwater samples of the Dakota and the Ogallala Formations; and (3) between the North Fork of the Cimarron River and the main Cimarron River, mostly in waters from the Ogallala Formation. Associated with the high uranium values are high concentrations for magnesium, strontium, and sulfate. Of the groundwater samples taken 81% were collected from the Ogallala Formation.

Stream sediment data indicate high uranium concentrations in scattered samples in the northwestern, central, and southwestern areas of the quadrangle. Most of the samples with high uranium values were collected from the Quaternary alluvium. Associated with the high uranium values are high concentrations of barium, cerium, iron, manganese, titanium, vanadium, yttrium, and zirconium.

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HYDROGEOCHEMICAL AND STREAM SEDIMENT
RECONNAISSANCE BASIC DATA FOR
DODGE CITY NTMS QUADRANGLE, KANSAS

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 has been published (U. S. Department of Energy, 1980). The complete resource assessment of the 272 highest-priority quadrangles is scheduled for completion in 1985, and the first comprehensive assessment report of the entire United States is scheduled for completion in 1988. 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 km² (1,000,000 mi²) of the central United States (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 Arkansas, Missouri, New Mexico, and Ohio. Described herein are the results of the work done by UCC-ND in the Dodge City NTMS Quadrangle, Kansas.

Figure 1

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

GEOLOGY

LOCATION AND GEOLOGIC SETTING

The Dodge City Quadrangle covers a surface area of approximately 19,637 km² (7,585 mi²) in southwestern Kansas, between lat. 37° to 38° N. and long. 100° to 102° W., and is part of the Great Plains Physiographic Province. The survey area, outlined on the generalized geologic map of Kansas shown in Figure 2, includes all of Grant, Gray, Haskell, Meade, Morton, Seward, Stanton, and Stevens Counties, and parts of Clark, Finney, Ford, Hamilton, Hodgeman and Kearny Counties. A generalized geologic map of the Dodge City Quadrangle, along with a stratigraphic column listing geologic unit codes used in this report, is presented in Figure 3 and Plate 7.

Loess, dune sand, terrace deposits, and alluvium cover 95% of southwestern Kansas. Rocks which are exposed are restricted to the Custerian Stage of the Permian; undifferentiated Jurassic rocks of the Cretaceous Dakota Formation, the Graneros Shale and Greenhorn Limestone; and the Pliocene Ogallala Formation. Holocene alluvium of the Arkansas and Cimarron Rivers and Crooked Creek occurs along the northern and southern borders of this area.

Permian and Jurassic rocks, with aggregate thicknesses of 1,350 m (4,400 ft) and 87 m (280 ft), respectively, strike north-south and dip gently to the east near the Colorado border. The Permian rocks flatten out through the central part of the quadrangle and dip gently at 5 m/km (15 ft/mi) to the west in eastern Meade and Clark Counties. Jurassic rocks occur in the subsurface in the western one-fourth of the survey area; they strike east-west and dip very gently to the north, attaining an aggregate thickness of 175 m (575 ft). The Pliocene Ogallala Formation with a thickness of 181 m (595 ft) strikes north-south and dips gently east at about 3 m/km (10 ft/mi).

LITHOLOGY AND ENVIRONMENTS OF DEPOSITION

A few of the wells that were sampled penetrate the Permian Nippewalla Group, which exists only in the subsurface in the Dodge City Quadrangle. The Nipewalla Group consists of up to 284 m (930 ft) of red beds containing thick salt beds (Zeller, 1968). Above the Nippewalla Group is the Day Creek Dolomite, which is a 1-m (2- to 3-ft) thick unit of light-gray to pink micritic dolomite. The Permian units are capped by the Big Basin Formation which consists of 14 m (45 ft) of red silty shale, siltstone, dolomitic siltstone, and feldspathic silty sandstone (Zeller, 1968). Maximum exposed thickness of Permian rocks in Meade County is a little over 30 m (100 ft) (Frye, 1942).

Rocks originally considered to belong to the Triassic Dockum Group (Latta, 1941; McLaughlin, 1942; Merriam, 1963; and Jewett, 1964) are now believed to be undifferentiated Jurassic (Zeller, 1968). Up to 73 m

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Figure 2

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

STRATIGRAPHIC COLUMN FOR THE DODGE CITY QUADRANGLE

ERA	SYSTEM	SERIES	GEOLOGIC MAP CODE	GEOLOGIC FORMATION	MAXIMUM THICKNESS METERS FEET	
CENOZOIC	QUATERNARY	HOLOCENE	QAL	ALLUVIUM	23	75
		-----	QSD	DUNE SAND	23	75
		PLEISTOCENE	QPLO	LOESS & TERRACE DEPOSITS	98	320
	TERTIARY	PLIOCENE	TPO	OGALLALA FORMATION	181	595
MESOZOIC	CRETACEOUS		KGGG	GREENHORN LIMESTONE GRANEROS SHALE	60	197
			KGDD	DAKOTA FORMATION	40	130
			KCDK	KIOWA FORMATION AND CHEYENNE SANDSTONE	76	250
	JURASSIC		JMOR	MORRISON FORMATION	73	240
PALEOZOIC	PERMIAN	CINNAMONIAN	PCBA	BIG BASIN FORMATION AND DAY CREEK COLOMITE	15	48
			PCN	NIPPEWALLA GROUP	284	930

SOURCES OF GEOLOGY:

1. HATTIN, D. E., SIEMERS, C. T., AND STEWART, G. F., "GUIDEBOOK, UPPER CRETACEOUS STRATIGRAPHY AND DEPOSITIONAL ENVIRONMENTS OF WESTERN KANSAS, AAPG-SEPM, ANNUAL MEETINGS, APRIL 1978" (1978).
2. LATTA, B. F., "GEOLOGY AND GROUNDWATER RESOURCES OF STANTON COUNTY, KANSAS," KANSAS GEOLOGICAL SURVEY, BULLETIN 37 (1941).
3. ZELLER, D. E., EDITOR, "THE STRATIGRAPHIC SUCCESSION IN KANSAS," KANSAS GEOLOGICAL SURVEY, BULLETIN 189 (1968).

LEGEND FOR FIGURE 3

Figure 3

GENERALIZED GEOLOGIC MAP OF THE DODGE CITY QUADRANGLE

(240 ft) of buff and red sandstone and red siltstone are exposed in two small areas in Morton County (Zeller, 1968). Test wells in north central Morton County penetrated 12 m (40 ft) of blue-green marl associated with buff and gray sandstones below the Cretaceous rocks. These rocks may be the Jurassic Morrison Formation as originally assigned (Latta, 1941; McLaughlin, 1942). Jurassic rocks are found in parts of the subsurface of Morton, Stanton, and Hamilton Counties and represent mainly continental sequences of rocks similar in character to the underlying Permian red beds. The arid climate prevalent during the deposition of the red bed sequence became less arid by Late Morrison time.

Lower Cretaceous rocks occur in the subsurface of the northern three-fourths of southwestern Kansas. However, the oldest unit exposed at the surface is the Cretaceous Dakota Formation which is exposed in western Stanton, Hamilton, and Kearny Counties. The lower Cretaceous Cheyenne Sandstone is found only in the subsurface and is a white to gray, fine- to coarse-grained, calcareous quartz sandstone which was deposited in a shallow northward transgressing marine environment on an uneven erosional surface. Bedding is irregular and discontinuous; thickness of the unit varies from 18 m (60 ft) to 38 m (125 ft) and the unit may be absent in places. The overlying Kiowa Formation is a blue to black shale, containing considerable pyrite in Stanton County (Latta, 1941). The Kiowa Formation ranges up to 38 m (125 ft) thick and consists of restricted marine nearshore deposits. The overlying Dakota Formation is predominantly a fine- or medium-grained subangular to subrounded quartz sandstone whose buff to red coloration is the result of oxidized iron present in the cementing material. These sands and some muds were deposited in nearshore marine to onshore environment of a regressive sea. The Dakota Formation reaches 40 m (130 ft) in thickness. Fossils indicate that the Upper Dakota Formation may be Late Cretaceous in age (Zeller, 1968).

Upper Cretaceous rocks occur only in the northern one-fourth of this area (Keene and Bayne, 1977). The Graneros Shale and overlying Greenhorn Limestone are found in scattered outcrops in Hamilton and Hodgeman Counties and in a narrow band along the north side of the Arkansas River in Hamilton and western Kearny Counties. The Graneros Shale intertongues with the Dakota Formation and grades upward from sand units into fairly uniform dark-gray muds and silts that were deposited in open-marine conditions. A 0.3-m (1-ft) bentonite bed occurs near the top of the Graneros Shale which attains a maximum thickness of 20 m (65 ft). A regional unconformity separates the overlying Greenhorn Limestone from the Graneros Shale. The Greenhorn Limestone is comprised of up to 40 m (132 ft) of olive-gray to olive-black chalky skeletal limestone and shaly chalk with some bentonite beds (Hattin, et al, 1978). The greatest thickness of the Greenhorn Limestone occurs where the Graneros Shale is thinnest. The Greenhorn Limestone sediments were deposited in shallow turbulent waters that calmed and deepened through time; circulation was poor while the middle part of the section was deposited. Erosion began and continued until Pliocene time.

The Pliocene Ogallala Formation consists predominantly of pink or tan sandy silts interbedded with sand and gravel. In surface outcrops caliche is common. Silica replacement is more restricted and probably related to volcanic ash dissolution (Berendsen, 1977; Frye, 1942). These rocks were deposited by generally eastward flowing braided streams which coalesced as they crossed the High Plains and developed master streams by Late Pliocene and Early Pleistocene. The Ogallala attains a maximum thickness of at least 181 m (595 ft) in Meade County and is found in most of southwestern Kansas.

Volcanic ash deposits of Pleistocene age [0.6-2.0 million years old (Boellstorff, 1976)] and up to 6 m (20 ft) thick are found in Hamilton, Grant, Seward, Meade, Clark, and Gray Counties (Carey, et al, 1952). These deposits, carried east by winds from the Rocky Mountain Belt, were redistributed by water and accumulated in shallow depressions of limited size [up to approximately 1.7 km (1 mi²)]. Pleistocene terrace deposits up to 92 m (300 ft) thick occur throughout this area and are particularly well developed in the central and south central areas. Some layers of these deposits are cemented by calcite and iron. Two-thirds of southwestern Kansas is covered with loess derived from and mixed with silt which had been brought into the area by aggrading streams in Wisconsin time. The loess reaches 6 m (20 ft) in thickness. Dune sands, mainly restricted to areas south of the Arkansas and Cimarron Rivers, reach 23 m (75 ft) in height. Alluvium, up to 23 m (75 ft) thick, occurs in the valleys of the Arkansas and Cimarron Rivers and Crooked Creek. Southwestern Kansas formed a major part of the Dust Bowl in the 1930s and 40s - a time of unusual drought and dust storms. Morton County was the most devastated area in the entire Dust Bowl (McLaughlin, 1942).

STRUCTURE

Southwestern Kansas was an area of general downwarping from Cambrian to Late Permian time. The resulting structure has been termed the southwestern Kansas Basin for pre-Mississippian activity (Moore and Jewett, 1942); however, more recently the structure involving all Paleozoic rocks is referred to as the Hugoton Embayment of the Anadarko (Oklahoma) Basin. This embayment covers most of the western one-third of Kansas and the tectonic forces responsible were intermittently active through Early Cretaceous. The north-south trending axis of the embayment shifted westward from Meade and Clark Counties in Arbuckle time to Stevens and Stanton Counties by Mississippian time (Merriam, 1963). A small uplift in the Morton County region, known as the Keyes Dome, affected the western development of the Hugoton Embayment and is reflected in the thinning of Mississippian through Missourian units. Several minor northward trending structures are developed in the embayment. Faulting involving basement rocks in Morton County occurred in post-Mississippian time, although earlier movements may well have taken place. Downwarping slowed by Late Permian time when continental red beds were deposited in an arid climate. Total maximum thickness of the Paleozoic sedimentary section in the Hugoton Embayment reaches 2,898 m (9,500 ft).

In Early Cretaceous time, uplifting of the Las Animas Arch of southeastern Colorado affected the western flank of the old embayment, while the remainder of the area subsided. Development of the Denver Basin by Late Cretaceous time caused the resulting regional slope to dip northward. Regional uplift to the west as the Rockies developed gave rise to the deposition of sands and gravels by eastward-moving streams in Cenozoic time. Sinkhole development, local faulting, and warping of units overlying Permian salt beds are quite common and can be related to the dissolving of the salt in the subsurface.

HYDROLOGY

In general, Cretaceous and younger rocks serve as water sources in southwestern Kansas. These aquifers provide one of the largest areas of high-yield wells in Kansas. Most of the area has wells that can pump at least 1,900 gpm (500 gpm), and over 3,800 gpm (1,000 gpm) is common in half the area. Recharge to the aquifers is not keeping up with the pumping rates, and the water table is dropping. Older rocks provide modest amounts of water in eastern Meade and Clark Counties where Permian rocks are exposed. Shallow wells are drilled into Permian sandstone and siltstone units and produce hard but usable water. Wells which penetrate further than a few hundred feet produce water with a chloride content that is too high for use. A deep well to the Permian in Morton County has over 2,600 ppm of total dissolved solids. Some water is obtained from Jurassic rocks in Morton County and probably in Stanton and Hamilton Counties as well. But because of the difficulties involved in identifying the units, this water has been considered as part of the Cretaceous aquifers.

The Cheyenne Sandstone produces water which comes mostly from areas where the Dakota Formation does not produce adequate supplies and which is generally used for irrigation. Water from the Cheyenne is slightly harder and contains more iron than water from the Dakota Formation. A test well in Morton County producing from the Cheyenne contains 601 ppm of total dissolved solids, 237 ppm bicarbonate, 196 ppm sulfate, and 2.3 ppm fluoride. The Dakota Formation is an artesian aquifer widely used for irrigation in southwestern Kansas and sometimes used domestically when younger aquifers are not available. An average chemical composition of the Dakota water is 395 ppm of total dissolved solids, 215 ppm total hardness, 0.75 ppm iron, and 2.2 ppm fluoride; 80% of the total bases is sodium.

The two main water-producing units in the quadrangle are the Ogallala Formation and the Pleistocene terrace deposits. About 80% of all the wells sampled were from these units. Water from the Ogallala Formation is presently moving into the Cimarron River Valley, further depleting this aquifer which is used heavily for irrigation. The composition of the water generally ranges from 200 to 360 ppm of total dissolved solids, 150 to 320 ppm total hardness, 150 to 250 ppm bicarbonate, <25 ppm chloride, and low levels of sodium, iron, and fluoride. In some

areas, recharge from the Dakota Formation raises the hardness and fluoride levels. Water from terrace deposits contains 200 to 430 ppm of total dissolved solids and 60 to 340 ppm total hardness, with other constituents measuring similar to the Ogallala Formation. The loess and dune sands are generally above the water table and provide recharge to the lower aquifers. The dune sand recharge tends to dilute aquifers. Alluvium of the Cimarron River and Crooked Creek provides small to moderate supplies of hard water, and alluvium of the Arkansas River provides large quantities of hard, high fluoride content water at depths of 2 to 6 m (5 to 20 ft).

URANIUM OCCURRENCES

Uranium is not known to occur in commercial quantities in southwestern Kansas. The Cenozoic volcanic ash beds present in the study area show anomalous radioactivity (Zeller, et al, 1976). Volcanic ash from several localities was analyzed and determined to have a concentration of 10 ppm U_3O_8 . The Ogallala Formation in western Clark and eastern Meade Counties is secondarily opalized along what is believed to be an ancient channel. The opalized material, up to 3 m (10 ft) thick near the center and tapering off on each side and up to 1 km (0.6 mi) wide, is traceable for 13 km (8 mi) and contains anomalous concentrations of uranium of up to 200 ppm U_3O_8 . The source of the uranium and silica is probably the nearby volcanic ash beds which are up to 6 m (20 ft) thick locally (Berendsen, 1977). The middle section of the Graneros Shale, which was formed under conditions favorable for uranium mineralization, has not been evaluated.

A regional study of the Dakota Formation by Zeller, et al, (1976), which included the Dodge City Quadrangle, identified several anomalies on the basis of well logs. However, the density of data points and the lack of knowledge of the rock units giving rise to the anomalies is such that meaningful conclusions are difficult to make. The study indicated anomalously high radioactivity in the Upper Dakota Formation in Stanton County and the Lower Dakota Formation at the juncture of Mead, Clark, Ford, and Gray Counties.

SAMPLE COLLECTION

CHRONOLOGY OF THE SURVEY

Sampling in the Dodge City Quadrangle began in June 1979 and was completed in November 1979. Laboratory analyses and compilation and verification of all field and laboratory data were completed by September 1980. The final field and laboratory data base used to illustrate the statistical and symbol plots of uranium and uranium-related parameters for this report was completed in October 1980.

FIELD PROCEDURES

Stream sediment and groundwater sampling was performed, under contract, by personnel of BCI Geonetics, Inc. and the Kansas Geological Survey, respectively. A total of 756 groundwater and 321 stream sediment samples was collected within the boundaries of the Dodge City Quadrangle, Kansas. 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 can be found in the following reports: "Hydrogeochemical and Stream Sediment Reconnaissance Procedures of the Uranium Resource Evaluation Project" (Aréndt, et al, 1979), "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 are recorded on a field form as shown in Table C-2 and are included on the microfiche in Appendix C.

CONTAMINATION

Precautions were taken to avoid the possibility of collecting contaminated samples. Wells which were affected by chlorination, water-softening, or filtering devices were not sampled if the water 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. Any wells thought to be contaminated were noted as such on the field form. Sediment samples were collected upstream from road crossings wherever possible. Visible signs of contamination, the presence of cultivated areas, or oil fields upstream from a sample site were also noted on the field form.

Farmland dominates the Dodge City Quadrangle. Wheat, grain sorghum, and corn are the major crops. Nitrogen (in the form of anhydrous ammonia) is the major type of fertilizer, being used mostly in the late summer prior to planting the winter wheat. Some fertilization is done in early spring prior to planting the other grains. Groundwater samples were analyzed by the Kansas Geological Survey for nitrate content, and no association was found between high uranium content and high nitrate values. Limited amounts of land are used for raising cattle. There are numerous producing gas wells, particularly in the western half of the quadrangle, and scattered oil wells. Occasional-gravel pits are located along the Cimarron River. Also, there are open-pit volcanic ash mines in Clark, Grant, Gray, Meade, and Seward Counties.

CHEMICAL ANALYSIS

All samples collected in the survey area 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- μ m cellulose acetate paper. Stream sediment samples were dried overnight at 85°C and sieved to collect the <150- μ m fraction. Part of the sediment sample was dissolved in 10 ml of 1:1 nitric-hydrofluoric acid. The analytical procedures used have been described by Cagle (1977) and Arendt, et al (December 1979). All observed data from all samples are included on the microfiche in Appendix C.

QUALITY CONTROL

MEASUREMENTS CONTROL

Procedures used to analyze URE Project reconnaissance samples require that calibration standards, check samples, and blanks be analyzed along with normal samples to ensure the validity of reported results. A measurements control program provides information concerning precision and reliability of these measurements. Control samples of two water batches and three sediment batches are submitted anonymously along with routine samples on a daily basis. Statistical summaries of results reported on control samples, which were analyzed with the samples included in this survey, are given in Tables 2 and 3. 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 (1980).

PRINCIPAL COMPONENT ERROR ANALYSIS

A principal component analysis of data from groundwater 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. Laboratory and field data from the unusual samples identified by this procedure were reviewed. Nine groundwater samples (209623, 209794, 209797, 209821, 209855, 209865, 210095, 210207, and 210208) and four stream sediment samples (210611, 210612, 211139, and 211455) which appeared to be the most unusual were submitted for reanalysis. Original results were compared to the results from reanalysis. Of more than 400 individual analyses that were compared, the only results which were considered to

Table 1

DETECTION LIMITS OF VARIABLES DETERMINED IN WATER AND SEDIMENT SAMPLES

Variable	Method	Detection Limits	
		Sediment (ppm)	Water (ppb)
U	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	4
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
Hf	Plasma Source Emission Spectrometry	15	--
K	Plasma Source Emission Spectrometry	0.05(a)	0.1(b)
La	Plasma Source Emission Spectrometry	2	--
Li	Plasma Source Emission Spectrometry	1	2
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
Pb	Plasma Source Emission Spectrometry	10	--
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 MEASUREMENTS CONTROL RESULTS OBTAINED WITH GROUNDWATER SAMPLES FROM THE DODGE CITY QUADRANGLE

Element	Method	Batch L-4				Batch H-4			
		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)	21	0.74	0.315	0.42	16	10.49	1.076	0.10
AS	AA(b)	66	3.5	1.06	0.30	74	0.6	0.29	0.49
SE	AA	62	1.3	0.26	0.20	73	0.7	0.31	0.44
AL	PS(c)	53	90.0	21.5	0.24	75	348.0	25.1	0.07
B	PS	53	1,562.0	62.1	0.04	79	72.0	6.0	0.08
BA	PS	54	153.0	11.0	0.07	79	33.0	2.3	0.07
CA	PS	55	10,600.0	620.0	0.06	78	97,600.0	6,220.0	0.06
CO	PS	55	19.0	3.5	0.18	78	90.0	7.1	0.08
CR	PS	55	92.0	7.3	0.08	77	17.0	2.7	0.15
CU	PS	54	50.0	13.4	0.27	75	196.0	11.1	0.06
FE	PS	53	103.0	10.2	0.10	77	974.0	52.9	0.05
K	PS	55	1,750.0	199.0	0.11	78	19,530.0	1,740.0	0.09
LI	PS	55	17.0	2.3	0.13	77	101.0	8.8	0.09
MG	PS	55	9,500.0	490.0	0.05	78	72,000.0	3,840.0	0.05
MN	PS	55	20.0	1.9	0.09	78	100.0	6.9	0.07
MO	PS	56	34.0	11.7	0.34	79	7.0	6.9	0.91
NA	PS	55	1,700.0	180.0	0.10	75	45,300.0	3,530.0	0.08
NI	PS	55	205.0	16.9	0.08	78	38.0	5.5	0.14
P	PS	54	91.0	20.4	0.22	76	4,663.0	262.6	0.06
SC	PS	54	64.0	3.2	0.05	78	11.0	0.8	0.07
SI	PS	53	980.0	153.0	0.16	79	3,550.0	607.0	0.07
SR	PS	55	55.62	2.732	0.05	75	4,991.07	144.553	0.03
TI	PS	55	115.0	8.4	0.07	77	39.0	2.9	0.07
V	PS	56	10.0	3.5	0.34	78	44.0	4.9	0.11
Y	PS	54	9.0	0.9	0.09	78	45.0	2.8	0.06
ZN	PS	55	502.0	39.7	0.08	76	28.0	13.1	0.45

(a) Fluorometric analysis.

(b) Atomic absorption.

(c) Plasma source emission spectroscopy.

Table 3

SUMMARY OF MEASUREMENTS CONTROL RESULTS OBTAINED WITH STREAM SEDIMENT SAMPLES FROM THE DODGE CITY QUADRANGLE

Element	Method	Batch Q-1				Batch R-3				Batch S-3			
		No. of Samples	Mean (ppm)	Standard Deviation (ppm)	Coefficient of Variation	No. of Samples	Mean (ppm)	Standard Deviation (ppm)	Coefficient of Variation	No. of Samples	Mean (ppm)	Standard Deviation (ppm)	Coefficient of Variation
U	FL(a)	71	0.67	0.272	0.41	78	4.19	0.563	0.13	75	27.36	2.868	0.10
U	ri(b)	88	0.66	0.081	0.09	100	4.93	0.099	0.02	80	28.93	0.097	0.03
AS	AA(c)	50	1.7	0.48	0.29	62	3.5	0.59	0.17	49	23.4	3.78	0.16
SE	AA	49	0.2	0.21	1.25	64	0.2	0.23	0.98	51	1.2	0.65	0.55
AL	PS(d)	73	9,700.0	510.0	0.05	78	35,100.0	2,160.0	0.06	68	47,900.0	2,760.0	0.06
B	PS	74	7.0	3.5	0.49	82	21.0	8.7	0.41	70	65.0	10.4	0.16
BA	PS	75	138.0	14.9	0.11	79	482.0	46.6	0.10	71	319.0	22.6	0.07
BE	PS	73	<1.0			78	1.0	0.3	0.28	72	2.0	1.0	0.49
CA	PS	75	1,100.0	100.0	0.09	79	3,100.0	220.0	0.07	71	16,700.0	1,000.0	0.06
CE	PS	74	20.92	4.407	0.21	79	73.53	8.684	0.12	71	62.04	11.373	0.18
CO	PS	75	4.0	2.1	0.49	81	10.0	1.8	0.17	68	32.0	2.1	0.06
CR	PS	74	15.0	2.2	0.14	79	29.0	3.3	0.11	69	63.0	4.7	0.07
CU	PS	70	4.0	1.0	0.23	78	21.0	1.8	0.08	69	70.0	3.7	0.05
FE	PS	74	9,600.0	410.0	0.04	80	18,100.0	940.0	0.05	67	39,800.0	1,650.0	0.04
K	PS	73	1,900.0	190.0	0.10	79	9,900.0	980.0	0.10	69	16,900.0	1,830.0	0.11
LI	PS	71	9.0	0.7	0.08	79	23.0	1.8	0.08	71	35.0	3.3	0.09
MG	PS	73	1,100.0	60.0	0.05	79	2,200.0	90.0	0.04	69	5,600.0	190.0	0.03
MN	PS	74	318.0	12.0	0.04	80	1,933.0	79.7	0.04	67	402.0	14.5	0.04
MO	PS	72	2.0	0.2	0.12	81	2.0	0.8	0.36	69	43.0	3.9	0.09
NA	PS	1	<500.0			79	1,600.0	170.0	0.10	70	1,500.0	180.0	0.12
NB	PS	1	<4.0			79	7.0	2.9	0.38	70	2.0	0.8	0.37
NI	PS	75	7.0	3.8	0.55	81	21.0	4.0	0.19	69	197.0	6.7	0.06
P	PS	73	71.0	8.2	0.12	75	2,206.0	179.2	0.08	67	1,417.0	86.8	0.06
SC	PS	75	1.0	0.5	0.27	80	5.0	0.6	0.10	72	9.0	0.7	0.08
SR	PS	73	19.56	1.269	0.06	77	56.25	2.720	0.05	71	84.54	5.068	0.06
TH	PS	74	2.0	1.7	0.72	82	7.0	4.1	0.57	72	7.0	2.9	0.41
TI	PS	75	582.0	56.5	0.10	78	3,397.0	312.0	0.09	70	2,154.0	152.3	0.07
V	PS	71	20.0	1.1	0.05	77	56.0	3.3	0.06	69	162.0	7.3	0.04
Y	PS	74	4.0	0.4	0.09	79	20.0	1.4	0.07	70	33.0	1.8	0.05
ZN	PS	68	13.0	2.0	0.14	76	95.0	7.9	0.08	69	184.0	12.2	0.07
ZR	PS	75	30.0	3.2	0.10	77	138.0	9.8	0.07	70	82.0	5.6	0.07
HF	PS	62	7.23	8.689	1.20	66	8.50	7.470	0.88	66	5.48	3.624	0.66
LA	PS	64	21.56	3.976	0.18	65	84.23	8.301	0.10	67	89.67	5.767	0.06

(a) Fluorometric analysis.

(b) Neutron activation delayed neutron count.

(c) Atomic absorption.

(d) Plasma source emission spectroscopy.

be in error in the original analysis and require corrections were the uranium value for Sediment Sample 211612, and multielement values for Water Samples 209623, 209821, and 210095. This low error rate for unusual samples indicates a high level of reliability for the laboratory measurements.

GEOCHEMICAL RESULTS

GEOCHEMICAL DISTRIBUTIONS IN GROUNDWATER

Sample site locations for groundwater samples collected in the Dodge City Quadrangle are shown on Plate 1 at the 1:250,000 scale. Symbol plots for uranium and specific conductance are presented at this 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 is presented in Figure 4. The number of groundwater samples collected from each producing unit is presented in Table 4.

Observed data for the variables uranium, specific conductance, 1,000·uranium/specific conductance, boron, barium, potassium, lithium, magnesium, sodium, strontium, and sulfate are listed in Table A-3. The figures in Appendix A present log frequency, lognormal probability, percentile, and symbol plots for these variables, plus calcium.

Uranium

Figure A-1b indicates that groundwaters with uranium concentrations >14.82 ppb (85th percentile) are located mainly in the western half of the Dodge City Quadrangle, with some high uranium values scattered in the southeastern corner and in the north central to northeastern portion of the quadrangle. The majority of these groundwater samples with anomalously high uranium concentrations produce from the Tertiary Ogallala Formation, and some were derived from the Cretaceous Dakota Formation. To a much lesser extent, the high uranium values came from the remaining water producing geologic units found in the quadrangle.

The most noticeable areas of high uranium concentrations are as follows: (1) a cluster of high uranium values located in the north central portion of the quadrangle along the banks of the Arkansas River (wells sampled from the Ogallala Formation except for three wells producing from Quaternary alluvium); (2) a group of high uranium values in the west central area of the quadrangle between lat. 37°25' to 37°45' N. and long. 101°03' to 101°38' W (most of the groundwater samples from the Dakota Formation with a few produced from the Ogallala Formation); and (3) a large cluster of groundwater samples with high uranium concentrations between the Cimarron River and the North Fork of the Cimarron River in the southwestern corner of the quadrangle (groundwater samples collected mostly from the Ogallala Formation and some from the Cretaceous units, the Jurassic Morrison Formation, and the Permian units).

Figure 4
PRODUCING HORIZON MAP FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

Table 4

DISTRIBUTION OF SAMPLES BY GEOLOGIC UNIT FROM THE DODGE CITY QUADRANGLE

<u>Geologic Unit</u>	<u>Geologic Unit Code</u>	<u>No. of Groundwater Samples</u>	<u>No. of Sediment Samples</u>
Alluvium	QAL	15	96
Dune Sand	QSD	0	19
Loess and Terrace Deposits	QPLO	0	142
Ogallala Formation	TPO	615	24
Greenhorn Limestone and Graneros Shale	KGGG	0	8
Dakota Formation	KGDD	92	0
Kiowa Formation and Cheyenne Sandstone	KCDK	10	0
Morrison Formation	JMOR	5	0
Big Basin Formation and Day Creek Dolomite	PCBA	11	7
Nippewalla Group	PCN	8	0
TOTAL		756	296

The majority of the groundwater samples with uranium concentrations >5.82 ppb (15th percentile) are located in the northwestern corner and the central portion of the quadrangle, with some scattered low values in the eastern part of the survey area. These groundwater samples with low uranium content were produced mainly from the Ogallala Formation, while some of the groundwater samples were collected from the Dakota Formation.

In the northwestern corner of the quadrangle, a cluster of low uranium values is adjacent to high uranium values. The Arkansas River is bounded by high uranium concentrations and south of the river lies a large cluster of low uranium concentrations.

The correlation matrix (Table A-2) indicates a significant positive correlation with coefficients >0.40 for both Pearson and Spearman correlations between uranium and specific conductance, boron, lithium, potassium, magnesium, sodium, strontium, and sulfate. There is a significant negative correlation coefficient of <0.41 between uranium and barium.

Specific Conductance

Figure A-2b indicates that most groundwater samples with specific conductance values >981 $\mu\text{mhos/cm}$ (85th percentile) occur as clusters and scattered points in the northwestern, north central, southwestern, and southeastern areas of the quadrangle. These samples were produced primarily from the Ogallala Formation, with some high specific conductance values produced from the Dakota Formation and the Precambrian units. The percentile plot (Figure A-2a) indicates that the combined group of the Morrison and Big Basin Formations and the Day Creek Dolomite has the highest median specific conductance value of 953.5 $\mu\text{mhos/cm}$ as compared with the median value of 688.8 $\mu\text{mhos/cm}$ for all geologic units combined. This percentile plot might be misleading until it is noted that only 16 of the 756 groundwater samples were collected from these units while 615 groundwater samples were obtained from the Ogallala Formation.

The correlation matrix (Table A-2) indicates significant positive correlations with coefficients for both Pearson and Spearman correlations >0.40 between specific conductance and uranium, boron, calcium, chlorine, lithium, potassium, magnesium, sodium, strontium, and sulfate. There is a significant negative correlation coefficient of <0.40 between specific conductance and barium.

Related Variables

Of the 756 groundwater samples in the Dodge City Quadrangle, 615 were collected from the Ogallala Formation and 92 from the Dakota Formation. Less than 15 samples were taken from each of the other units sampled. It is therefore difficult to discuss any geologic units other than the Ogallala and Dakota Formations.

The highest cluster of uranium values is located in the extreme north central portion of the quadrangle north of the Arkansas River. Associated with these high uranium values are high concentrations of specific conductance, calcium, lithium, sodium, magnesium, strontium, and sulfate.

The second area of high uranium values, located in the west central area between lat. $37^{\circ}25'$ to $37^{\circ}45'$ N. and long. $101^{\circ}03'$ to $101^{\circ}38'$ W., has associated high values of 1,000-uranium:specific conductance ratio, calcium, magnesium, strontium, and sulfate.

The third area of high concentration is located in the southwestern portion of the quadrangle north of the Cimarron River. These high uranium values have associated high values of specific conductance, 1,000-uranium:specific conductance ratio, sodium, lithium, magnesium, strontium, and sulfate. These groundwater relations indicate a saline association.

The area north of the Cimarron River and south of the Arkansas River shows a large cluster of low uranium values and associated low concentrations of potassium, lithium, magnesium, sodium, sulfate, and strontium. Barium values are high in this area.

Summary of Groundwater Data

All areas with high concentrations of uranium in the groundwater samples have associated high values for magnesium, strontium, and sulfate. Except for the area between lat. $37^{\circ}53'$ to $38^{\circ}00'$ N. and long. $100^{\circ}45'$ to $101^{\circ}18'$ W., the low and high 1,000-uranium:specific conductance ratio values correlate strongly with low and high uranium values throughout the quadrangle. Of the groundwater samples taken, 80% were collected from the Tertiary Ogallala Formation, and most of the high uranium values were found in these waters. Some high uranium concentrations were located in the Cretaceous Dakota Formation, the Quarternary alluvium, and the other producing geologic units. The highest uranium values in the quadrangle came from groundwaters bounding the Arkansas River in the north central portion of the survey area.

GEOCHEMICAL DISTRIBUTIONS IN STREAM SEDIMENTS

Sample site locations for stream sediments collected in the Dodge City 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) is presented at the 1:250,000 scale in Plate 5 and at the 1:1,000,000 scale in Figure B-1b. The symbol plot for thorium is presented at the 1:250,000 scale in Plate 6 and at the 1:1,000,000 scale in Figure B-4b. The stream sediment data subset includes all stream sediment samples collected from basins in the Dodge City Quadrangle that average approximately 25 km² (10 mi²). This data subset is used to generate Tables B-1 and B-2 and the figures in Appendix B. There were

296 stream sediment samples collected from the major stratigraphic units of the survey area, and the distribution by geologic units is presented in Table 4. Results from all stream sediment samples collected from the Dodge City Quadrangle are included in Table B-3 and on the microfiche in Appendix C.

Observed data for the variables uranium, U-NT, U:TU ratio, thorium, cerium, iron, manganese, titanium, vanadium, yttrium, and zirconium are listed in Table B-3. The figures in Appendix B represent log frequency, lognormal probability, percentile, and symbol plots for these same variables, plus barium, calcium, potassium, sodium, and niobium.

Uranium

The symbol plots for uranium and U-NT (Figures B-1a and B-2a, respectively) indicate the majority of the high uranium values run diagonally across the Dodge City Quadrangle, from the northwestern corner to the southeastern corner. These sediments have values >85th percentile, or >2.82 ppb for uranium and >3.60 ppb for U-NT. Most of the high uranium values are in sediments from the Quaternary alluvium and the Tertiary Ogallala Formation, with some high concentrations in the Cretaceous Greenhorn Limestone and Graneros Shale. There are three clusters of high uranium and U-NT values: (1) in the northwestern corner of the quadrangle, between lat. 37°52' to 38°00' N. and long. 101°20' to 101°45' W.; (2) in the central area of the quadrangle, between lat. 37°18' to 37°39' N. and long. 101°00' to 101°26' W.; (3) north of the southeastern corner, between lat. 37°10' to 37°20' N. and long. 100°00' to 100°15' W.

The correlation matrix (Table B-2) shows a positive correlation coefficient of >0.25 for both Pearson and Spearman correlations between uranium and U-NT, arsenic, cerium, chromium, iron, manganese, scandium, titanium, vanadium, yttrium, and zirconium.

Thorium

Thorium values above the 85th percentile (>13 ppm) are scattered throughout the quadrangle, occurring mostly in Quaternary sediments. A few samples in the northwestern and central areas have high thorium values and correlating high uranium and U-NT values. The high thorium values are found in sediments from the Greenhorn Limestone and Graneros Shale, the Ogallala Formation, and the Quaternary loess, dune sand, and alluvium.

The correlation matrix (Table B-2) indicates significant positive correlation coefficients of >0.20 for both Pearson and Spearman correlations between thorium and cerium, iron, manganese, niobium, vanadium, yttrium, and zirconium.

Related Variables

The sediments from the northwestern corner of the quadrangle having uranium values >21.59 ppb (85th percentile) were collected mainly from alluvium of the Arkansas River, with two anomalously high values collected from the combined unit of the Greenhorn Limestone and the Graneros Shale. These stream sediment samples have values >85th percentile for barium, cerium, iron, manganese, titanium, yttrium, and zirconium. Sodium values run high (>1.12%) for the entire northwestern portion of the quadrangle.

Sediment samples which have high uranium values were taken from the central portion of the quadrangle from the alluvium of the North Fork of the Cimarron and the Cimarron Rivers. These sediment samples have corresponding high values for barium, cerium, iron, manganese, titanium, vanadium, yttrium, and zirconium. The U:TU ratio values are low in the samples with high uranium concentration.

Sediment samples with high uranium values from the southeastern region were collected mostly from the alluvium from small streams draining into Big Sandy Creek and from the Ogallala Formation. The highest total uranium value in the Dodge City Quadrangle is 21.59 ppb and was collected from the Quaternary loess and terrace deposits. High uranium content is associated with high values for barium, calcium, cerium, iron, manganese, titanium, vanadium, yttrium, and zirconium. Low values associated with the high uranium values are potassium, sodium, niobium, and the U:TU ratio.

The three areas with the highest uranium content have corresponding high values for iron, titanium, and zirconium, which indicate the presence of resistate minerals. The central and southeastern areas have low soluble uranium versus total uranium (U:TU) indicating a relation between heavy or resistate minerals and high insoluble uranium. All the areas with high uranium concentrations also have high values for barium, cerium, manganese, vanadium, and yttrium.

Summary of the Stream Sediment Data

The stream sediment data indicate high uranium content in a few samples in each of three general areas in the quadrangle - the northwestern, central, and southeastern areas. The majority of the sediments with high uranium concentrations were collected from the alluvium, and occasional anomalously high sediment values were found from the other Quaternary units, the Greenhorn Limestone and Graneros Shale, and the Ogallala Formation. Associated with the high uranium values are high values for barium, cerium, iron, manganese, titanium, vanadium, yttrium, and zirconium. Resistate minerals are indicated in the high uranium areas.

ACKNOWLEDGMENTS

The URE Project would like to acknowledge the work of Dr. Pieter Berendsen, Karin Willoughby, and the staff of the Kansas Geological Survey in the planning and collection of groundwater samples.

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APPENDIX A
GROUNDWATER

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APPENDIX A

GROUNDWATER

LIST OF TABLES

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Table A-1

STATISTICAL SUMMARY FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

NO. SAMPLES ANALYZED										COEFFICIENT		LN TRANSFORMATION			
MEASURABLE DETECTION		DETECTION		MINIMUM	MAXIMUM	MEAN	MEDIAN	MODE	STANDARD	OF	MEAN	S. D.	ROBUST		
ELEMENT	VALUES	LIMIT	LIMIT	VALUE	VALUE				DEVIATION	VARIATION			MEAN	S. D.	
J	752	4	<0.20	<0.20	106.00	9.54	7.31	3.75	8.171	0.856	1.99	0.75	2.00	0.68	
SP	756			171	6802	836	588	608	704.0	0.8	6.56	0.52	6.54	0.51	
U/S>	756			0.09	70.50	12.64	10.93	5.97	7.946	0.628	2.31	0.79	2.38	0.61	
J/3	756			0.14	688.31	87.45	81.20	74.24	45.837	0.524	4.30	0.79	4.40	0.51	
U/50	756			0.46	3436.00	181.97	117.70	92.05	252.478	1.387	4.73	1.06	4.78	1.00	
AG	221	535	<2	<2	9	2	<2	<2	1.2	0.4	1.00	0.34			
AL	151	605	<10	<10	2584	45	<10	<10	210.4	4.6	3.14	0.73			
AS	651	105	<0.5	<0.5	20.5	1.5	1.0	0.8	1.42	0.96	0.19	0.57	0.00	0.70	
B	756			16	739	124	98	39	96.4	0.8	4.57	0.72	4.57	0.71	
3A	756			3	508	42	23	14	51.8	1.2	3.29	0.91	3.26	0.88	
BE	118	638	<1	<1	34	1	<1	<1	3.1	2.3	0.06	0.37			
CA	756			4.8	403.3	65.8	55.5	54.8	43.54	0.66	4.08	0.40	4.05	0.33	
CJ	198	558	<2	<2	204	4	<2	<2	14.3	3.2	1.18	0.52			
CR	106	650	<4	<4	12	5	<4	<4	2.2	0.4	1.66	0.33			
CJ	70	686	<2	<2	113	8	<2	<2	19.2	2.4	1.38	0.88			
FE	77	679	<10	<10	99507	1307	<10	<10	11338.2	8.7	2.74	1.07			
K	755			1.5	11.6	4.2	3.9	4.0	1.52	0.36	1.38	0.33	1.37	0.33	
LI	756			5	287	38	31	20	28.0	0.7	3.42	0.69	3.42	0.67	
MG	756			3.0	160.8	22.5	18.8	8.7	17.93	0.80	2.91	0.61	2.89	0.58	
MN	207	549	<2	<2	596	17	<2	<2	62.6	3.6	1.64	1.18			
MD	526	230	<4	<4	77	12	8	<4	8.8	0.7	2.37	0.59	1.99	0.84	
NA	756			4.0	696.4	43.7	27.9	17.7	62.99	1.44	3.40	0.76	3.36	0.76	
NI	196	560	<4	<4	150	7	<4	<4	10.7	1.4	1.87	0.46			
P	3	753	<40	<40	129	79	<40	<40	44.9	0.6	4.26	0.56			
SC	47	709	<1	<1	3	1	<1	<1	0.5	0.4	0.16	0.33			
SE	534	222	<0.2	<0.2	4.0	0.4	0.3	0.3	0.23	0.66	-1.13	0.40	-1.39	0.49	
SI	756			2.1	33.8	12.0	10.8	10.3	4.79	0.40	2.41	0.39	2.42	0.41	
SR	756			130	12182	1285	1073	615	1052.7	0.8	6.96	0.61	6.95	0.58	
TI	38	718	<2	<2	8	4	<2	<2	1.9	0.5	1.28	0.48			
V	366	390	<4	<4	42	10	<4	<4	6.9	0.7	2.15	0.55			
Y	213	543	<1	<1	58	1	<1	<1	3.9	2.9	0.08	0.35			
ZN	710	46	<4	<4	4466	61	19	6	205.6	3.3	3.24	1.16	3.06	1.26	
ZR	224	532	<2	<2	12	3	<2	<2	2.1	0.6	1.16	0.48			
T-AK	756			104	306	169	164	175	30.9	0.2	5.11	0.17	5.11	0.18	
M-AK	756			104	321	169	164	150	31.6	0.2	5.12	0.17	5.11	0.18	
P-AK	756			0	0	0	0	0	0.0	0.0					
C-	517	239	<10	<10	1019	43	14	<10	97.1	2.2	3.20	0.83	2.65	1.13	
NA/C	756			0.07	36.82	2.75	2.11	1.07	2.790	1.015	0.70	0.80	0.70	0.78	
PH	756			6.0	8.3	7.5	7.5	7.5	0.28	0.04					
SO4	746	10	<5	<5	2506	131	70	10	250.8	1.9	4.19	1.11	4.14	1.09	

NOTE: Refer to Table 1, Page 24 and Table C-1, Page C-4 for concentration units and symbol definitions.

Table A-2

CORRELATION MATRIX FOR GROUNDWATER
OF THE DODGE CITY QUADRANGLE

CORRELATION MATRIX FOR QUADRANGLE									
OF THE DODGE CITY QUADRANGLE									
L-U	1.00 (752)								
L-NA	0.42*** 0.60*** (752)	L-NA 1.00 (756)							
LSO4	0.53*** 0.62*** (742)	0.76*** 0.79*** (746)	LSO4 1.00 (746)						
L-BA	-0.42*** -0.55*** (752)	-0.64*** -0.71*** (756)	-0.75*** -0.81*** (746)	L-BA 1.00 (756)					
L-B	0.88*** 0.73*** (752)	0.77*** 0.82*** (756)	0.75*** 0.77*** (746)	-0.75*** 0.76*** (756)	L-B 1.00 (756)				
L-LI	0.56*** 0.71*** (752)	0.68*** 0.73*** (756)	0.63*** 0.64*** (746)	-0.61*** -0.61*** (756)	0.87*** 0.86*** (756)	L-LI 1.00 (756)			
L-MG	0.70*** 0.79*** (752)	0.73*** 0.76*** (756)	0.80*** 0.79*** (746)	-0.63*** -0.66*** (756)	0.83*** 0.84*** (756)	0.86*** 0.88*** (756)	L-MG 1.00 (756)		
L-SR	0.68*** 0.78*** (752)	0.68*** 0.72*** (756)	0.76*** 0.77*** (746)	-0.60*** -0.65*** (756)	0.79*** 0.81*** (756)	0.82*** 0.84*** (756)	0.94*** 0.94*** (756)	L-SR 1.00 (756)	
L-K	0.47*** 0.63*** (751)	0.69*** 0.68*** (755)	0.63*** 0.63*** (745)	-0.54*** -0.57*** (755)	0.71*** 0.71*** (755)	0.75*** 0.76*** (755)	0.74*** 0.75*** (755)	0.71*** 0.72*** (755)	L-K 1.00 (755)
L-SP	0.41*** 0.43*** (752)	0.72*** 0.63*** (756)	0.64*** 0.60*** (746)	-0.41*** -0.45*** (756)	0.56*** 0.52*** (756)	0.53*** 0.51*** (756)	0.65*** 0.60*** (756)	0.65*** 0.59*** (756)	0.54*** 0.50*** (755)
L-CL	0.11*** 0.12*** (514)	0.58*** 0.37*** (517)	0.26*** 0.18*** (516)	0.11*** 0.10*** (517)	0.11*** 0.09*** (517)	0.25*** 0.24*** (517)	0.36*** 0.29*** (517)	0.34*** 0.28*** (517)	0.27*** 0.22*** (517)
L-CA	0.39*** 0.30*** (752)	0.42*** 0.32*** (756)	0.53*** 0.45*** (746)	-0.14*** -0.18*** (756)	0.27*** 0.24*** (756)	0.27*** 0.23*** (756)	0.58*** 0.45*** (756)	0.60*** 0.49*** (756)	0.39*** 0.33*** (755)
PH	-0.17*** -0.15*** (752)	-0.16*** -0.16*** (756)	-0.18*** -0.15*** (746)	0.14*** 0.14*** (756)	-0.14*** -0.13*** (756)	-0.22*** -0.21*** (756)	-0.26*** -0.24*** (756)	-0.19*** -0.21*** (756)	-0.26*** -0.25*** (755)
L-MJ	0.23*** 0.22*** (522)	0.18*** 0.23*** (526)	0.18*** 0.18*** (520)	-0.26*** -0.26*** (526)	0.24*** 0.23*** (526)	0.19*** 0.17*** (526)	0.16*** 0.16*** (526)	0.19*** 0.18*** (526)	0.12*** 0.13*** (526)
L-SE	0.06 0.06 (532)	0.05 0.03 (534)	0.06 0.02 (524)	-0.03 -0.02 (534)	0.12*** 0.10*** (534)	0.09*** 0.07* (534)	0.08* 0.05 (534)	0.09** 0.07 (534)	0.03 -0.01 (534)
L-ZN	0.08*** 0.09*** (706)	0.18*** 0.16*** (710)	0.08*** 0.08*** (701)	-0.03 -0.04 (710)	0.20*** 0.18*** (710)	0.30*** 0.32*** (710)	0.17*** 0.19*** (710)	0.10*** 0.10*** (710)	0.24*** 0.25*** (709)
LTAK	0.21*** 0.28*** (752)	0.38*** 0.37*** (756)	0.19*** 0.18*** (746)	-0.16*** -0.16*** (756)	0.47*** 0.43*** (756)	0.50*** 0.50*** (756)	0.38*** 0.39*** (756)	0.30*** 0.31*** (756)	0.41*** 0.39*** (755)
L-AS	0.06* 0.07* (650)	0.02 -0.01 (651)	-0.03 0.02 (641)	0.05 0.01 (651)	0.14*** 0.11*** (651)	0.32*** 0.29*** (651)	0.16*** 0.18*** (651)	0.09** 0.11*** (651)	0.06 0.11*** (650)
L-SI	0.27*** 0.14*** (752)	-0.19*** -0.05 (756)	-0.24*** -0.09** (746)	0.25*** 0.10*** (756)	-0.11*** 0.02 (756)	0.10*** 0.22*** (756)	0.09** 0.21*** (756)	0.09** 0.19*** (756)	-0.07** 0.07** (755)

- 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%.
- (3) No correlation computed because of insufficient number of pairs: *****.

L-SP									
1.00									
(756)									
L-CL									
0.66***									
0.48***	1.00								
(517)	(517)								
L-CA									
0.63***	0.47***								
0.52***	0.41***	1.00							
(756)	(517)	(756)							
PH									
-0.27***	0.14***	-0.28***							
-0.28***	-0.11**	-0.28***	1.00						
(756)	(517)	(756)	(756)						
L-MC									
0.05	-0.06	0.03	-0.02						
0.03	-0.06	0.02	0.00	1.00					
(526)	(361)	(526)	(526)	(526)					
L-SE									
0.02	-0.03	0.01	-0.02	0.13**					
0.03	0.00	-0.01	-0.02	0.11**	1.00				
(634)	(370)	(534)	(534)	(377)	(534)				
L-ZN									
0.11***	0.10**	-0.01	-0.10***	0.00	0.02				
0.06	0.06	-0.03	-0.05	-0.00	0.00	1.00			
(710)	(488)	(710)	(710)	(493)	(492)	(710)			
LTAK									
0.38***	0.16***	0.10***	-0.21***	0.03	0.10**	0.29***			
0.30***	0.15***	0.13***	-0.29***	0.05	0.10**	0.21***	1.00		
(756)	(517)	(756)	(756)	(526)	(534)	(710)	(756)		
L-AS									
0.05	0.07	-0.06	-0.07*	-0.00	-0.01	0.22***	0.25***		
-0.00	0.04	0.03	-0.08**	-0.02	-0.04	0.25***	0.21***	1.00	
(661)	(445)	(651)	(651)	(447)	(476)	(611)	(651)	(651)	
L-SI									
-0.06*	0.06	0.05	-0.01	0.01	-0.06	0.07*	0.08**	0.64***	
0.02	0.03*	0.17***	-0.08**	0.04	-0.08*	0.13***	0.27***	0.63***	1.00
(756)	(517)	(756)	(756)	(526)	(534)	(710)	(756)	(651)	(756)

Figure A-1a

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

A-11

Figure A-1b
GEOCHEMICAL DISTRIBUTION OF URANIUM (PPB) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-2a

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

Figure A-2b

GEOCHEMICAL DISTRIBUTION OF SPECIFIC CONDUCTANCE (μ MHOS/CM) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-3a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR 1,000 • URANIUM / SPECIFIC CONDUCTANCE
IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

A-15

Figure A-3b

GEOCHEMICAL DISTRIBUTION OF 1,000-URANIUM/SPECIFIC CONDUCTANCE IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-1a

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

A-17

Figure A-4b

GEOCHEMICAL DISTRIBUTION OF BORON (PPB) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-5a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR BARIUM (PPB)
IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

A-19

Figure A-5b
GEOCHEMICAL DISTRIBUTION OF BARIUM (PPB) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-6a

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

Figure A-6b

GEOCHEMICAL DISTRIBUTION OF CALCIUM (PPM) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-7a

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

A-23

Figure A-7b

GEOCHEMICAL DISTRIBUTION OF POTASSIUM (PPM) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-8a

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

Figure A-8b

GEOCHEMICAL DISTRIBUTION OF LITHIUM (PPB) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-9a

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

A-27

Figure A-9b

GEOCHEMICAL DISTRIBUTION OF MAGNESIUM (PPM) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-10a

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

Figure A-10b

GEOCHEMICAL DISTRIBUTION OF SODIUM (PPM) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-11a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR STRONTIUM (PPB)
IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-11b

GEOCHEMICAL DISTRIBUTION OF STRONTIUM (PPB) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Figure A-12a

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

A-33

Figure A-12b

GEOCHEMICAL DISTRIBUTION OF SULFATE (PPM) IN GROUNDWATER OF THE DODGE CITY QUADRANGLE

Table A-3

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST	SAMPLE LAT	NUMBER LCNG	U (PPB)	SP JMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
			L TY REF											
209600	20-37.207	-100.954	-3-03-	3.82	656	5.82	55	109	2.3	33	11.7	28.9	505	16
209601	20-37.184	-100.110	-3-03-	18.19	2825	6.44	399	7	6.7	94	92.6	124.8	7514	957
209602	20-37.140	-100.155	-3-03-	7.99	1156	6.91	122	67	3.1	59	20.2	38.0	1264	49
209603	20-37.126	-100.207	-3-03-	14.27	1140	12.52	222	20	4.1	83	26.0	40.1	1310	102
209604	20-37.140	-100.241	-3-03-	8.71	1457	5.98	86	27	4.2	47	19.4	179.9	1404	62
209605	20-37.459	-100.016	-3-03-	4.01	589	6.80	69	83	4.5	21	9.4	15.4	575	13
209606	20-37.425	-100.019	-3-03-	4.62	643	7.18	76	60	4.0	20	7.4	22.1	422	15
209607	20-37.392	-100.014	-3-03-	2.88	757	3.80	64	148	3.8	23	13.4	20.6	550	8
209609	20-37.390	-100.054	-3-03-	3.87	665	5.81	59	65	2.7	18	7.9	19.9	461	8
209610	20-37.432	-100.070	-3-03-	2.85	637	4.47	39	198	3.6	17	7.7	8.8	418	<5
209611	20-37.488	-100.075	-3-03-	3.77	633	5.95	63	145	4.8	19	5.1	9.2	322	6
209612	20-37.386	-100.103	-3-03-	3.00	671	4.47	46	95	1.6	15	7.9	16.8	468	12
209613	20-37.382	-100.163	-3-03-	3.85	612	6.35	58	144	1.9	16	8.8	10.6	589	<5
209614	20-37.291	-100.344	-3-03-	3.56	536	6.63	41	54	2.4	13	8.0	10.1	597	13
209615	20-37.228	-100.646	-3-03-	4.68	935	5.00	243	21	2.6	43	17.7	43.9	2990	178
209616	20-37.205	-100.704	-3-03-	9.21	764	12.04	143	15	3.2	28	17.2	29.4	1334	113
209617	20-37.140	-100.632	-3-03-	23.53	909	25.88	143	10	3.4	37	22.4	23.5	2225	184
209618	20-37.124	-100.671	-3-03-	5.66	702	8.06	83	37	2.7	20	12.2	18.1	881	44
209619	20-37.105	-100.698	-3-03-	5.72	881	11.02	157	34	5.9	40	23.8	46.7	1363	60
209620	20-37.174	-100.721	-3-03-	10.07	885	11.37	174	10	3.1	30	20.0	32.6	1577	164
209621	20-37.282	-100.438	-3-03-	4.66	593	7.86	41	163	1.9	11	7.2	4.0	652	24
209622	20-37.023	-100.233	-3-03-	3.99	767	5.20	94	7	1.6	16	9.6	20.3	403	10
209623	20-37.094	-100.119	-3-03-	11.23	883	12.71	98	113	1.9	38	28.2	16.0	1017	66
209624	20-37.108	-100.228	-3-03-	12.37	821	15.06	98	174	3.1	52	20.3	10.1	1492	18
209625	20-37.110	-100.189	-3-03-	4.32	662	6.52	58	88	2.3	55	14.0	7.7	797	14
209626	20-37.060	-100.235	-3-03-	3.94	857	4.60	56	147	1.5	21	15.4	12.8	601	33
209627	20-37.099	-100.321	-3-03-	8.92	4474	1.99	303	17	4.8	52	23.5	494.6	1113	246
209628	20-37.576	-100.415	-3-03-	3.36	672	5.00	43	41	4.3	17	10.3	15.1	546	19
209629	20-37.526	-100.437	-3-03-	5.45	997	5.46	52	72	5.4	29	22.3	21.0	1112	91
209630	20-37.514	-100.430	-3-03-	4.85	798	6.07	45	56	4.6	22	14.8	20.0	768	39
209632	20-37.584	-100.469	-3-03-	5.21	880	5.92	50	60	4.5	21	14.8	20.9	851	43
209633	20-37.602	-100.472	-3-03-	4.09	777	5.26	41	45	4.3	17	11.4	18.7	636	32
209634	20-37.603	-100.519	-3-03-	4.13	722	5.71	40	37	3.8	17	9.4	19.8	613	21
209635	20-37.569	-100.509	-3-03-	4.77	762	6.25	42	59	4.0	18	11.9	18.0	637	25
209636	20-37.532	-100.524	-3-03-	3.70	719	5.14	34	46	3.3	18	8.9	18.6	521	16
209637	20-37.515	-100.597	-3-03-	4.61	695	6.63	47	40	3.5	18	9.5	17.7	604	13
209638	20-37.573	-100.592	-3-03-	3.23	616	5.24	36	60	3.0	12	6.6	14.7	365	7
209639	20-37.605	-100.598	-3-03-	3.36	662	5.07	38	52	3.2	12	8.8	18.0	509	44
209640	20-37.329	-100.508	-3-03-	4.81	781	6.15	56	28	3.7	17	10.5	18.0	742	48
209641	20-37.344	-100.604	-3-03-	5.94	839	7.08	69	24	3.8	15	12.0	21.3	823	52
209642	20-37.254	-100.607	-3-03-	6.20	732	8.46	85	19	4.1	22	13.0	27.1	874	63
209643	20-37.301	-100.500	-3-03-	4.88	733	6.65	59	25	3.7	18	11.3	18.3	772	53
209644	20-37.417	-100.430	-3-03-	3.81	645	5.90	43	50	3.1	15	9.0	17.0	632	25
209645	20-37.468	-100.435	-3-03-	2.97	668	5.94	33	46	3.0	15	9.5	15.5	626	17
209646	20-37.467	-100.469	-3-03-	6.76	799	8.46	78	36	3.9	23	15.2	26.7	922	45
209647	20-37.416	-100.479	-3-03-	4.62	682	6.77	44	48	2.9	14	9.0	15.9	638	16
209648	20-37.423	-100.524	-3-03-	3.92	616	6.36	41	52	2.9	13	8.2	15.9	552	14
209649	20-37.398	-100.534	-3-03-	5.29	660	8.01	51	31	3.2	15	9.3	19.3	652	34
209650	20-37.388	-100.688	-3-03-	6.74	870	7.74	77	22	4.1	20	12.9	23.5	864	60
209651	20-37.405	-100.634	-3-03-	6.74	859	7.85	60	27	3.9	20	12.2	24.3	805	51
209652	20-37.428	-100.652	-3-03-	5.62	819	6.86	53	32	3.5	18	11.0	21.8	735	44
209653	20-37.488	-100.661	-3-03-	3.81	847	4.50	41	37	2.9	14	9.0	18.1	626	27
209654	20-37.486	-100.704	-3-03-	3.96	790	5.01	43	34	2.9	14	8.4	18.0	595	26
209655	20-37.424	-100.711	-3-03-	5.62	823	6.82	87	19	3.5	19	11.4	24.2	779	50
209656	20-37.424	-100.761	-3-03-	6.99	815	8.57	87	20	3.4	22	12.1	26.1	692	62

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST	SAMPLE LAT	NUMBER LCNG	TY REP	U (PPB)	SP UMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209658	20-37.482	-100.760	-3-03-		4.79	773	6.19	53	30	2.7	15	8.4	19.6	618	39
209659	20-37.474	-100.870	-3-03-		6.27	693	9.05	71	21	2.9	16	11.0	22.1	751	56
209660	20-37.468	-100.797	-3-03-		5.42	703	7.70	68	23	2.7	16	10.2	21.7	718	57
209661	20-37.408	-100.834	-3-03-		6.49	725	8.95	82	18	3.0	18	12.0	23.6	795	48
209662	20-37.032	-101.582	-3-03-		3.68	787	4.67	80	13	2.5	17	14.3	20.3	751	92
209663	20-37.042	-101.771	-3-03-		9.16	951	9.62	144	10	2.9	27	22.8	37.0	1137	144
209664	20-37.011	-101.950	-3-03-		17.11	953	17.94	129	14	5.0	39	27.4	51.7	1230	85
209665	20-37.053	-101.946	-3-03-		8.82	784	11.25	120	19	2.9	28	14.8	36.8	641	70
209666	20-37.020	-101.901	-3-03-		12.00	847	14.17	121	14	4.9	36	24.9	36.6	1015	71
209667	20-37.402	-100.865	-3-03-		9.72	769	12.64	116	16	4.1	28	16.8	34.8	1057	78
209668	20-37.320	-100.833	-3-03-		12.75	1027	12.41	148	12	5.1	38	25.4	48.9	1637	144
209669	20-37.378	-100.779	-3-03-		10.25	908	11.29	115	20	4.4	31	20.8	34.1	1340	83
209670	20-37.431	-100.868	-3-03-		8.08	755	10.69	104	21	4.1	24	15.5	27.3	993	68
209671	20-37.528	-100.852	-3-03-		5.06	646	7.83	67	24	3.0	16	9.9	23.4	722	56
209672	20-37.518	-100.814	-3-03-		4.94	862	5.73	58	33	3.4	18	14.6	24.0	1042	73
209673	20-37.577	-100.795	-3-03-		3.95	753	5.24	33	40	2.3	12	9.5	29.9	697	45
209674	20-37.562	-100.874	-3-03-		5.10	667	7.64	50	35	2.6	13	9.1	19.0	654	35
209675	20-37.606	-100.843	-3-03-		3.90	665	5.86	35	34	2.2	10	8.2	15.1	604	24
209676	20-37.614	-100.788	-3-03-		2.69	607	4.43	30	88	2.1	9	5.9	10.8	379	9
209677	20-37.522	-100.720	-3-03-		3.69	598	6.16	38	39	2.5	11	7.8	15.8	493	29
209678	20-37.532	-100.686	-3-03-		4.68	668	7.00	38	73	2.5	12	9.3	15.6	589	37
209679	20-37.564	-100.688	-3-03-		2.39	620	3.85	33	80	2.3	11	7.1	11.5	462	13
209680	20-37.570	-100.742	-3-03-		3.50	594	5.89	38	53	2.3	13	7.7	15.8	555	20
209681	20-37.596	-100.724	-3-03-		2.89	566	5.10	30	74	2.1	11	6.9	11.9	464	14
209682	20-37.650	-100.692	-3-03-		3.72	636	5.84	31	76	2.5	10	7.2	13.4	437	18
209683	20-37.628	-100.711	-3-03-		2.15	611	3.51	27	115	2.3	9	5.9	9.6	353	9
209684	20-37.656	-100.647	-3-03-		3.60	746	4.82	37	60	2.9	12	8.7	16.8	536	46
209685	20-37.722	-100.634	-3-03-		6.23	1065	5.85	67	36	4.0	18	16.1	35.5	938	95
209686	20-37.714	-100.688	-3-03-		3.31	678	4.88	40	45	2.6	11	7.9	17.2	498	31
209687	20-37.715	-100.725	-3-03-		3.45	690	4.99	31	44	2.3	12	8.1	15.6	547	25
209688	20-37.659	-100.761	-3-03-		2.58	627	4.11	28	97	2.3	9	5.8	9.9	386	9
209689	20-37.249	-100.597	-3-03-		6.49	691	9.39	101	19	3.9	25	15.4	26.9	957	64
209690	20-37.213	-100.535	-3-03-		7.97	663	12.01	90	24	3.6	25	15.4	23.2	943	60
209691	20-37.219	-100.553	-3-03-		7.28	843	8.63	95	21	4.3	28	19.1	29.3	1137	77
209692	20-37.200	-100.573	-3-03-		6.37	707	9.00	98	20	3.8	25	14.4	25.0	893	63
209693	20-37.135	-100.602	-3-03-		6.23	755	8.24	110	16	3.9	27	16.0	29.2	985	75
209694	20-37.249	-100.488	-3-03-		5.71	667	8.56	65	23	3.6	21	13.2	20.6	823	61
209695	20-37.650	-100.874	-3-03-		2.50	635	3.93	35	73	2.4	11	7.0	12.4	449	18
209696	20-37.657	-100.802	-3-03-		2.92	660	4.42	24	214	2.9	10	8.2	10.7	551	10
209697	20-37.711	-100.788	-3-03-		3.60	629	5.72	28	90	3.0	10	7.1	13.0	493	19
209698	20-37.707	-100.769	-3-03-		4.76	851	5.59	68	91	3.4	13	10.5	25.2	597	51
209699	20-37.737	-100.755	-3-03-		5.30	749	7.07	58	52	2.8	12	9.6	26.0	672	31
209700	20-37.729	-100.870	-3-03-		3.74	606	6.17	28	42	2.1	9	7.4	15.2	558	18
209701	20-37.696	-100.865	-3-03-		2.91	578	5.03	30	127	2.0	8	5.7	10.1	399	<5
209702	20-37.545	-100.906	-3-03-		7.43	714	10.40	89	32	3.1	19	13.1	27.6	820	47
209703	20-37.609	-100.921	-3-03-		4.83	602	8.01	45	48	2.4	13	8.6	18.3	546	15
209704	20-37.605	-100.570	-3-03-		4.05	625	6.48	61	36	2.6	14	9.6	20.1	592	23
209705	20-37.561	-100.580	-3-03-		7.97	758	10.51	68	43	3.2	21	15.5	24.2	921	51
209706	20-37.395	-100.979	-3-03-		12.49	638	19.58	177	11	4.3	42	24.3	44.6	1565	132
209707	20-37.424	-100.952	-3-03-		12.31	649	18.95	174	26	4.2	40	24.1	48.0	1435	123
209708	20-37.475	-100.924	-3-03-		7.51	376	19.94	76	34	3.4	20	13.4	23.3	785	34
209709	20-37.483	-100.997	-3-03-		10.19	425	23.96	112	19	3.2	27	16.1	32.1	918	57
209710	20-37.446	-101.027	-3-03-		13.17	681	19.32	171	12	4.4	45	27.2	46.8	1767	126
209711	20-37.483	-101.115	-3-03-		17.62	508	34.62	181	11	4.4	50	26.6	43.1	1804	123
209712	20-37.495	-101.050	-3-03-		14.49	579	25.02	178	14	4.0	40	26.0	48.1	1604	131

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LONG	NUMBER LTY REF	U (PPB)	SP JMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209713	20-37.512	-100.998	-3-03-	5.23	594	15.53	91	23	3.0	22	13.8	26.7	824	28
209714	20-37.518	-100.920	-3-03-	8.55	703	12.16	99	25	3.2	22	14.0	29.6	907	37
209715	20-37.511	-101.015	-3-03-	10.19	731	13.93	111	25	3.3	28	16.3	34.7	954	69
209716	20-37.528	-101.115	-3-03-	14.21	990	14.34	178	11	4.1	44	26.2	45.3	1561	132
209717	20-37.561	-101.103	-3-03-	9.34	769	12.14	83	31	3.1	25	16.6	25.0	1044	48
209718	20-37.561	-101.038	-3-03-	6.89	719	12.36	107	26	3.4	27	14.0	34.0	823	50
209719	20-37.613	-101.019	-3-03-	8.83	1435	6.15	172	38	4.8	28	25.9	62.0	1583	120
209720	20-37.669	-101.035	-3-03-	9.15	759	12.05	54	89	2.9	16	15.9	20.4	938	51
209721	20-37.670	-101.072	-3-03-	5.03	616	8.16	42	67	2.3	13	9.7	12.8	609	10
209722	20-37.694	-101.036	-3-03-	7.04	683	10.29	48	85	2.7	12	9.2	17.4	588	18
209723	20-37.687	-101.097	-3-03-	3.38	540	6.25	29	89	2.2	10	6.8	10.0	441	9
209724	20-37.657	-100.971	-3-03-	5.24	623	8.40	45	61	2.6	13	10.6	15.8	613	19
209725	20-37.650	-100.931	-3-03-	4.80	1470	3.26	45	71	3.7	18	16.1	68.9	1059	52
209726	20-37.688	-100.916	-3-03-	2.89	573	5.04	26	134	2.3	8	6.0	8.9	391	15
209727	20-37.711	-100.990	-3-03-	2.18	596	3.66	31	111	2.3	10	6.4	11.0	431	15
209728	20-37.740	-100.790	-3-03-	8.95	856	10.45	63	119	3.5	17	12.1	27.8	805	14
209729	20-37.744	-100.899	-3-03-	4.55	609	7.47	28	58	2.3	8	6.6	13.4	453	13
209730	20-37.551	-100.643	-3-03-	4.27	599	7.12	38	104	2.5	11	7.7	12.1	491	9
209731	20-37.522	-100.634	-3-03-	4.01	644	6.22	37	105	2.7	11	8.4	12.6	545	12
209732	20-37.604	-100.643	-3-03-	2.46	558	4.41	33	63	2.3	9	6.3	13.0	389	11
209733	20-37.366	-101.104	-3-03-	14.12	996	14.16	167	11	5.1	46	27.9	56.9	1454	127
209734	20-37.424	-101.107	-3-03-	10.34	941	10.99	128	13	5.9	37	24.1	46.8	1262	118
209735	20-37.592	-101.110	-3-03-	5.48	668	8.19	60	43	2.6	19	12.9	20.6	692	11
209736	20-37.701	-101.164	-3-03-	3.56	659	6.00	29	91	2.3	10	7.4	9.9	405	17
209737	20-37.660	-101.173	-3-03-	3.49	610	5.72	44	84	2.4	15	7.8	13.4	519	7
209738	20-37.653	-101.230	-3-03-	15.41	710	21.68	208	10	4.0	50	31.8	44.5	2015	153
209739	20-37.696	-101.215	-3-03-	3.00	305	9.83	49	65	2.3	14	7.8	13.8	461	11
209740	20-37.738	-101.226	-3-03-	2.63	303	8.68	23	127	2.2	7	5.8	8.1	322	7
209741	20-37.741	-101.157	-3-03-	2.14	261	8.18	17	213	2.2	6	4.8	7.3	251	1
209742	20-37.612	-101.144	-3-03-	13.52	461	30.15	74	69	2.9	18	16.2	21.4	924	31
209743	20-37.584	-101.149	-3-03-	10.01	422	23.70	88	29	3.2	25	19.0	27.9	1157	66
209745	20-37.603	-101.199	-3-03-	11.67	622	18.76	152	24	3.9	40	26.8	38.6	1653	120
209746	20-37.561	-101.199	-3-03-	20.34	629	32.33	206	11	5.0	61	31.4	51.4	2240	151
209747	20-37.512	-101.188	-3-03-	10.78	457	23.56	125	12	3.8	32	19.8	32.9	1325	95
209748	20-37.511	-101.144	-3-03-	22.74	747	30.44	195	11	6.3	57	33.5	60.4	2281	190
209749	20-37.663	-101.287	-3-03-	20.83	612	34.04	186	8	4.2	56	30.1	48.9	1918	158
209750	20-37.650	-101.336	-3-03-	19.20	707	27.13	211	10	4.5	59	35.2	51.2	2443	211
209751	20-37.721	-101.323	-3-03-	20.04	609	32.90	217	11	5.1	54	30.6	58.5	1617	149
209752	20-37.690	-101.271	-3-03-	15.32	528	28.97	186	13	3.8	43	21.0	44.9	1101	65
209753	20-37.738	-101.276	-3-03-	1.65	375	4.39	33	126	2.3	11	7.3	11.0	375	10
209754	20-37.744	-101.335	-3-03-	8.72	390	22.30	93	34	3.5	28	16.1	20.9	888	26
209755	20-37.731	-101.399	-3-03-	28.24	774	36.45	247	18	6.1	64	37.4	54.1	1913	156
209756	20-37.696	-101.446	-3-03-	31.15	827	37.70	246	18	8.0	60	34.3	41.1	2034	173
209757	20-37.682	-101.409	-3-03-	29.01	775	37.42	248	15	5.4	61	33.5	41.6	2186	165
209758	20-37.652	-101.381	-3-03-	19.78	936	21.12	278	10	5.2	69	39.7	68.6	2763	249
209759	20-37.676	-101.451	-3-03-	16.86	709	23.77	197	12	4.1	50	28.9	45.5	1997	187
209760	20-37.556	-101.471	-3-03-	13.81	658	20.97	157	11	5.1	52	32.9	49.1	2078	181
209761	20-37.622	-101.381	-3-03-	19.11	993	19.24	313	8	5.4	82	38.4	106.1	2548	286
209762	20-37.570	-101.421	-3-03-	12.90	496	25.98	138	10	4.4	40	25.2	34.5	1651	136
209763	20-37.553	-101.498	-3-03-	11.89	465	25.52	129	12	4.0	37	21.2	36.3	1455	115
209764	20-37.489	-101.139	-3-03-	20.15	722	27.89	130	19	5.2	52	32.5	42.9	2405	164
209765	20-37.430	-101.146	-3-03-	15.72	620	25.32	215	11	4.7	55	24.5	58.6	1628	153
209766	20-37.425	-101.196	-3-03-	21.15	858	24.63	219	12	6.3	67	37.4	82.4	2384	212
209767	20-37.393	-101.212	-3-03-	13.25	510	25.95	169	15	4.6	49	24.0	41.9	1283	97
209768	20-37.380	-101.375	-3-03-	16.88	544	31.00	184	14	4.5	56	27.8	47.4	1482	108

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST	SAMPLE LAT	NUMBER LCNG	TY REP	U (PPB)	SP UMHQS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209769	20-37.440	-101.397	-3-03-		13.71	507	27.04	140	14	4.2	42	20.9	40.6	1221	97
209770	20-37.409	-101.435	-3-03-		10.87	452	24.03	150	16	3.9	40	20.4	38.8	1139	88
209771	20-37.461	-101.452	-3-03-		12.14	495	24.51	135	15	4.0	38	20.2	38.3	1199	93
209772	20-37.456	-101.270	-3-03-		11.11	482	23.03	152	12	4.9	50	27.8	37.9	1791	119
209773	20-37.438	-101.257	-3-03-		17.39	688	25.27	182	13	5.1	55	29.7	47.1	1973	140
209774	20-37.388	-101.283	-3-03-		11.29	530	21.28	169	15	4.3	49	24.8	40.5	1344	91
209775	20-37.324	-101.438	-3-03-		8.28	427	19.37	166	18	3.7	44	19.1	34.1	1081	69
209776	20-37.489	-101.213	-3-03-		12.53	514	24.34	143	11	4.3	39	21.8	42.0	1425	120
209778	20-37.559	-101.267	-3-03-		10.78	699	15.42	269	11	4.8	75	26.3	92.4	1904	189
209779	20-37.631	-101.266	-3-03-		17.54	677	25.90	216	8	4.8	63	33.5	53.4	2152	182
209780	20-37.613	-101.335	-3-03-		16.50	646	25.52	216	8	5.0	66	34.1	60.7	2185	193
209781	20-37.507	-101.338	-3-03-		10.40	449	23.12	136	13	4.0	38	19.8	38.5	1290	116
209782	20-37.510	-101.282	-3-03-		10.95	465	23.50	132	12	4.4	39	21.8	35.6	1469	118
209783	20-37.620	-101.495	-3-03-		17.57	1067	16.46	237	13	6.0	77	51.9	73.6	3247	307
209784	20-37.511	-101.471	-3-03-		7.68	440	17.45	135	19	4.4	26	18.7	35.4	1101	97
209785	20-37.522	-101.421	-3-03-		14.22	741	19.19	162	16	6.0	36	34.8	60.6	2296	277
209786	20-37.398	-101.069	-3-03-		9.91	639	15.50	131	38	8.1	30	24.9	58.9	1066	132
209787	20-37.748	-100.976	-3-03-		2.52	222	11.32	21	139	2.7	6	5.9	9.8	381	22
209788	20-37.733	-101.012	-3-03-		2.49	220	11.27	22	248	2.5	7	5.9	10.3	378	17
209789	20-37.750	-101.438	-3-03-		22.25	563	39.48	362	29	7.1	49	30.5	70.8	1422	71
209790	20-37.549	-101.355	-3-03-		14.08	606	23.23	161	22	4.6	45	26.4	41.5	1905	168
209791	20-37.541	-101.391	-3-03-		13.68	552	24.74	157	19	4.3	46	28.0	36.1	1897	149
209792	20-37.514	-101.379	-3-03-		11.85	549	21.58	155	23	4.3	43	27.9	36.6	1935	139
209793	20-37.468	-101.412	-3-03-		12.38	502	24.64	155	22	4.1	42	22.2	40.1	1456	126
209794	20-37.982	-100.901	-3-03-		57.25	4322	13.25	314	14	8.1	69	118.2	279.7	4802	1606
209795	20-37.991	-100.984	-3-03-		16.94	1273	13.30	156	13	4.5	37	34.2	83.1	1664	334
209796	20-37.571	-101.025	-3-03-		11.63	715	16.24	99	42	3.5	26	17.6	29.4	907	83
209797	20-38.000	-101.070	-3-03-		45.60	3842	11.87	311	17	9.3	87	134.9	190.7	8764	1557
209798	20-37.995	-101.153	-3-03-		40.63	2102	19.33	238	16	6.8	63	64.6	93.5	4336	635
209799	20-37.925	-101.189	-3-03-		47.22	2968	15.91	285	13	7.5	82	103.6	130.5	7019	1109
209800	20-37.950	-101.248	-3-03-		44.55	2995	14.89	317	17	7.4	78	97.1	145.9	5771	1094
209801	20-37.937	-101.195	-3-03-		33.08	4245	7.79	381	13	6.8	60	104.6	223.4	3911	1125
209802	20-37.943	-101.167	-3-03-		11.50	1018	11.30	95	66	3.5	28	29.3	33.9	1855	225
209803	20-37.905	-101.154	-3-03-		5.78	995	5.81	39	26	2.6	11	15.7	28.8	967	248
209804	20-37.822	-101.210	-3-03-		8.81	1609	5.47	46	29	3.3	15	26.7	48.6	1589	527
209805	20-37.893	-101.290	-3-03-		28.47	3799	7.49	440	13	6.2	61	101.2	276.4	3910	1920
209806	20-37.873	-101.317	-3-03-		19.83	4555	4.35	317	12	4.6	29	76.5	230.5	2236	587
209807	20-37.942	-101.339	-3-03-		7.58	582	13.01	83	50	1.6	13	11.2	11.2	798	35
209808	20-37.995	-101.322	-3-03-		10.73	599	17.88	80	51	4.6	35	19.3	16.9	1076	36
209809	20-37.963	-101.276	-3-03-		16.80	699	24.00	139	54	4.8	45	22.9	29.6	1163	48
209810	20-37.864	-100.925	-3-03-		4.65	686	6.77	37	60	2.6	12	8.3	20.7	531	27
209811	20-37.833	-100.915	-3-03-		3.39	672	5.04	31	102	2.7	9	7.3	13.0	432	14
209812	20-37.840	-100.979	-3-03-		3.97	245	16.19	26	117	2.5	9	7.2	11.6	422	12
209813	20-37.798	-100.975	-3-03-		2.28	226	10.06	25	181	2.4	8	6.0	8.0	341	7
209814	20-37.790	-101.049	-3-03-		1.70	182	9.30	30	115	2.6	7	6.7	10.7	375	22
209815	20-37.791	-101.093	-3-03-		1.19	187	6.35	17	489	2.6	5	4.3	9.1	247	10
209816	20-37.833	-101.035	-3-03-		2.40	236	10.13	30	109	3.1	8	8.7	16.2	481	20
209817	20-37.996	-101.395	-3-03-		8.51	263	32.30	71	52	4.4	22	18.5	17.9	947	35
209818	20-37.960	-101.450	-3-03-		7.83	365	21.42	125	30	4.5	27	19.7	31.6	1047	77
209819	20-37.929	-101.442	-3-03-		7.59	267	28.40	79	102	3.5	19	16.3	18.3	534	43
209820	20-37.924	-101.378	-3-03-		6.51	269	24.19	110	46	3.5	23	13.8	29.4	750	46
209821	20-37.882	-101.399	-3-03-		46.87	5116	9.16	583	14	9.7	121	148.2	551.7	4930	2248
209822	20-37.800	-101.403	-3-03-		3.05	197	15.45	32	292	2.5	11	8.0	11.4	399	43
209823	20-37.803	-101.337	-3-03-		1.28	222	5.76	21	253	1.8	5	5.5	7.0	340	937
209824	20-37.832	-101.210	-3-03-		2.60	182	14.22	24	135	3.0	8	8.2	10.8	446	32

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE CNG	NUMBER L TY REP	U (PPB)	SP UMHOS/C4	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209825	20-37.839	-101.165	-3-03-	4.21	186	22.63	27	92	3.1	8	9.1	14.6	499	40
209826	20-37.833	-101.108	-3-03-	3.10	184	18.38	26	121	2.9	8	8.0	12.1	436	28
209827	20-37.755	-100.912	-3-03-	3.75	220	16.95	34	111	3.3	8	7.8	15.7	459	27
209828	20-37.892	-101.467	-3-03-	1.34	386	3.47	61	27	3.5	19	15.7	24.5	647	72
209829	20-37.851	-101.459	-3-03-	2.24	282	10.41	23	169	1.9	11	7.0	12.3	343	10
209830	20-37.807	-101.472	-3-03-	5.24	488	10.73	238	15	4.7	56	22.5	50.7	937	72
209831	20-37.838	-101.312	-3-03-	3.16	242	14.29	18	218	1.9	9	5.8	5.4	289	10
209833	20-37.831	-101.254	-3-03-	5.24	225	23.22	20	133	2.0	9	6.0	7.1	317	19
209834	20-37.790	-101.268	-3-03-	3.15	227	13.83	18	105	2.1	8	6.2	6.3	247	11
209835	20-37.857	-101.379	-3-03-	2.74	234	15.92	29	25	2.6	14	8.7	19.7	367	42
209836	20-37.927	-100.807	-3-03-	2.41	200	12.01	16	71	2.5	8	5.5	9.6	249	11
209837	20-37.898	-100.806	-3-03-	2.91	171	16.98	23	161	2.4	10	7.2	10.8	372	17
209838	20-37.891	-100.743	-3-03-	4.58	318	15.63	24	120	3.0	14	9.6	18.4	476	24
209839	20-37.702	-101.788	-3-03-	7.35	439	16.04	94	8	4.1	36	16.4	32.8	902	107
209840	20-37.450	-101.776	-3-03-	11.59	402	29.02	134	10	3.4	46	19.2	28.2	768	73
209841	20-37.451	-101.805	-3-03-	10.33	349	29.57	91	24	3.5	34	14.1	17.1	639	47
209842	20-37.418	-101.882	-3-03-	1.31	657	1.95	226	6	5.6	78	26.5	91.4	903	137
209843	20-37.368	-101.864	-3-03-	0.54	632	0.85	295	3	5.6	72	20.3	127.9	700	140
209844	20-37.326	-101.775	-3-03-	24.17	1142	21.15	327	3	6.8	00	52.1	111.9	2430	405
209845	20-37.266	-101.783	-3-03-	17.63	680	25.90	333	9	4.4	83	48.9	51.2	2789	258
209846	20-37.284	-101.842	-3-03-	17.41	1235	14.10	291	15	4.6	77	65.0	73.4	3927	388
209847	20-37.310	-101.858	-3-03-	14.06	902	15.58	191	24	4.3	77	54.7	46.2	2771	225
209848	20-37.242	-101.861	-3-03-	22.29	590	37.74	281	14	5.1	85	45.5	57.0	2180	191
209849	20-37.214	-101.854	-3-03-	20.99	702	29.86	238	6	5.3	85	42.2	62.8	1893	232
209850	20-37.218	-101.799	-3-03-	23.54	598	39.34	259	6	4.7	80	39.4	58.4	1807	200
209851	20-37.200	-101.791	-3-03-	23.23	815	28.48	311	6	5.8	90	54.3	67.1	2808	292
209852	20-37.355	-101.691	-3-03-	12.11	233	51.82	134	6	4.0	60	21.8	35.9	880	70
209853	20-37.369	-101.772	-3-03-	2.82	776	3.63	345	7	6.2	71	28.5	135.6	1459	229
209854	20-37.280	-101.900	-3-03-	14.57	551	26.42	234	7	4.3	167	36.8	64.4	1383	162
209855	20-37.330	-101.902	-3-03-	21.49	2658	8.08	359	7	7.0	91	71.2	134.2	12182	1445
209856	20-37.340	-101.989	-3-03-	12.09	622	19.44	183	18	4.0	70	35.0	52.3	1854	175
209857	20-37.295	-101.991	-3-03-	14.83	710	20.87	292	21	3.5	208	60.3	63.1	2384	213
209858	20-37.258	-101.942	-3-03-	16.02	307	52.14	236	16	3.2	113	34.9	43.9	1734	98
209859	20-37.236	-101.910	-3-03-	17.98	614	29.26	272	26	4.8	95	43.5	59.6	2283	118
209860	20-37.207	-101.971	-3-03-	14.23	395	36.02	230	12	5.6	84	30.6	47.9	1553	105
209861	20-37.200	-101.908	-3-03-	17.33	566	30.60	300	12	5.8	93	40.1	61.3	2184	160
209862	20-37.170	-101.906	-3-03-	19.35	1180	16.40	275	12	5.5	83	46.7	57.5	3064	297
209863	20-37.160	-101.957	-3-03-	18.64	2168	8.60	325	7	4.1	96	63.1	89.2	6853	943
209864	20-37.079	-101.995	-3-03-	20.93	2832	7.39	387	4	6.0	144	104.8	184.1	7720	1366
209865	20-37.115	-101.882	-3-03-	24.44	3061	7.98	338	6	5.7	127	113.3	86.3	10661	1427
209866	20-37.043	-101.883	-3-03-	4.51	2570	1.75	77	110	3.9	48	24.9	277.7	1336	43
209867	20-37.008	-101.843	-3-03-	8.40	723	11.61	134	11	3.9	34	21.7	41.6	849	82
209868	20-37.016	-101.777	-3-03-	5.85	922	10.68	159	15	3.4	40	27.6	40.2	1535	149
209870	20-37.061	-101.830	-3-03-	6.08	797	7.62	119	15	2.7	27	18.3	35.5	856	101
209871	20-37.095	-101.808	-3-03-	5.46	979	5.57	100	13	2.7	30	24.6	34.2	1552	150
209872	20-37.105	-101.827	-3-03-	5.70	760	7.49	76	71	2.4	24	17.4	23.8	930	44
209873	20-37.065	-100.860	-3-03-	4.75	457	10.38	67	37	3.3	32	17.6	20.8	1012	25
209874	20-37.008	-100.879	-3-03-	5.68	614	9.56	71	38	3.6	126	29.7	23.1	1344	59
209875	20-37.025	-100.815	-3-03-	4.07	494	8.24	58	71	4.9	53	20.1	21.2	945	24
209876	20-37.017	-100.759	-3-03-	3.88	714	5.43	73	33	4.4	61	19.4	79.5	1291	42
209877	20-37.116	-100.818	-3-03-	5.17	411	12.56	75	24	3.6	27	17.3	24.9	1075	51
209878	20-37.064	-100.762	-3-03-	4.84	459	10.54	74	24	3.4	34	16.5	26.9	1005	54
209879	20-37.195	-100.670	-3-03-	8.98	483	18.57	127	16	4.8	38	20.2	39.2	1301	97
209880	20-37.134	-100.524	-3-03-	6.29	402	15.61	101	34	4.1	31	15.4	30.8	960	68
209881	20-37.111	-100.524	-3-03-	5.01	365	13.70	83	21	4.1	26	14.2	24.7	899	51

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST	SAMPLE LAT	NUMBER LCNG	L TY REP	U (PPB)	SP UMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209882	20-37.182	-100.452	-3-03-		5.62	347	16.16	56	41	2.9	19	12.1	16.0	756	47
209883	20-37.244	-100.915	-3-03-		15.14	582	25.97	174	17	4.9	54	30.6	44.2	1599	135
209884	20-37.322	-100.932	-3-03-		10.02	502	19.95	144	16	4.9	37	21.3	49.1	1189	107
209885	20-37.331	-100.577	-3-03-		14.75	532	27.68	146	15	4.8	42	24.3	48.3	1326	116
209886	20-37.344	-100.425	-3-03-		4.07	487	8.34	57	54	3.1	16	10.2	16.9	852	24
209887	20-37.298	-100.398	-3-03-		4.87	491	9.91	55	45	3.1	17	9.8	15.5	824	7
209888	20-37.337	-100.285	-3-03-		6.96	508	13.69	88	30	3.3	22	11.2	18.4	1155	23
209889	20-37.490	-100.132	-3-03-		5.87	542	10.81	103	84	3.7	29	14.7	26.6	1112	12
209890	20-37.747	-100.119	-3-03-		6.98	471	14.80	113	76	4.0	16	11.1	32.2	706	59
209891	20-37.699	-100.088	-3-03-		3.08	317	9.69	58	55	3.3	14	9.0	16.3	643	13
209892	20-37.649	-100.096	-3-03-		3.66	408	8.96	56	42	3.5	15	10.8	21.4	829	30
209893	20-37.667	-100.038	-3-03-		3.48	384	9.05	56	40	3.3	16	10.8	18.1	786	19
209894	20-37.696	-100.056	-3-03-		3.36	311	10.78	65	62	3.2	14	9.3	15.5	697	12
209895	20-37.820	-100.055	-3-03-		7.48	347	21.53	93	67	4.0	62	22.8	11.3	1318	11
209896	20-37.827	-100.125	-3-03-		8.11	377	21.50	116	44	4.1	71	24.8	13.6	1499	18
209897	20-37.781	-100.175	-3-03-		10.42	574	18.12	111	15	3.9	26	18.3	45.8	1255	130
209898	20-37.777	-100.219	-3-03-		3.87	279	13.86	53	29	2.8	14	9.2	17.8	738	34
209899	20-37.272	-100.200	-3-03-		12.26	682	18.00	82	22	7.0	40	17.3	22.1	1085	54
209900	20-37.287	-100.180	-3-03-		10.91	601	18.12	69	50	5.2	36	15.8	19.1	1093	21
209901	20-37.354	-100.163	-3-03-		4.04	632	6.39	58	34	2.6	25	10.2	21.1	544	19
209902	20-37.357	-100.108	-3-03-		6.49	612	10.59	54	53	3.3	25	10.5	14.5	542	13
209903	20-37.353	-100.075	-3-03-		7.53	570	13.20	36	249	3.9	29	13.0	5.7	649	<5
209904	20-37.327	-100.013	-3-03-		3.72	586	6.34	41	195	3.2	20	6.1	14.7	385	<5
209905	20-37.275	-100.011	-3-03-		3.68	593	6.20	36	173	2.5	22	10.0	11.5	474	5
209906	20-37.278	-100.055	-3-03-		4.55	567	8.09	57	93	3.5	39	14.1	15.8	652	10
209907	20-37.291	-100.104	-3-03-		6.39	643	9.93	76	90	4.2	29	13.4	19.0	650	13
209908	20-37.243	-100.190	-3-03-		15.23	1280	11.85	86	17	6.4	53	29.1	80.5	2142	75
209909	20-37.242	-100.249	-3-03-		15.43	1267	12.17	79	17	6.4	54	29.5	86.1	2141	83
209910	20-37.233	-100.141	-3-03-		14.06	947	14.84	71	31	4.9	51	25.1	53.2	1603	53
209911	20-37.229	-100.001	-3-03-		7.02	682	10.25	85	79	3.2	43	17.8	50.5	695	14
209912	20-37.193	-100.001	-3-03-		13.67	839	16.25	159	52	3.5	59	27.3	59.7	1574	33
209913	20-37.151	-100.007	-3-03-		5.31	485	10.93	99	100	2.3	28	10.6	58.4	290	13
209914	20-37.095	-100.010	-3-03-		6.09	1040	5.85	202	31	3.1	51	25.8	61.6	1191	77
209915	20-37.145	-100.083	-3-03-		24.68	1346	18.33	432	6	4.5	93	37.3	103.7	3408	375
209916	20-37.084	-100.067	-3-03-		5.20	914	5.69	128	55	2.5	45	36.3	22.1	924	66
209917	20-37.062	-100.071	-3-03-		8.51	711	11.95	92	62	2.5	40	16.9	12.4	1820	31
209918	20-37.049	-100.009	-3-03-		9.65	1332	7.24	82	138	2.3	41	33.5	43.5	890	77
209919	20-37.008	-100.033	-3-03-		18.44	2333	7.90	308	10	4.1	84	63.2	122.6	2526	532
209920	20-37.003	-100.087	-3-03-		8.78	636	13.75	106	95	3.8	56	18.9	21.4	1456	25
209921	20-37.038	-100.178	-3-03-		0.50	2575	0.19	124	129	4.4	65	31.5	271.3	1426	56
209922	20-37.023	-100.110	-3-03-		22.33	914	24.41	108	83	8.9	48	14.9	48.1	1225	46
209923	20-37.037	-100.710	-3-03-		6.18	1440	4.29	92	30	5.0	63	25.2	118.7	1685	55
209924	20-37.040	-100.666	-3-03-		4.32	775	5.57	66	67	3.6	36	14.4	38.0	726	24
209925	20-37.025	-100.674	-3-03-		5.47	921	5.94	77	40	3.8	51	18.1	62.8	1235	38
209926	20-37.008	-100.642	-3-03-		5.55	821	6.75	76	28	3.9	56	15.2	50.3	1316	44
209927	20-37.086	-100.583	-3-03-		8.73	619	14.10	117	15	4.1	32	17.8	29.6	1188	68
209928	20-37.069	-100.601	-3-03-		5.97	602	9.90	90	17	4.0	32	13.9	27.5	720	55
209929	20-37.019	-100.587	-3-03-		6.34	1197	5.30	111	18	4.9	39	17.6	114.1	1204	86
209930	20-37.067	-100.544	-3-03-		8.22	629	13.06	112	10	4.6	35	17.5	29.5	1216	92
209931	20-37.281	-100.672	-3-03-		0.66	607	1.09	108	16	4.4	32	15.8	30.8	1030	67
209932	20-37.339	-100.688	-3-03-		7.51	575	13.06	104	17	4.0	28	13.9	28.8	902	62
209933	20-37.322	-100.816	-3-03-		12.25	860	14.24	169	7	4.8	43	23.9	42.7	1531	152
209934	20-37.345	-100.886	-3-03-		11.44	901	12.65	170	12	5.1	47	26.4	37.9	1666	133
209935	20-37.301	-100.814	-3-03-		9.75	902	10.80	167	9	4.4	41	25.8	43.2	1623	138
209936	20-37.300	-100.914	-3-03-		8.36	821	10.17	127	14	5.5	37	25.5	42.5	1374	107

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	C. O. E. ST	SAMPLE LAT	NUMBER LCNG	NUMBER L TY REP	U (PPB)	SP UNHQS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209937	20-37.231	-100.870	-3-03-		11.24	704	15.96	131	17	4.4	37	22.9	36.9	1171	88
209938	20-37.256	-100.718	-3-03-		9.46	682	13.85	141	13	4.0	32	19.0	40.2	1195	102
209939	20-37.358	-100.211	-3-03-		5.06	564	8.97	53	36	3.3	20	11.5	15.5	813	46
209940	20-37.435	-100.234	-3-03-		5.27	550	9.58	41	31	3.2	18	12.0	16.2	702	39
209941	20-37.460	-100.213	-3-03-		6.20	817	7.59	60	43	4.0	23	19.8	20.7	1189	67
209942	20-37.467	-100.179	-3-03-		4.02	554	7.25	63	55	3.4	23	12.8	15.0	746	23
209943	20-37.548	-100.233	-3-03-		5.78	560	10.30	43	203	3.0	23	15.6	6.4	508	6
209944	20-37.517	-100.241	-3-03-		1.88	656	2.86	33	328	2.1	12	4.3	8.9	306	9
209946	20-37.606	-100.227	-3-03-		<0.20	843	0.12	739	3	3.9	26	3.0	129.1	130	92
209947	20-37.649	-100.214	-3-03-		3.57	552	6.46	39	38	3.5	15	9.8	15.5	535	39
209948	20-37.643	-100.157	-3-03-		4.49	646	6.94	43	60	3.7	16	12.7	15.1	695	45
209949	20-37.622	-100.160	-3-03-		4.04	485	8.32	44	57	4.1	19	12.8	12.5	731	18
209950	20-37.561	-100.176	-3-03-		5.53	695	8.02	41	214	3.2	22	17.4	6.9	1127	11
209951	20-37.524	-100.153	-3-03-		5.35	554	9.66	44	124	3.0	18	14.1	8.6	955	7
209952	20-37.576	-100.019	-3-03-		7.03	531	3.32	64	64	3.8	24	15.3	10.2	1035	8
209953	20-37.602	-100.011	-3-03-		3.23	577	5.68	33	131	3.2	14	9.1	6.8	599	10
209954	20-37.600	-100.061	-3-03-		4.27	545	7.83	36	73	3.7	16	13.0	8.8	884	10
209955	20-37.573	-100.051	-3-03-		7.00	584	11.96	53	82	3.8	25	18.5	9.5	1260	7
209956	20-37.625	-100.125	-3-03-		3.62	544	6.64	40	58	3.6	15	11.2	10.2	736	11
209957	20-37.415	-100.179	-3-03-		2.29	548	4.18	25	508	2.6	10	6.0	9.5	336	<5
209959	20-37.038	-101.095	-3-03-		7.50	681	11.00	81	22	3.7	55	25.6	18.5	1447	66
209960	20-37.119	-101.179	-3-03-		5.17	639	8.09	82	22	2.9	20	16.1	19.2	1200	66
209961	20-37.102	-101.216	-3-03-		4.75	679	7.05	81	15	3.1	20	16.5	20.4	1057	90
209962	20-37.008	-101.212	-3-03-		5.10	716	7.12	80	12	3.6	24	22.8	22.0	1443	111
209963	20-37.004	-101.176	-3-03-		5.64	660	8.54	89	14	3.8	27	19.5	24.7	1442	82
209964	20-37.067	-101.066	-3-03-		5.23	606	8.79	70	35	3.1	23	18.8	16.9	1264	65
209965	20-37.118	-101.022	-3-03-		5.95	773	7.65	120	17	3.5	27	21.0	28.8	1465	113
209966	20-37.137	-101.045	-3-03-		6.39	866	9.69	174	11	4.0	37	26.6	40.3	1853	149
209967	20-37.207	-101.058	-3-03-		11.74	794	14.78	143	11	4.4	39	27.9	38.4	1620	107
209968	20-37.228	-101.049	-3-03-		13.31	778	17.09	153	13	4.4	39	27.0	39.1	1551	102
209969	20-37.186	-101.084	-3-03-		14.14	820	17.24	189	11	4.5	47	29.8	49.0	1813	131
209970	20-37.174	-101.098	-3-03-		10.26	702	14.60	119	21	3.9	32	23.6	31.3	1432	83
209971	20-37.300	-101.108	-3-03-		11.45	758	15.10	135	11	4.9	35	25.2	27.3	1761	110
209972	20-37.322	-101.103	-3-03-		11.87	949	12.51	173	14	5.3	49	32.0	49.0	1902	97
209973	20-37.292	-101.216	-3-03-		12.01	799	15.03	197	11	4.3	47	27.0	44.7	1627	121
209974	20-37.267	-101.059	-3-03-		10.83	759	14.00	154	13	4.3	35	28.0	30.0	1779	109
209975	20-37.170	-101.374	-3-03-		6.34	797	7.95	117	13	3.0	22	18.3	35.9	1048	107
209976	20-37.181	-101.463	-3-03-		12.7	1033	11.77	134	10	4.2	31	27.6	48.0	1543	147
209977	20-37.159	-101.466	-3-03-		5.85	647	8.72	73	15	3.0	20	16.8	25.1	973	93
209978	20-37.268	-101.425	-3-03-		10.17	684	14.85	80	20	3.4	26	22.1	31.9	1325	62
209979	20-37.206	-101.413	-3-03-		8.94	986	9.07	139	14	3.8	31	26.2	47.5	1221	124
209981	20-37.230	-101.401	-3-03-		17.19	966	17.78	206	11	4.8	46	31.3	51.5	1640	169
209982	20-37.353	-101.376	-3-03-		18.96	885	20.39	217	9	5.2	55	31.0	56.7	1760	150
209983	20-37.264	-101.338	-3-03-		8.96	645	12.49	106	16	4.2	35	20.4	31.8	1258	80
209984	20-37.316	-101.342	-3-03-		16.15	1017	15.88	210	8	5.9	54	35.2	63.2	2015	191
209985	20-37.323	-101.293	-3-03-		13.55	695	15.28	187	9	5.5	53	30.9	54.7	1797	156
209986	20-37.290	-101.278	-3-03-		6.38	813	7.96	79	21	3.8	29	22.2	18.2	1415	69
209987	20-37.229	-101.256	-3-03-		4.39	928	5.26	77	23	3.1	32	21.0	28.6	1015	52
209988	20-37.244	-101.371	-3-03-		11.10	928	11.96	183	12	4.9	42	32.8	47.4	1738	134
209989	20-37.185	-101.343	-3-03-		11.36	897	13.22	139	10	5.1	38	35.6	43.8	2019	169
209990	20-37.185	-101.289	-3-03-		9.77	1586	6.16	141	17	5.6	36	49.6	59.8	2398	65
209991	20-37.138	-101.300	-3-03-		6.40	885	7.22	114	10	4.7	30	32.6	36.9	1899	186
209992	20-37.082	-101.325	-3-03-		5.28	825	6.35	119	11	4.0	25	27.6	31.5	1544	178
209993	20-37.066	-101.329	-3-03-		5.39	755	7.13	81	20	3.8	27	23.2	21.4	1269	120
209994	20-37.106	-101.446	-3-03-		6.06	775	7.81	80	14	4.0	25	26.1	22.8	1287	156

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG	NUMBER L TY REP	U (PPB)	SP UMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
209995	20-37.130	-101.225	-3-03-	5.30	762	6.95	121	12	4.0	27	24.7	28.3	1723	147
209996	20-37.156	-101.175	-3-03-	7.31	933	7.83	158	13	4.1	35	28.8	37.5	1763	198
209997	20-37.194	-101.157	-3-03-	14.85	918	16.16	182	16	4.8	46	32.6	43.2	1780	163
209998	20-37.203	-101.207	-3-03-	10.52	909	11.63	137	12	4.0	40	31.9	36.5	1763	144
209999	20-37.354	-101.470	-3-03-	11.03	906	12.17	273	9	4.9	73	36.4	45.7	1898	181
210000	20-37.284	-101.401	-3-03-	5.19	648	8.00	66	30	3.6	31	24.9	17.4	1212	55
210001	20-37.244	-101.443	-3-03-	12.39	763	16.24	151	23	4.3	37	26.3	37.7	1362	79
210002	20-37.151	-101.354	-3-03-	5.97	722	8.26	75	17	3.4	20	19.1	28.4	1023	87
210003	20-37.056	-101.208	-3-03-	7.21	692	10.41	80	17	3.6	24	20.6	21.2	1299	97
210004	20-37.039	-101.176	-3-03-	5.56	689	8.06	73	20	3.6	25	19.3	16.8	1044	70
210005	20-37.122	-101.107	-3-03-	5.88	705	8.34	85	22	3.4	22	18.2	21.4	1002	95
210006	20-37.026	-101.053	-3-03-	7.30	649	11.23	88	17	4.4	69	26.0	23.2	1390	81
210007	20-37.242	-101.100	-3-03-	9.97	792	12.57	132	12	4.1	41	30.2	33.3	1692	123
210008	20-37.260	-101.207	-3-03-	13.64	914	14.92	187	22	4.9	53	25.7	53.3	1645	162
210009	20-37.248	-101.175	-3-03-	8.20	683	12.00	86	22	4.0	38	26.1	24.0	1430	64
210011	20-37.341	-101.159	-3-03-	15.19	805	18.86	179	14	5.2	57	32.5	39.1	1748	127
210012	20-37.323	-101.240	-3-03-	10.59	839	12.62	149	11	4.8	46	33.5	39.6	1747	138
210013	20-37.272	-101.136	-3-03-	12.64	753	16.78	173	13	4.5	46	28.4	38.8	1622	107
210014	20-37.315	-101.049	-3-03-	12.77	806	15.83	209	15	5.1	47	28.5	39.2	1562	84
210015	20-37.293	-100.634	-3-03-	6.06	432	14.01	89	22	3.5	21	13.7	24.3	815	46
210016	20-37.330	-100.644	-3-03-	6.08	453	13.41	82	21	3.7	21	13.4	25.2	763	44
210017	20-37.337	-100.778	-3-03-	5.62	612	15.72	157	11	3.8	32	19.0	44.4	1199	117
210018	20-37.285	-100.760	-3-03-	12.35	610	20.23	175	12	3.9	33	20.6	47.7	1337	125
210019	20-37.279	-100.868	-3-03-	5.11	505	18.01	121	19	4.9	28	15.4	33.1	1140	80
210020	20-37.069	-100.827	-3-03-	5.91	730	13.56	94	23	3.3	45	25.4	55.5	1622	60
210021	20-37.047	-100.761	-3-03-	4.71	906	5.20	88	23	3.3	39	17.4	102.1	1074	49
210022	20-37.100	-100.667	-3-03-	6.57	442	14.83	70	22	2.9	24	17.8	18.6	1107	50
210023	20-37.914	-101.839	-3-03-	0.51	1290	0.40	497	5	10.2	110	15.3	126.3	1582	189
210024	20-37.916	-101.911	-3-03-	0.22	886	0.36	120	11	6.2	59	16.8	50.2	1050	126
210025	20-37.929	-101.676	-3-03-	0.72	2634	0.27	519	6	11.6	287	41.7	280.0	2679	900
210026	20-37.975	-101.958	-3-03-	6.15	805	7.64	83	14	4.7	21	14.5	22.7	773	93
210027	20-37.996	-101.831	-3-03-	30.24	5356	5.65	571	12	8.7	86	122.7	391.0	4391	1208
210028	20-37.965	-101.772	-3-03-	5.83	819	7.11	48	29	3.9	17	12.1	45.6	657	100
210029	20-37.936	-101.757	-3-03-	3.76	763	4.92	36	113	2.6	10	10.5	12.5	703	49
210030	20-37.922	-101.799	-3-03-	0.27	1372	0.20	580	6	10.6	152	16.3	183.3	1486	242
210031	20-37.052	-100.924	-3-03-	9.43	921	10.24	96	30	3.9	30	20.3	30.6	1686	67
210032	20-37.012	-100.637	-3-03-	6.66	566	6.89	82	29	3.3	28	21.8	20.4	1434	63
210033	20-37.064	-100.689	-3-03-	4.94	908	5.44	93	20	2.8	23	18.0	21.0	1136	80
210034	20-37.025	-101.012	-3-03-	6.41	1445	4.43	93	58	3.7	58	35.8	52.9	1657	72
210035	20-37.105	-101.003	-3-03-	6.16	983	6.27	137	24	3.5	31	25.4	32.0	1752	134
210036	20-37.113	-100.907	-3-03-	5.13	880	5.82	94	19	3.1	28	18.2	23.9	1035	9
210037	20-37.163	-100.914	-3-03-	6.21	952	6.52	157	18	3.7	33	19.7	35.6	1099	99
210038	20-37.202	-100.954	-3-03-	11.16	959	11.63	182	15	4.0	43	25.6	40.8	1393	99
210039	20-37.212	-100.978	-3-03-	11.82	943	12.53	161	13	4.2	42	27.7	39.7	1408	95
210040	20-37.472	-101.568	-3-03-	9.68	794	12.19	130	16	3.5	32	15.7	32.5	904	77
210041	20-37.473	-101.508	-3-03-	13.41	893	15.00	137	16	3.6	34	19.7	35.8	1176	97
210042	20-37.432	-101.562	-3-03-	10.61	845	12.55	156	19	3.2	39	20.2	29.2	1192	62
210043	20-37.436	-101.487	-3-03-	9.14	706	12.95	134	14	3.3	32	16.2	32.3	973	78
210044	20-37.390	-101.546	-3-03-	14.79	752	19.64	217	14	3.7	63	26.8	39.3	1404	81
210045	20-37.386	-101.499	-3-03-	11.39	766	14.86	190	17	3.5	53	25.0	37.2	1299	72
210046	20-37.381	-101.630	-3-03-	15.26	778	19.60	205	16	4.1	71	30.2	36.2	1508	94
210047	20-37.422	-101.599	-3-03-	14.06	870	16.15	245	19	4.3	75	37.2	45.5	1822	117
210048	20-37.458	-101.611	-3-03-	12.34	670	18.39	168	18	3.3	41	18.5	40.2	1069	67
210049	20-37.468	-101.670	-3-03-	10.55	613	17.20	142	31	2.9	37	17.6	21.9	1009	34
210050	20-37.439	-101.672	-3-03-	13.52	613	22.04	200	15	3.5	50	24.2	36.9	1304	83

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG	NUMBER L TY REP	U (PPB)	SP UMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
210051	20-37.442	-101.726	-3-03-	11.80	682	17.29	184	14	3.6	54	23.5	34.5	1222	72
210052	20-37.473	-101.732	-3-03-	9.72	583	16.65	105	29	3.8	36	18.8	15.9	1031	36
210053	20-37.901	-101.764	-3-03-	0.48	1154	0.42	502	8	9.3	107	20.2	116.8	1572	170
210054	20-37.864	-101.833	-3-03-	0.45	421	1.07	390	11	9.2	104	19.1	97.0	1357	140
210055	20-37.576	-101.625	-3-03-	12.55	850	14.75	103	14	3.8	28	18.3	24.6	1303	97
210056	20-37.579	-101.688	-3-03-	10.87	845	12.86	90	18	3.7	22	15.8	23.8	971	77
210057	20-37.581	-101.732	-3-03-	5.35	825	11.33	111	21	3.6	23	15.8	25.0	988	86
210058	20-37.618	-101.762	-3-03-	8.62	872	9.88	96	16	4.1	24	17.8	26.2	1148	105
210059	20-37.658	-101.770	-3-03-	10.45	895	11.67	92	12	4.1	28	18.8	26.1	1284	106
210060	20-37.799	-101.898	-3-03-	18.10	566	11.55	192	13	6.7	60	49.2	64.5	3509	441
210061	20-37.796	-101.577	-3-03-	4.93	723	6.81	77	14	4.0	22	14.2	18.1	914	81
210062	20-37.820	-101.975	-3-03-	3.55	691	5.14	93	10	4.1	29	14.9	19.8	950	79
210064	20-37.833	-101.925	-3-03-	1.59	2194	0.72	273	10	11.4	137	96.1	86.9	3735	680
210065	20-37.823	-101.745	-3-03-	2.42	903	2.66	292	18	5.8	67	36.3	36.9	1776	96
210066	20-37.853	-101.701	-3-03-	6.06	970	6.25	396	9	7.7	86	21.6	87.5	1073	128
210067	20-37.845	-101.615	-3-03-	22.58	1073	21.04	231	32	5.0	42	33.9	37.6	1645	97
210069	20-37.822	-101.562	-3-03-	12.87	721	17.85	216	8	4.4	50	24.1	29.4	1233	34
210069	20-37.780	-101.581	-3-03-	0.44	901	0.49	297	7	5.0	66	12.2	93.5	744	171
210070	20-37.673	-101.731	-3-03-	13.32	777	17.15	98	14	4.0	27	18.0	20.5	1342	112
210071	20-37.534	-101.757	-3-03-	6.39	534	11.96	122	24	3.2	26	13.4	18.3	792	49
210072	20-37.482	-101.999	-3-03-	21.83	1715	12.72	347	13	5.1	86	57.5	72.5	2934	293
210073	20-37.520	-101.880	-3-03-	11.32	741	15.27	143	19	4.2	37	18.0	28.2	1067	68
210074	20-37.513	-101.518	-3-03-	4.82	783	6.17	200	4	4.8	58	23.2	33.2	1175	97
210075	20-37.498	-101.961	-3-03-	5.19	1091	4.76	283	15	6.7	77	32.2	58.1	1731	192
210076	20-37.572	-101.562	-3-03-	31.30	947	33.04	114	95	3.5	52	35.1	15.4	2150	25
210077	20-37.632	-101.970	-3-03-	16.12	629	25.61	124	3	1.3	28	14.6	21.6	940	77
210078	20-37.658	-101.960	-3-03-	5.81	565	10.27	99	16	3.2	2	12.0	18.0	679	61
210079	20-37.605	-101.888	-3-03-	6.36	576	11.02	117	18	3.0	24	12.2	18.7	802	62
210080	20-37.623	-101.835	-3-03-	6.65	808	10.70	124	15	4.0	31	18.6	31.3	1214	131
210081	20-37.555	-101.770	-3-03-	7.94	701	11.31	107	15	3.8	34	17.6	23.3	1096	91
210082	20-37.731	-101.770	-3-03-	11.05	1097	10.07	156	8	5.3	53	29.9	37.7	2162	244
210083	20-37.753	-101.834	-3-03-	0.54	1084	0.50	156	7	6.0	62	30.5	30.2	1947	235
210084	20-37.850	-101.808	-3-03-	<0.20	1005	0.10	394	12	7.4	93	20.3	64.6	1614	138
210085	20-37.721	-101.833	-3-03-	11.02	739	14.90	94	13	4.3	32	17.9	22.6	1240	114
210086	20-37.652	-101.843	-3-03-	10.42	704	14.80	89	13	4.1	27	17.1	21.6	1252	113
210087	20-37.658	-101.888	-3-03-	6.64	863	7.69	116	11	4.7	41	23.5	36.8	1431	158
210088	20-37.742	-101.915	-3-03-	8.43	771	10.93	95	12	4.3	28	18.1	22.4	1229	130
210089	20-37.753	-101.570	-3-03-	6.10	694	11.66	87	11	4.0	24	15.0	19.9	1038	106
210090	20-37.721	-101.575	-3-03-	6.68	688	12.60	89	14	3.9	25	15.1	21.0	1099	98
210091	20-37.641	-101.907	-3-03-	6.02	552	10.90	105	17	2.8	19	10.3	18.2	705	57
210092	20-37.648	-101.851	-3-03-	6.36	556	11.43	84	17	3.7	19	12.1	16.6	819	70
210093	20-37.658	-101.761	-3-03-	4.76	675	7.07	65	32	3.5	18	10.4	26.3	678	93
210094	20-37.962	-101.692	-3-03-	44.15	6023	7.33	104	25	3.0	30	14.5	17.6	885	2033
210095	20-37.651	-101.640	-3-03-	60.27	6802	8.86	639	13	11.2	119	160.8	696.4	5225	2506
210096	20-37.572	-101.616	-3-03-	0.64	945	0.68	121	8	5.2	53	13.7	64.5	799	186
210097	20-37.661	-101.560	-3-03-	3.42	655	5.22	72	101	5.3	19	9.7	30.7	587	111
210098	20-37.580	-101.519	-3-03-	8.84	535	16.51	107	25	3.3	32	14.7	17.9	864	28
210099	20-37.924	-101.521	-3-03-	28.49	6058	4.70	445	9	9.4	60	118.0	316.0	2611	2139
210100	20-37.504	-101.501	-3-03-	0.95	695	1.42	100	10	3.7	35	13.9	31.4	614	92
210101	20-37.934	-101.547	-3-03-	1.27	630	2.01	93	11	2.8	22	16.9	23.1	639	101
210102	20-37.885	-101.589	-3-03-	3.14	489	6.42	24	121	7	7	5.7	6.5	378	12
210103	20-37.927	-101.660	-3-03-	28.34	3204	8.84	387	9	6.1	93	75.1	265.1	2909	993
210104	20-37.953	-101.716	-3-03-	5.93	962	6.16	48	53	3.5	22	17.4	27.4	1032	91
210105	20-37.883	-101.749	-3-03-	<0.20	823	0.12	304	9	7.2	79	17.6	79.6	1123	123
210106	20-37.896	-101.686	-3-03-	2.95	1474	2.00	449	11	9.8	104	36.1	109.6	2023	282

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

UR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LONG	NUMBER L TY REP	U (PPB)	SP UMHOS/CN	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
210107	20-37.794	-101.672	-3-03-	20.67	457	45.21	136	47	3.6	58	26.8	15.0	1387	44
210108	20-37.817	-101.763	-3-03-	106.00	1503	70.50	154	20	7.2	75	35.3	43.2	1827	554
210109	20-37.837	-101.525	-3-03-	21.00	662	31.68	103	172	5.4	39	28.8	12.0	1772	34
210110	20-37.795	-101.509	-3-03-	19.30	759	25.42	273	25	6.3	57	33.6	43.4	1347	72
210111	20-37.743	-101.491	-3-03-	15.08	680	22.15	234	33	4.3	53	25.8	30.7	1279	63
210112	20-37.736	-101.562	-3-03-	13.65	560	24.36	121	72	3.2	46	16.9	18.4	938	21
210113	20-37.777	-101.610	-3-03-	5.60	870	6.43	296	4	6.4	79	34.4	48.0	1629	149
210114	20-37.749	-101.599	-3-03-	14.99	689	21.75	164	114	4.9	46	24.1	20.2	1191	37
210115	20-37.703	-101.594	-3-03-	17.06	1099	15.52	218	26	5.9	55	34.9	43.9	2245	207
210116	20-37.657	-101.562	-3-03-	25.97	1125	23.07	210	24	6.2	55	35.1	36.7	2166	184
210117	20-37.641	-101.562	-3-03-	12.09	1111	10.88	187	19	5.7	57	47.0	48.1	2568	300
210118	20-37.652	-101.512	-3-03-	10.45	1097	9.52	180	20	4.8	51	35.8	40.8	2412	282
210119	20-37.686	-101.485	-3-03-	26.66	998	26.65	170	21	6.0	52	30.5	26.4	1855	145
210120	20-37.647	-101.625	-3-03-	11.14	758	14.68	117	20	4.6	37	22.7	27.9	1557	135
210121	20-37.648	-101.680	-3-03-	10.65	660	16.19	95	19	4.7	23	18.4	28.7	1154	99
210122	20-37.651	-101.722	-3-03-	5.92	664	14.92	90	14	4.7	23	15.4	32.3	1212	122
210123	20-37.694	-101.669	-3-03-	14.11	1064	13.25	142	10	4.8	45	30.6	38.4	2068	234
210124	20-37.726	-101.762	-3-03-	10.93	1048	10.42	179	11	6.3	45	34.5	60.1	2182	296
210125	20-37.761	-101.654	-3-03-	9.75	658	14.81	225	17	4.9	48	25.0	46.3	1140	83
210126	20-37.777	-101.817	-3-03-	41.57	2153	19.30	300	17	9.1	78	72.8	131.0	4418	721
210127	20-37.592	-101.779	-3-03-	10.44	567	18.39	131	23	3.8	22	15.1	31.6	880	75
210128	20-37.520	-101.774	-3-03-	12.73	856	14.87	154	21	5.3	39	24.5	46.5	1167	129
210129	20-37.544	-101.937	-3-03-	18.33	938	19.54	223	26	6.0	33	20.2	67.4	939	142
210130	20-37.577	-101.851	-3-03-	6.36	673	9.44	65	53	3.8	19	13.6	10.0	698	49
210131	20-37.600	-101.567	-3-03-	13.86	1026	13.50	125	19	5.2	34	30.4	37.5	1980	173
210132	20-37.614	-101.625	-3-03-	17.02	978	17.39	114	16	5.3	31	27.3	38.1	1852	175
210133	20-37.569	-101.558	-3-03-	14.91	833	17.89	131	14	4.7	28	23.9	35.8	1502	143
210134	20-37.523	-101.571	-3-03-	8.36	788	10.60	114	22	4.4	23	17.4	35.0	993	100
210135	20-37.519	-101.625	-3-03-	7.06	723	9.76	106	26	4.6	23	15.0	21.4	919	79
210136	20-37.516	-101.652	-3-03-	7.59	710	10.68	130	18	3.8	33	15.6	29.7	912	84
210137	20-37.606	-101.686	-3-03-	8.37	795	10.52	90	13	4.3	35	21.7	26.8	1392	118
210138	20-37.355	-101.806	-3-03-	<0.20	1131	0.09	392	9	6.6	79	24.2	131.7	1136	216
210139	20-37.480	-101.843	-3-03-	7.37	704	10.46	101	42	3.7	41	19.0	21.8	863	62
210140	20-37.462	-101.579	-3-03-	2.16	877	2.46	229	6	6.5	80	36.8	58.5	1365	146
210142	20-37.422	-101.583	-3-03-	11.76	927	12.68	122	114	4.1	34	12.7	33.4	916	54
210143	20-37.387	-101.902	-3-03-	15.38	867	17.73	239	19	4.2	76	31.5	45.4	1612	103
210144	20-37.444	-101.917	-3-03-	13.01	789	16.49	163	20	4.0	50	26.6	28.5	1295	77
210145	20-37.477	-101.883	-3-03-	12.38	735	16.82	114	35	3.8	43	18.4	26.4	827	43
210146	20-37.654	-100.436	-3-03-	3.66	784	4.66	56	51	3.5	14	8.7	21.0	483	19
210147	20-37.668	-100.403	-3-03-	4.47	776	5.76	51	71	3.6	14	8.3	15.4	497	15
210148	20-37.704	-100.403	-3-03-	4.42	781	5.65	40	43	3.5	13	7.9	17.3	375	19
210149	20-37.703	-100.437	-3-03-	5.58	845	6.60	33	54	4.1	15	8.7	20.0	435	19
210150	20-37.759	-100.446	-3-03-	3.75	764	4.91	51	68	4.3	14	9.5	18.4	484	20
210151	20-37.733	-100.392	-3-03-	5.02	721	6.96	43	37	3.8	15	8.7	19.0	406	27
210152	20-37.999	-100.864	-3-03-	39.00	3274	11.91	195	26	10.7	89	115.3	180.2	6149	1089
210153	20-37.955	-100.805	-3-03-	22.45	1307	17.17	132	11	7.6	70	44.2	69.3	1807	250
210154	20-37.953	-100.865	-3-03-	11.49	2317	4.96	97	15	7.3	35	34.6	142.4	1480	762
210155	20-37.864	-100.878	-3-03-	3.49	442	7.89	38	96	2.9	12	8.1	16.0	483	30
210156	20-37.841	-100.861	-3-03-	4.04	562	7.18	57	76	3.4	12	8.8	22.2	508	26
210157	20-37.829	-100.825	-3-03-	6.58	943	6.97	86	30	4.4	16	11.0	48.7	505	66
210158	20-37.837	-100.769	-3-03-	3.51	563	6.23	38	70	3.4	11	8.6	18.9	470	20
210159	20-37.787	-100.758	-3-03-	4.07	492	8.26	37	50	2.9	12	9.0	17.5	579	26
210160	20-37.795	-100.805	-3-03-	4.24	488	8.67	39	34	2.8	13	10.6	18.7	711	45
210161	20-37.792	-100.852	-3-03-	7.48	849	8.81	76	86	4.0	15	13.0	26.4	756	57
210162	20-37.814	-100.697	-3-03-	4.06	533	7.61	43	66	3.5	12	8.8	19.0	527	18

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	C. O. E. ST LAT	SAMPLE LCAG	NUMBER L TY REP	U (PPB)	SP UMHOS/CM	J/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
210163	20-37.723	-100.694	-3-03-	3.64	536	7.34	41	51	2.8	11	8.6	18.0	520	21
210164	20-37.741	-100.729	-3-03-	3.77	511	7.37	36	56	2.8	11	7.8	17.3	488	17
210165	20-37.759	-100.613	-3-03-	4.52	508	8.89	43	34	3.0	12	8.9	18.5	566	25
210166	20-37.642	-100.571	-3-03-	4.83	670	7.20	43	71	3.6	14	11.3	18.5	602	46
210167	20-37.355	-100.907	-3-03-	10.67	823	12.95	192	15	4.8	30	24.2	46.1	1445	151
210168	20-37.234	-101.009	-3-03-	6.35	818	10.20	189	19	4.7	43	28.4	40.3	1438	122
210169	20-37.175	-100.567	-3-03-	4.72	637	7.40	117	34	4.3	29	18.0	29.4	859	59
210170	20-37.208	-100.873	-3-03-	7.10	763	9.30	159	30	4.5	39	24.0	31.7	1146	98
210171	20-37.145	-100.818	-3-03-	6.68	952	7.01	171	23	4.9	36	23.4	51.9	1364	118
210172	20-37.166	-100.761	-3-03-	6.72	781	11.16	190	17	5.1	39	20.7	43.6	1260	120
210173	20-37.948	-100.925	-3-03-	6.19	2166	2.86	76	68	6.7	22	34.6	125.8	1414	652
210174	20-37.906	-100.962	-3-03-	4.57	518	8.81	38	41	3.4	14	10.6	20.4	645	48
210175	20-37.943	-100.696	-3-03-	5.02	533	9.43	49	31	3.5	18	11.5	24.7	626	56
210177	20-37.888	-101.009	-3-03-	4.28	482	8.87	36	55	3.0	11	8.5	18.2	537	27
210178	20-37.923	-101.053	-3-03-	3.72	519	7.16	34	37	3.2	12	9.6	20.2	562	36
210179	20-37.512	-101.095	-3-03-	4.75	586	8.10	33	39	3.5	12	11.9	23.5	646	86
210180	20-37.882	-101.118	-3-03-	4.37	467	9.35	31	65	2.9	9	8.3	14.6	473	29
210181	20-37.748	-101.085	-3-03-	2.16	371	5.81	28	234	2.5	8	6.3	9.6	430	8
210182	20-37.766	-101.163	-3-03-	1.48	369	4.00	23	325	2.2	7	5.0	7.6	332	12
210183	20-37.785	-101.231	-3-03-	3.82	390	9.77	33	79	2.8	10	7.3	12.2	432	17
210184	20-37.832	-100.677	-3-03-	3.32	510	6.50	27	41	3.0	11	7.0	17.8	324	26
210185	20-37.831	-100.471	-3-03-	38.44	1483	25.92	100	32	5.7	35	33.8	86.9	1347	349
210186	20-37.791	-100.419	-3-03-	4.48	554	8.08	41	65	3.3	12	8.2	17.3	468	25
210187	20-37.800	-100.446	-3-03-	4.76	538	8.84	41	68	3.3	12	8.3	17.7	481	24
210188	20-37.712	-100.547	-3-03-	5.54	574	9.64	62	34	3.3	14	9.9	20.1	679	32
210189	20-37.741	-100.574	-3-03-	4.13	556	7.43	42	36	3.0	12	8.9	17.4	588	34
210190	20-37.696	-100.524	-3-03-	6.93	615	11.25	44	58	3.8	14	9.2	18.9	550	21
210191	20-37.650	-100.506	-3-03-	4.73	679	6.96	45	84	3.6	14	10.6	15.4	567	22
210192	20-37.328	-101.691	-3-03-	10.32	753	13.65	180	16	3.5	53	27.7	30.5	1543	85
210193	20-37.276	-101.659	-3-03-	25.32	1235	20.49	328	7	5.4	81	47.9	57.4	2844	200
210194	20-37.285	-101.719	-3-03-	19.45	1140	17.05	295	5	5.9	99	49.0	53.2	2530	306
210195	20-37.228	-101.724	-3-03-	24.73	1478	16.73	369	6	6.5	86	58.3	63.7	3592	483
210196	20-37.244	-101.679	-3-03-	28.25	1609	17.57	409	5	7.7	95	66.3	75.3	4198	554
210197	20-37.143	-101.664	-3-03-	12.77	1410	9.06	162	7	5.6	40	34.4	110.6	1458	350
210198	20-37.147	-101.724	-3-03-	11.23	1135	9.89	200	9	4.9	39	34.7	79.2	1458	295
210199	20-37.246	-100.339	-3-03-	6.28	503	12.47	44	52	3.7	24	11.6	14.8	802	22
210200	20-37.159	-100.343	-3-03-	8.88	3117	2.85	85	18	5.4	50	26.8	366.4	1759	104
210201	20-37.194	-100.383	-3-03-	6.53	525	12.44	65	27	4.1	28	13.6	18.8	922	34
210202	20-37.234	-100.397	-3-03-	5.12	482	10.61	57	32	4.3	25	11.3	19.5	752	32
210203	20-37.142	-100.402	-3-03-	4.56	1105	4.45	79	36	4.9	38	17.6	110.6	1163	58
210204	20-37.156	-100.470	-3-03-	5.32	535	9.93	116	79	5.0	49	16.4	52.9	1367	50
210205	20-37.116	-100.453	-3-03-	5.73	979	5.85	81	27	4.7	30	14.9	23.0	951	29
210206	20-37.055	-100.465	-3-03-	7.10	589	12.04	141	22	4.2	42	18.8	40.6	1171	54
210207	20-37.006	-100.423	-3-03-	6.78	5177	1.31	143	31	6.0	66	41.5	560.9	2117	266
210208	20-37.005	-100.466	-3-03-	3.39	4693	0.72	208	27	11.2	100	63.4	484.9	3692	178
210209	20-37.182	-100.346	-3-03-	9.97	3894	2.56	72	18	5.4	37	20.9	461.6	1510	120
210210	20-37.242	-100.294	-3-03-	11.42	2156	5.30	88	32	7.7	60	41.0	200.4	2827	67
210211	20-37.202	-100.308	-3-03-	9.43	3198	2.95	91	21	6.0	47	30.7	375.7	2125	102
210212	20-37.154	-100.317	-3-03-	8.54	841	10.15	86	61	5.7	49	20.7	73.6	1278	22
210213	20-37.106	-100.344	-3-03-	4.71	739	6.37	96	27	3.9	37	15.5	54.5	1068	60
210214	20-37.053	-100.316	-3-03-	12.27	781	15.69	167	28	3.4	64	25.4	47.4	1372	60
210215	20-37.053	-100.383	-3-03-	8.97	971	9.23	305	17	4.2	63	32.3	42.0	2118	122
210216	20-37.110	-100.424	-3-03-	5.09	712	7.14	85	44	3.5	34	15.2	52.3	1071	53
210217	20-37.079	-100.408	-3-03-	10.95	937	11.68	184	10	4.6	70	29.3	58.6	2562	143
210218	20-37.265	-100.289	-3-03-	15.73	1466	13.45	137	15	7.1	60	53.1	44.5	3371	300

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG	NUMBER L TY REF	U (PPB)	SP UMHOS/CM	U/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
210219	20-37.337	-100.215	-3-03-	6.31	859	9.66	91	26	6.5	41	21.2	41.9	1540	91
210220	20-37.210	-100.174	-3-03-	11.55	707	16.32	60	47	3.9	38	17.8	38.3	1209	26
210222	20-37.176	-100.233	-3-03-	7.10	775	9.16	110	97	5.1	58	21.0	40.0	1390	16
210223	20-37.446	-100.099	-3-03-	2.75	629	4.43	50	218	3.0	15	7.3	15.0	397	10
210224	20-37.533	-100.344	-3-03-	6.27	626	10.17	51	27	3.4	24	17.6	7.5	956	28
210225	20-37.567	-100.360	-3-03-	4.34	618	7.01	55	50	3.5	20	11.2	13.2	741	19
210226	20-37.606	-100.302	-3-03-	7.03	605	11.61	62	98	3.3	26	12.8	8.1	840	9
210227	20-37.569	-100.274	-3-03-	4.22	624	6.75	51	159	4.1	26	14.2	10.6	884	7
210228	20-37.532	-100.273	-3-03-	5.17	674	7.67	134	5	3.5	31	10.1	57.2	651	51
210229	20-37.431	-100.284	-3-03-	4.84	688	7.03	59	31	3.1	23	13.7	21.8	933	40
210230	20-37.402	-100.290	-3-03-	3.67	528	6.95	38	46	2.6	17	8.8	15.1	613	20
210231	20-37.351	-100.452	-3-03-	3.66	578	6.32	47	37	2.5	16	8.6	16.9	612	24
210232	20-37.015	-100.330	-3-03-	41.61	1373	30.29	260	11	10.0	109	36.5	66.1	2853	312
210233	20-37.016	-100.271	-3-03-	5.03	2374	3.80	468	4	4.7	80	24.1	288.1	779	514
210234	20-37.022	-100.194	-3-03-	2.87	740	3.87	211	33	2.9	26	8.2	85.6	240	55
210235	20-37.344	-100.325	-3-03-	2.55	755	3.37	47	42	3.2	22	16.5	14.9	1386	107
210236	20-37.605	-100.362	-3-03-	3.65	390	9.36	49	37	4.0	14	10.4	12.8	601	33
210237	20-37.475	-100.352	-3-03-	3.94	425	9.25	40	43	3.4	15	11.7	14.6	649	26
210238	20-37.482	-100.306	-3-03-	8.73	614	14.20	66	95	3.5	36	27.9	21.0	2076	73
210239	20-37.435	-100.338	-3-03-	4.63	439	10.53	62	49	3.5	19	14.8	18.4	918	47
210240	20-37.401	-100.353	-3-03-	3.48	369	9.43	38	60	3.0	14	10.4	12.9	664	21
210241	20-37.235	-100.767	-3-03-	10.46	651	16.06	207	9	5.2	41	26.4	46.6	1689	149
210242	20-37.246	-100.824	-3-03-	11.21	649	17.26	187	14	5.3	45	25.7	44.9	1581	123
210243	20-37.192	-100.825	-3-03-	5.10	449	20.25	146	18	5.2	34	20.0	35.5	1227	83
210244	20-37.183	-100.752	-3-03-	10.22	931	10.98	194	11	5.2	39	24.4	42.1	1513	144
210245	20-37.142	-100.859	-3-03-	6.81	848	8.02	127	14	4.0	30	19.6	30.5	1069	70
210246	20-37.428	-100.998	-3-03-	12.13	693	17.49	181	17	5.1	45	27.3	44.4	1716	126
210247	20-37.473	-101.307	-3-03-	14.44	615	23.47	178	16	5.1	42	26.9	34.4	1809	133
210248	20-37.407	-101.329	-3-03-	12.13	673	18.01	175	21	5.1	47	28.6	41.3	1593	119
210249	20-37.398	-101.325	-3-03-	10.21	545	18.73	176	20	4.4	41	21.7	35.0	1256	87
210251	20-37.193	-101.718	-3-03-	12.66	957	13.22	303	9	5.7	90	36.3	63.7	1487	169
210252	20-37.200	-101.693	-3-03-	18.02	969	18.59	370	35	4.9	78	36.9	61.0	1586	68
210253	20-37.266	-101.609	-3-03-	16.77	1235	13.57	263	7	6.1	84	42.9	66.7	2098	291
210254	20-37.280	-101.555	-3-03-	19.46	1176	16.54	247	11	5.7	72	39.6	77.4	2089	225
210255	20-37.323	-101.578	-3-03-	16.30	1197	13.61	304	8	6.1	85	46.6	64.1	2358	287
210256	20-37.315	-101.627	-3-03-	13.81	856	16.12	215	10	5.0	71	30.1	46.6	1372	155
210257	20-37.312	-101.732	-3-03-	20.39	1636	12.46	183	59	6.6	101	48.0	72.2	2599	232
210258	20-37.341	-101.492	-3-03-	14.28	1013	14.08	262	11	6.0	85	42.4	56.9	2219	243
210259	20-37.297	-101.528	-3-03-	18.05	1241	14.54	255	8	6.1	80	40.7	76.2	1872	282
210260	20-37.178	-101.582	-3-03-	11.28	865	13.03	116	13	4.2	35	25.3	49.9	1048	139
210261	20-37.156	-101.502	-3-03-	3.95	366	10.78	38	66	2.3	18	13.2	14.9	545	30
210262	20-37.141	-101.576	-3-03-	3.44	485	7.05	50	14	2.5	21	14.4	28.2	545	124
210263	20-37.157	-101.624	-3-03-	8.41	509	16.52	101	13	4.1	31	26.2	35.7	1088	80
210264	20-37.186	-101.619	-3-03-	7.60	523	14.52	104	15	3.8	30	14.8	71.2	489	290
210265	20-37.243	-101.628	-3-03-	18.63	824	22.61	324	8	6.2	82	48.0	63.2	2756	120
210266	20-37.235	-101.564	-3-03-	11.13	585	19.00	95	13	4.5	42	27.5	50.4	1037	126
210267	20-37.192	-101.528	-3-03-	11.40	538	21.15	105	10	4.4	39	26.9	47.5	1110	115
210268	20-37.248	-101.522	-3-03-	7.97	586	13.59	124	24	6.8	42	27.2	67.9	890	54
210269	20-37.087	-101.631	-3-03-	4.18	320	13.04	74	17	2.2	19	12.3	29.6	544	151
210270	20-37.080	-101.569	-3-03-	6.08	430	14.14	78	9	3.0	25	21.1	35.7	886	125
210271	20-37.153	-101.833	-3-03-	14.14	825	17.13	243	10	5.9	94	35.5	47.5	1378	170
210272	20-37.165	-101.760	-3-03-	19.24	969	19.84	275	9	5.8	79	38.3	55.8	1701	96
210273	20-37.104	-101.735	-3-03-	5.74	864	6.64	56	24	2.7	25	20.7	28.1	777	52
210274	20-37.092	-101.689	-3-03-	4.52	644	7.02	71	29	2.2	19	13.9	30.3	614	268
210275	20-37.041	-101.683	-3-03-	4.14	1113	3.72	149	11	3.1	26	22.4	52.9	942	214

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG	NUMBER L TY REP	U (PPB)	SP UMHJS/CN	J/SP	B (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
210275	20-37.000	-101.681	-3-03-	8.95	354	9.38	151	11	4.4	37	27.8	41.6	1162	45
210277	20-37.023	-101.709	-3-03-	5.33	511	8.71	126	20	2.7	25	13.5	28.0	506	88
210278	20-37.017	-101.383	-3-03-	3.39	651	5.21	68	17	3.1	20	15.5	17.0	766	104
210279	20-37.029	-101.442	-3-03-	4.41	712	6.19	44	10	3.0	23	16.3	20.7	600	146
210280	20-37.046	-101.464	-3-03-	4.86	833	5.83	65	14	3.2	25	20.1	25.1	810	112
210281	20-37.062	-101.419	-3-03-	4.60	721	6.37	75	50	3.1	21	16.7	18.2	816	111
210282	20-37.105	-101.358	-3-03-	3.96	723	5.47	81	17	3.3	22	18.3	22.8	880	142
210283	20-37.090	-101.286	-3-03-	5.65	651	8.67	102	18	3.7	27	23.3	27.4	1378	86
210284	20-37.047	-101.292	-3-03-	4.88	549	8.88	80	23	3.3	24	19.2	19.4	1039	24
210285	20-37.020	-101.256	-3-03-	4.84	604	8.01	167	19	3.4	24	22.1	21.0	1169	89
210286	20-37.003	-101.356	-3-03-	3.96	579	6.84	70	17	3.2	21	16.4	16.9	811	104
210287	20-37.041	-101.502	-3-03-	3.57	558	6.40	61	26	2.7	18	12.9	16.0	569	50
210289	20-37.011	-101.600	-3-03-	2.75	599	4.58	112	19	2.2	18	12.7	23.8	561	77
210290	20-37.055	-101.740	-3-03-	6.27	806	10.26	185	11	2.6	33	25.5	39.1	1785	156
210291	20-37.601	-100.399	-3-03-	3.63	417	8.69	59	39	3.9	19	12.2	15.6	916	31
210292	20-37.642	-100.342	-3-03-	3.17	275	11.49	55	40	3.0	13	7.8	16.8	588	17
210293	20-37.690	-100.337	-3-03-	4.65	327	14.19	65	63	3.7	14	8.2	19.5	552	13
210294	20-37.736	-100.325	-3-03-	5.87	351	16.68	62	38	3.2	15	9.1	17.7	775	23
210295	20-37.748	-100.273	-3-03-	4.50	298	15.06	75	46	4.3	14	8.7	21.8	568	19
210296	20-37.661	-100.269	-3-03-	4.22	245	17.21	55	42	3.0	13	7.7	17.8	594	14
210297	20-37.558	-100.111	-3-03-	10.47	1067	9.80	114	136	6.1	92	33.2	22.7	2117	23
210298	20-37.957	-100.060	-3-03-	7.16	579	12.35	117	65	4.5	91	17.1	15.3	1031	9
210299	20-37.985	-100.043	-3-03-	7.12	617	11.54	120	65	3.4	53	16.0	17.4	895	13
210300	20-37.886	-100.043	-3-03-	14.55	629	23.18	222	6	6.4	51	15.2	63.5	980	30
210301	20-37.893	-100.122	-3-03-	7.35	724	10.21	92	297	3.8	110	19.3	11.8	1163	10
210302	20-37.929	-100.105	-3-03-	7.33	593	12.35	104	69	5.0	120	19.6	14.1	1076	10
210303	20-37.963	-100.159	-3-03-	9.04	604	14.95	126	67	4.4	51	18.1	18.6	1082	15
210304	20-37.928	-100.180	-3-03-	5.66	617	15.69	89	127	3.4	94	27.2	8.6	1596	5
210305	20-37.867	-100.194	-3-03-	5.98	543	18.36	86	76	3.9	50	18.3	9.1	1309	8
210306	20-37.900	-100.245	-3-03-	6.59	550	15.60	62	243	3.5	88	21.2	4.4	1300	<5
210307	20-37.946	-100.205	-3-03-	8.22	521	15.76	79	35	4.0	45	15.0	15.1	789	10
210308	20-37.573	-100.251	-3-03-	11.12	672	16.53	105	13	5.1	68	18.8	21.4	1006	44
210309	20-37.972	-100.298	-3-03-	11.36	648	17.52	121	20	6.0	77	20.9	27.7	939	73
210310	20-37.972	-100.318	-3-03-	5.61	829	11.59	119	28	6.2	75	25.3	26.7	1170	67
210311	20-37.940	-100.338	-3-03-	15.22	663	22.94	104	33	6.0	46	22.7	20.1	1076	43
210312	20-37.921	-100.310	-3-03-	6.65	600	14.47	110	38	5.6	44	20.6	18.9	966	36
210313	20-37.902	-100.295	-3-03-	10.70	593	18.04	96	37	5.3	46	20.2	17.0	904	26
210314	20-37.857	-100.373	-3-03-	13.59	769	17.67	104	19	6.4	55	28.4	19.8	1355	84
210315	20-37.864	-100.410	-3-03-	14.81	855	17.31	102	18	6.3	45	32.0	21.6	1615	120
210316	20-37.924	-100.410	-3-03-	12.82	728	17.60	107	17	6.2	46	26.1	25.5	1238	84
210317	20-37.968	-100.409	-3-03-	9.40	670	14.02	118	25	5.9	45	21.2	24.3	1005	64
210318	20-37.993	-100.434	-3-03-	6.73	668	13.05	79	19	5.7	65	18.3	21.7	745	56
210319	20-37.788	-100.296	-3-03-	2.82	306	9.20	48	42	3.4	14	5.8	20.2	570	28
210320	20-37.788	-100.346	-3-03-	6.14	362	16.95	45	32	3.4	14	9.9	20.9	565	54
210321	20-37.935	-100.381	-3-03-	14.46	528	27.34	89	13	5.4	37	26.2	22.4	1462	122
210322	20-37.838	-100.350	-3-03-	18.32	466	39.30	95	14	5.7	41	27.8	16.1	1497	108
210323	20-37.842	-100.298	-3-03-	16.01	412	38.80	97	16	5.8	45	26.7	16.2	1387	93
210324	20-37.854	-100.218	-3-03-	5.44	357	26.43	108	29	5.3	56	24.1	17.1	1127	43
210325	20-37.856	-100.169	-3-03-	8.64	348	24.80	85	46	4.8	57	21.9	12.4	1003	23
210326	20-37.806	-100.105	-3-03-	10.18	317	32.04	104	44	4.7	70	24.5	12.8	1167	25
210327	20-37.781	-100.066	-3-03-	9.21	390	23.60	92	49	4.2	79	21.6	12.2	576	23
210328	20-37.748	-100.061	-3-03-	15.43	982	15.71	82	10	4.9	3	28.4	67.3	1217	273
210329	20-37.536	-100.022	-3-03-	6.16	330	18.66	69	100	3.5	25	14.5	16.5	795	20
210330	20-37.521	-100.111	-3-03-	7.87	450	17.48	82	114	3.9	30	18.4	21.4	1040	13
210331	20-37.548	-100.119	-3-03-	5.89	360	16.33	46	211	3.7	25	16.7	6.6	983	6

Table A-3, Continued

PARTIAL DATA LISTING FOR GROUNDWATER OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG	NUMBER L TY REP	U (FPB)	SP UMHOS/CM	U/SP	8 (PPB)	BA (PPB)	K (PPM)	LI (PPB)	MG (PPM)	NA (PPM)	SR (PPB)	SO4 (PPM)
210332	20-37.545	-100.061	-3-03-	5.21	348	14.95	54	143	3.5	25	17.7	10.6	1005	7
210333	20-37.708	-100.260	-3-03-	4.22	369	11.43	49	67	3.9	13	9.3	15.5	467	18
210334	20-37.701	-100.214	-3-03-	2.94	288	10.19	48	55	3.5	12	7.7	15.0	404	13
210335	20-37.737	-100.223	-3-03-	3.95	321	12.28	55	66	4.0	13	8.0	19.1	393	19
210336	20-37.746	-100.181	-3-03-	4.46	378	11.80	54	61	4.8	14	10.0	21.1	484	24
210337	20-37.686	-100.156	-3-03-	4.43	475	9.31	49	71	4.3	15	12.3	18.3	643	44
210338	20-37.394	-100.397	-3-03-	3.84	260	14.73	42	70	3.4	17	11.8	15.2	696	24
210339	20-37.394	-100.452	-3-03-	4.46	227	19.62	42	61	3.2	15	9.9	15.9	610	16
210340	20-37.431	-100.565	-3-03-	5.05	241	20.94	51	40	3.2	16	9.9	18.2	610	24
210341	20-37.380	-100.597	-3-03-	5.59	290	19.26	74	30	3.4	20	12.7	21.7	1059	31
210342	20-37.471	-100.597	-3-03-	4.08	342	11.91	48	33	3.0	16	11.2	19.1	786	34
210343	20-37.951	-100.447	-3-03-	12.33	699	17.63	148	20	5.2	48	24.7	17.9	1685	47
210344	20-37.890	-100.509	-3-03-	22.68	968	23.42	129	7	5.5	47	34.6	27.7	2601	171
210345	20-37.896	-100.555	-3-03-	11.38	987	11.52	98	10	5.9	44	31.1	32.3	1754	178
210346	20-37.925	-100.565	-3-03-	11.20	823	13.61	117	11	6.0	50	28.1	27.4	1458	134
210347	20-37.925	-100.524	-3-03-	12.34	904	13.65	119	11	6.2	53	32.5	28.9	1650	147
210348	20-37.963	-100.509	-3-03-	9.43	683	13.80	113	29	5.8	45	22.4	18.6	1015	66
210350	20-37.900	-100.456	-3-03-	14.38	823	17.47	108	13	6.3	43	22.2	21.8	1733	126
210351	20-37.963	-100.563	-3-03-	11.72	831	14.10	117	18	6.4	74	29.6	24.7	1399	102
210352	20-37.960	-100.609	-3-03-	17.07	1013	16.85	135	10	7.1	75	34.0	39.4	1630	170
210353	20-37.579	-100.688	-3-03-	13.76	995	13.83	144	12	6.8	85	34.5	44.2	1586	164
210354	20-37.963	-100.724	-3-03-	14.24	793	17.94	130	12	5.6	62	29.0	33.9	1323	127
210355	20-37.961	-100.769	-3-03-	16.85	1060	15.89	117	10	5.7	61	31.1	58.0	1571	225
210356	20-37.930	-100.712	-3-03-	18.31	1258	14.54	129	14	6.5	43	32.1	56.5	1481	174
210357	20-37.929	-100.654	-3-03-	14.02	916	15.29	109	10	5.6	53	30.6	29.0	1592	166
210358	20-37.869	-100.646	-3-03-	11.45	744	15.38	76	17	4.0	26	20.4	40.2	941	158
210359	20-37.880	-100.675	-3-03-	7.87	511	15.39	51	19	3.3	22	13.2	19.2	755	59
210360	20-37.858	-100.661	-3-03-	4.08	464	8.79	38	47	3.2	12	8.2	15.5	506	30
210361	20-37.802	-100.636	-3-03-	4.26	543	7.83	39	41	3.2	12	9.3	17.5	595	33
210362	20-37.846	-100.595	-3-03-	3.20	509	6.28	26	134	3.3	11	8.4	9.6	457	17
210363	20-37.831	-100.514	-3-03-	3.55	563	6.30	37	72	3.0	10	8.0	14.2	461	18
210364	20-37.806	-100.502	-3-03-	4.07	576	7.06	36	58	3.7	11	8.2	16.0	433	22
210365	20-37.812	-100.551	-3-03-	4.61	556	8.29	46	35	3.2	12	8.7	17.5	582	30
210366	20-37.733	-100.538	-3-03-	11.27	568	19.63	47	51	4.3	14	8.0	17.0	434	20
210367	20-37.486	-100.525	-3-03-	3.89	185	20.93	37	84	2.7	11	7.4	10.6	470	10
210368	20-37.033	-101.637	-3-03-	7.31	782	9.34	143	9	3.4	28	28.4	44.8	1316	286
210369	20-37.016	-101.503	-3-03-	3.74	347	10.78	65	41	2.8	17	10.2	11.2	482	40
210370	20-37.111	-101.537	-3-03-	3.08	417	7.37	54	27	2.8	18	15.0	17.8	731	53
210371	20-37.120	-101.631	-3-03-	6.38	626	10.18	103	13	4.0	27	26.4	42.3	1247	133
210372	20-37.375	-101.148	-3-03-	12.02	471	25.51	165	12	5.0	45	24.4	39.2	1341	121
210373	20-37.277	-100.992	-3-03-	12.58	490	25.64	186	17	5.1	45	27.4	32.1	1475	106

APPENDIX B
STREAM SEDIMENT

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APPENDIX B

STREAM SEDIMENT

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Table B-1

STATISTICAL SUMMARY FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

NO. SAMPLES ANALYZED		COEFFICIENT OF										LN TRANSFORMATION			
BELOW		STANDARD DEVIATION										ROBUST			
ELEMENT	VALUES	MEASURABLE DETECTION LIMIT	DETECTION LIMIT	MINIMUM VALUE	MAXIMUM VALUE	MEAN	MEDIAN	MODE	STANDARD DEVIATION	VARIATION	MEAN	S. D.	MEAN	S. D.	
U-FL	295			0.89	5.59	2.28	2.19	2.18	0.653	0.286	0.79	0.28	0.79	0.28	
U-NT	289			1.70	21.60	3.25	3.00	3.00	1.489	0.459	1.13	0.27	1.10	0.25	
TH	270	25	<2	<2	36	8	8	9	4.6	0.5	2.04	0.55	1.97	0.63	
U/TU	288			0.19	1.57	0.73	0.73	0.80	0.180	0.246	-0.34	0.27	-0.33	0.27	
TH/U	288			0.23	12.00	2.65	2.50	3.27	1.593	0.601	0.75	0.75	0.79	0.83	
AG	17	278	<2	<2	13	3	<2	<2	2.8	0.9	0.53	0.52			
AL	295			1.72	6.53	4.79	4.90	5.43	0.901	0.188	1.55	0.21	1.56	0.20	
AS	290	5	<0.1	<0.1	7.2	2.3	2.2	2.0	1.05	0.46	0.71	0.53	0.71	0.55	
B	265	30	<10	<10	37	19	18	15	5.0	0.3	2.92	0.27	2.87	0.33	
BA	295			545	1896	840	813	815	147.6	0.2	6.72	0.15	6.71	0.13	
BE	293	2	<1	<1	7	1	1	<1	0.6	0.4	0.36	0.36			
CA	295			0.43	11.87	2.38	2.00	0.72	1.666	0.701	0.67	0.63	0.66	0.62	
CE	294	1	<10	<10	364	70	67	65	24.5	0.3	4.21	0.25	4.20	0.24	
CO	270	25	<4	<4	13	6	6	6	1.5	0.2	1.79	0.23	1.77	0.22	
CR	295			11	87	32	33	35	7.9	0.2	3.46	0.24	3.47	0.24	
CU	295			3	59	14	15	15	4.8	0.3	2.65	0.33	2.66	0.34	
FE	295			0.80	15.51	2.29	2.15	2.27	1.146	0.499	0.77	0.32	0.75	0.32	
K	295			0.67	3.28	1.80	1.63	1.65	0.462	0.257	0.56	0.24	0.55	0.23	
LI	295			7	47	21	22	23	6.4	0.3	3.02	0.32	3.04	0.35	
MG	295			0.13	2.40	0.58	0.57	0.57	0.256	0.439	-0.62	0.40	-0.61	0.38	
MN	295			203	3514	454	414	416	239.5	0.5	6.06	0.31	6.04	0.30	
MO	20	275	<4	<4	13	4	<4	<4	2.0	0.4	1.50	0.28			
NA	295			0.29	1.76	0.85	0.80	0.78	0.240	0.282	-0.20	0.28	-0.20	0.28	
NB	289	6	<4	<4	90	8	8	6	5.7	0.7	2.06	0.33	2.03	0.29	
NI	294	1	<2	<2	30	13	14	11	4.9	0.4	2.53	0.43	2.56	0.40	
P	295			151	1204	562	557	647	161.0	0.3	6.29	0.31	6.30	0.29	
SC	294	1	<1	<1	12	5	5	5	1.3	0.3	1.62	0.28	1.64	0.27	
SE	96	195	<0.1	<0.1	2.3	0.3	<0.1	<0.1	0.28	0.91	-1.42	0.66			
SR	295			87	406	182	174	160	42.9	0.2	5.18	0.22	5.18	0.22	
TI	295			1392	33771	2942	2498	2443	2244.8	0.8	7.90	0.35	7.86	0.32	
V	295			25	377	67	64	62	28.0	0.4	4.16	0.29	4.15	0.29	
Y	295			8	58	16	15	17	4.2	0.3	2.78	0.21	2.77	0.19	
ZN	295			20	113	56	56	50	16.1	0.3	4.00	0.32	4.01	0.35	
ZR	295			43	394	88	85	91	25.6	0.3	4.45	0.21	4.44	0.19	

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NOTE: Refer to Table 1, Page 24 and Table C-1, Page C-4 for concentration units and symbol definitions.

Table B-2

CORRELATION MATRIX FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE															
L-U	1.00 (295)														
L-FE	0.49*** (295)	L-FE	1.00 (295)												
L-V	0.52*** (295)	0.98*** (295)	L-V	1.00 (295)											
L-MN	0.44*** (295)	0.87*** (295)	0.82*** (255)	L-MN	1.00 (295)										
L-UNT	0.54*** (288)	0.78*** (288)	0.76*** (288)	0.81*** (248)	L-UNT	1.00 (289)									
L-TI	0.40*** (295)	0.65*** (295)	0.81*** (295)	0.86*** (295)	0.88*** (288)	L-TI	1.00 (295)								
L-Y	0.49*** (295)	0.85*** (295)	0.85*** (295)	0.77*** (295)	0.71*** (288)	0.76*** (295)	L-Y	1.00 (295)							
L-ZR	0.48*** (295)	0.77*** (295)	0.76*** (295)	0.71*** (295)	0.77*** (288)	0.83*** (295)	0.89*** (295)	L-ZR	1.00 (295)						
L-CE	0.40*** (294)	0.82*** (294)	0.81*** (294)	0.74*** (294)	0.74*** (288)	0.78*** (294)	0.87*** (294)	0.82*** (294)	L-CE	1.00 (294)					
L-NB	0.28*** (289)	0.55*** (289)	0.53*** (289)	0.55*** (283)	0.62*** (289)	0.64*** (289)	0.61*** (289)	0.61*** (289)	0.58*** (289)	L-NB	1.00 (289)				
L-TH	0.17*** (270)	0.22*** (270)	0.23*** (270)	0.22*** (270)	0.20*** (266)	0.19*** (270)	0.28*** (270)	0.23*** (270)	0.29*** (270)	0.29*** (266)	L-TH	1.00 (270)			
L-CA	-0.06 (295)	-0.02 (295)	-0.02 (255)	0.08 (295)	0.05 (288)	0.01 (295)	-0.17*** (295)	-0.16*** (295)	-0.14*** (294)	0.13*** (289)	0.01 (270)	1.00 (295)			
L-SR	0.14*** (295)	0.02 (295)	0.07 (295)	0.05 (295)	0.08 (288)	-0.05 (295)	0.09 (285)	-0.05 (295)	0.03 (294)	0.21*** (289)	0.03 (270)	0.58*** (295)	1.00 (295)		
L-BA	0.08 (295)	0.27*** (295)	0.24*** (295)	0.41*** (295)	0.31*** (288)	0.38*** (295)	0.26*** (295)	0.22*** (295)	0.34*** (294)	0.45*** (289)	0.12*** (270)	0.39*** (295)	0.43*** (295)		
L-K	-0.05 (295)	-0.10 (295)	-0.11*** (295)	-0.19*** (295)	-0.16*** (288)	-0.13*** (295)	0.16*** (295)	0.04 (295)	0.26 (294)	0.19*** (289)	0.10 (270)	-0.08 (295)	0.34*** (295)		
L-NA	0.02 (295)	-0.10 (295)	-0.09 (295)	-0.22*** (295)	-0.10 (288)	-0.10 (295)	0.18*** (295)	0.09 (295)	0.12*** (294)	0.15*** (289)	0.09 (270)	-0.19*** (295)	0.37*** (295)		
L-CR	0.36*** (295)	0.72*** (295)	0.78*** (295)	0.53*** (295)	0.40*** (288)	0.46*** (295)	0.70*** (295)	0.58*** (295)	0.65*** (294)	0.32*** (289)	0.22*** (270)	-0.10*** (295)	0.09 (295)		
L-SC	0.33*** (294)	0.51*** (294)	0.57*** (294)	0.39*** (294)	0.20*** (288)	0.21*** (294)	0.59*** (294)	0.38*** (294)	0.48*** (294)	0.24*** (285)	0.17*** (270)	-0.07 (294)	0.27*** (294)		
L-CD	0.21*** (270)	0.49*** (270)	0.53*** (270)	0.43*** (270)	0.21*** (265)	0.26*** (270)	0.44*** (270)	0.26*** (270)	0.45*** (270)	0.23*** (267)	0.19*** (259)	-0.09 (270)	-0.03 (270)		
L-NI	0.16*** (294)	0.15*** (294)	0.21*** (294)	0.09 (294)	-0.08 (288)	-0.05 (294)	0.15*** (294)	0.07 (294)	0.11*** (294)	-0.13*** (289)	0.03 (270)	-0.02 (294)	0.07 (294)		
L-CU	0.15*** (295)	0.25*** (295)	0.36*** (295)	0.06 (295)	-0.12*** (288)	-0.12*** (293)	0.30*** (295)	0.11*** (295)	0.20*** (294)	-0.09 (284)	0.06 (270)	-0.13*** (295)	0.23*** (295)		
L-ZN	0.29*** (295)	0.51*** (295)	0.59*** (295)	0.32*** (295)	0.13*** (288)	0.14*** (295)	0.53*** (295)	0.33*** (295)	0.43*** (294)	0.12*** (289)	0.11*** (270)	-0.10*** (295)	0.23*** (295)		
L-P	0.21*** (295)	0.33*** (295)	0.41*** (295)	0.16*** (295)	0.01 (288)	-0.02 (295)	0.41*** (295)	0.16*** (295)	0.31*** (294)	0.15*** (289)	0.16*** (270)	0.01 (295)	0.41*** (295)		
L-AL	0.07 (295)	0.01 (295)	0.10*** (255)	-0.19*** (295)	-0.36*** (288)	-0.32*** (295)	0.21*** (255)	-0.31 (255)	0.08 (294)	-0.14*** (289)	0.05 (270)	-0.20*** (295)	0.34*** (295)		
L-LI	0.01 (295)	-0.09 (295)	-0.01 (255)	-0.19*** (295)	-0.36*** (288)	-0.38*** (295)	0.01 (255)	-0.15*** (295)	-0.12*** (294)	-0.14*** (289)	0.04 (270)	0.23*** (295)	0.47*** (295)		
L-NG	0.13*** (295)	0.01 (295)	0.07 (255)	-0.01 (295)	-0.26*** (288)	-0.31*** (295)	0.03 (295)	-0.14*** (295)	-0.07 (294)	-0.08 (289)	0.04 (270)	0.30*** (295)	0.45*** (295)		
L-AS	0.28*** (290)	0.29*** (290)	0.34*** (290)	0.16*** (290)	0.08 (283)	-0.01 (290)	0.25*** (290)	0.04 (290)	0.17*** (289)	0.02 (284)	-0.00 (265)	-0.06 (290)	0.21*** (290)		

L-EA											
1.00 (295)											
L-K											
0.18*** 0.32*** (295)											
1.00 (255)											
L-NA											
0.23*** 0.38*** (295)											
0.88*** 0.82*** (255)											
1.00 (295)											
L-CR											
0.03 0.04 (295)											
-0.02 0.00 (255)											
-0.05 -0.05 (295)											
1.00 (255)											
L-SC											
0.12** 0.11* (304)											
0.18*** 0.25*** (291)											
0.13** 0.15** (294)											
0.77*** 0.77*** (294)											
1.00 (294)											
L-CO											
0.14*** 0.10 (270)											
-0.13*** -0.06 (270)											
-0.14** -0.15** (270)											
0.63*** 0.62*** (270)											
0.57*** 0.56*** (270)											
1.00 (270)											
L-NI											
0.02 0.01 (294)											
0.03 0.01 (254)											
-0.03 -0.00 (294)											
0.42*** 0.46*** (294)											
0.42*** 0.45*** (294)											
0.27*** 0.33*** (270)											
1.00 (294)											
L-CJ											
-0.16*** -0.09 (295)											
0.11** 0.14** (255)											
0.00 (295)											
0.67*** 0.68*** (255)											
0.77*** 0.76*** (294)											
0.51*** 0.52*** (270)											
0.45*** 0.50*** (294)											
1.00 (295)											
L-ZN											
0.01 -0.00 (295)											
0.07 0.12** (295)											
0.05 -0.00 (295)											
0.78*** 0.76*** (255)											
0.84*** 0.81*** (294)											
0.60*** 0.59*** (270)											
0.41*** 0.44*** (294)											
0.80*** 0.85*** (295)											
1.00 (255)											
L-P											
0.13** 0.13** (295)											
0.24*** 0.22*** (255)											
0.27*** 0.18*** (295)											
0.60*** 0.59*** (255)											
0.74*** 0.73*** (294)											
0.48*** 0.48*** (270)											
0.41*** 0.36*** (294)											
0.78*** 0.75*** (295)											
0.82*** 0.79*** (255)											
1.00 (295)											
L-AL											
-0.02 0.08 (295)											
0.52*** 0.51*** (255)											
0.52*** 0.50*** (295)											
0.45*** 0.60*** (255)											
0.66*** 0.50*** (294)											
0.29*** 0.39*** (270)											
0.41*** 0.44*** (294)											
0.78*** 0.76*** (295)											
0.70*** 0.76*** (255)											
0.74*** 0.73*** (295)											
1.00 (295)											
L-LI											
-0.06 0.02 (295)											
0.40*** 0.40*** (255)											
0.28*** 0.17*** (295)											
0.37*** 0.44*** (295)											
0.57*** 0.59*** (294)											
0.13** 0.22*** (270)											
0.38*** 0.38*** (294)											
0.57*** 0.57*** (295)											
0.57*** 0.57*** (295)											
0.78*** 0.74*** (295)											
1.00 (295)											
L-NG											
0.05 0.03 (295)											
0.14*** 0.11* (295)											
0.03 -0.07 (290)											
0.41*** 0.52*** (255)											
0.60*** 0.64*** (254)											
0.21*** 0.36*** (270)											
0.39*** 0.45*** (294)											
0.63*** 0.75*** (295)											
0.60*** 0.68*** (295)											
0.61*** 0.63*** (295)											
0.62*** 0.70*** (295)											
0.82*** 0.82*** (295)											
1.00 (295)											
L-AS											
0.03 0.04 (290)											
0.17*** 0.20*** (290)											
0.18*** 0.20*** (290)											
0.26*** 0.14** (290)											
0.41*** 0.35*** (289)											
0.29*** 0.23*** (265)											
0.16*** 0.13** (289)											
0.44*** 0.35*** (290)											
0.43*** 0.31*** (290)											
0.44*** 0.35*** (290)											
0.40*** 0.39*** (290)											
0.32*** 0.27*** (290)											
0.36*** 0.32*** (290)											
1.00 (290)

Figure B-1a

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

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Figure B-1b

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

Figure B-2a

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

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Figure B-2b

GEOCHEMICAL DISTRIBUTION OF URANIUM BY NEUTRON ACTIVATION IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-3a

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

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Figure B-3b

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

Figure B-4a

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

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Figure B-4b

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

Figure B-5a

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

Figure B-5b

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

Figure B-6a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR CALCIUM (%)
IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-6b

GEOCHEMICAL DISTRIBUTION OF CALCIUM (%) IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-7a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR CERIUM (PPM)
IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-7b

GEOCHEMICAL DISTRIBUTION OF CERIUM (PPM) IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-8a

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

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Figure B-8b
 GEOCHEMICAL DISTRIBUTION OF IRON (%) IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-9a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR POTASSIUM (%)
IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-9b

GEOCHEMICAL DISTRIBUTION OF POTASSIUM (%) IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-10a

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

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Figure B-10b

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

Figure B-11a

PROBABILITY, FREQUENCY, AND PERCENTILE PLOTS FOR SODIUM (%)
IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-11b

GEOCHEMICAL DISTRIBUTION OF SODIUM (%) IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-12a

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

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Figure B-12b

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

Figure B-13a

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

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Figure B-13b

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

Figure B-14a

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

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Figure B-14b

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

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

Figure B-15b
GEOCHEMICAL DISTRIBUTION OF YTTRIUM (PPM) IN STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

Figure B-16a

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

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Figure B-16b

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

Table B-3

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG L TY REP	NUMBER	U (PPM)	U-NT (PPM)	U/TU	TH (PPM)	CE (PPM)	FE (%)	MN (PPM)	TI (PPM)	V (PPM)	Y (PPM)	ZR (PPM)
210601	20-37.474	-100.013	-3-12-	2.06	2.80	0.74	11	63	2.15	335	2672	69	17	91
210602	20-37.474	-100.002	-3-15-	2.54	3.00	0.85	6	64	1.98	388	2606	63	17	90
210603	20-37.488	-100.070	-3-15-	1.82	2.60	0.70	12	74	2.71	522	2938	82	20	95
210604	20-37.490	-100.188	-3-15-	2.06	2.80	0.74	8	62	1.92	376	2414	63	14	81
210607	20-37.451	-100.168	-3- -		2.90									
210608	20-37.286	-100.018	-3-12-	2.10	2.80	0.75	10	74	2.33	537	2748	72	19	95
210609	20-37.286	-100.036	-3- -	1.65	2.80	0.59	3	60	2.42	431	2566	70	14	79
210610	20-37.286	-100.075	-3-12-	2.92	4.30	0.68	<2	49	2.07	640	2017	66	16	73
210611	20-37.286	-100.115	-3-15-	4.15	21.60	0.19	12	364	15.51	3514	33771	377	58	394
210612	20-37.258	-100.117	-3-12-	4.64	9.10	0.51	3	94	5.37	1342	9496	150	19	111
210613	20-37.342	-100.219	-3-15-	1.96	2.70	0.72	6	70	2.15	441	2695	63	18	98
210614	20-37.353	-100.199	-3-15-	1.50	2.50	0.60	4	67	1.69	344	2365	54	14	84
210615	20-37.321	-100.285	-3-15-	1.58	2.60	0.61	10	76	1.97	409	2509	58	17	87
210616	20-37.344	-100.319	-3-15-	2.23	2.80	0.80	6	69	2.03	396	2557	62	17	93
210617	20-37.382	-100.345	-3-15-	1.38	2.40	0.57	3	57	1.93	279	2253	55	17	88
210618	20-37.350	-100.345	-3- -	1.00	2.80	0.36	5	63	1.29	310	2575	40	17	102
210619	20-37.331	-100.345	-3-15-	1.12	2.50	0.45	10	66	2.19	420	2600	60	18	96
210620	20-37.257	-100.345	-3-15-	1.27	3.30	0.38	8	75	2.37	566	3163	66	19	101
210621	20-37.280	-100.325	-3-15-	1.73	3.30	0.52	11	70	1.80	308	2435	55	16	93
210622	20-37.257	-100.349	-3-15-	1.27	2.60	0.48	7	67	2.17	453	2516	64	18	95
210623	20-37.279	-100.345	-3-15-	2.29	3.10	0.71	18	77	2.30	443	2765	68	19	99
210624	20-37.973	-101.266	-3-15-	1.77	3.00	0.59	8	69	2.27	466	2594	65	18	84
210625	20-37.948	-101.287	-3-15-	2.34	2.70	0.87	8	64	2.27	450	2459	65	18	87
210626	20-37.945	-101.319	-3-15-	2.90	3.30	0.88	10	83	2.56	496	3476	73	19	97
210627	20-37.935	-101.322	-3-15-	2.31	4.50	0.51	16	96	4.04	635	5348	108	20	105
210628	20-37.888	-101.372	-3-15-	2.38	2.90	0.82	4	69	2.14	454	2706	66	16	74
210629	20-37.887	-101.395	-3-15-	3.74	7.30	0.51	6	113	6.98	1050	10531	176	27	168
210630	20-37.887	-101.399	-3-15-	2.41	3.10	0.78	10	70	2.35	468	2883	71	18	92
210631	20-37.895	-101.421	-3-15-	2.94	3.40	0.86	10	71	2.19	400	2800	70	18	105
210632	20-37.897	-101.435	-3-15-	3.66	3.80	0.94	13	74	2.26	445	3216	72	18	93
210633	20-37.909	-101.471	-3-15-	4.54	4.20	1.06	3	83	3.15	499	3633	88	21	114
210634	20-37.912	-101.482	-3-15-	2.73	4.60	0.59	12	114	4.92	756	5490	127	25	120
210635	20-37.808	-101.447	-3-15-	2.34	3.00	0.78	15	91	2.36	419	2723	64	19	92
210636	20-37.708	-101.465	-3-15-	1.56	3.00	0.65	3	76	2.49	429	2976	73	20	110
210640	20-37.727	-101.546	-3-15-	2.49	3.30	0.75	10	92	2.64	527	3144	74	22	114
210641	20-37.714	-101.529	-3-15-	2.55	3.20	0.80	6	80	2.62	508	3065	75	21	108
210642	20-37.720	-101.506	-3-15-	1.58	3.00	0.53	4	72	2.31	460	2602	66	16	76
210643	20-37.710	-101.534	-3-15-	1.72	3.30	0.52	3	74	2.24	346	2981	70	15	91
210645	20-37.723	-101.565	-3-15-	3.51	2.70	1.30	10	66	2.20	421	2376	62	16	80
210646	20-37.734	-101.721	-3-15-	2.96	3.20	0.92	11	74	2.34	415	2499	69	18	83
210649	20-37.532	-101.318	-3-15-	2.37	3.00	0.79	5	62	1.86	356	2471	55	16	80
210650	20-37.602	-101.327	-3-15-	5.59	5.50	1.02	7	60	2.99	579	2395	91	19	81
210651	20-37.435	-101.300	-3-15-	2.65	3.10	0.85	10	74	2.21	502	2578	62	18	85
210652	20-37.388	-101.319	-3-15-	2.44	3.10	0.79	14	70	2.25	509	2459	67	18	80
210654	20-37.251	-101.773	-3-15-	1.73			<2	67	1.99	459	2314	59	16	80
210655	20-37.318	-101.906	-3-15-	1.73	3.70	0.47	<2	62	2.07	473	3354	61	15	82
210656	20-37.338	-101.974	-3-15-	2.24	2.90	0.77	2	59	1.83	391	2195	55	15	79
210657	20-37.323	-101.973	-3-15-	1.80	2.80	0.64	6	60	1.92	375	2282	59	15	79
210658	20-37.449	-101.355	-3-15-	2.02	3.30	0.61	13	77	2.06	496	2407	61	18	89
210660	20-37.471	-101.390	-3-15-	1.76	3.30	0.53	11	75	2.40	550	3855	66	18	97
210661	20-37.560	-101.930	-3-15-	2.40	3.00	0.80	11	75	2.32	497	2593	70	18	85
210662	20-37.707	-101.980	-3-15-	1.92	3.00	0.64	9	75	2.37	400	2432	70	19	82
210665	20-37.708	-101.854	-3-15-	2.17	3.00	0.72	4	70	2.15	476	2461	63	18	84
210672	20-37.197	-101.855	-3-15-	2.13	3.30	0.65	<2	69	2.08	399	2694	58	15	87
211101	20-37.677	-100.002	-3-15-	2.30	3.10	0.74	10	73	2.24	377	2545	69	18	88

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

OR. SAMPLE NUMBER	D. O. F. ST	SAMPLE LAT	NUMBER LCNG	U (PPM)	U-NT (PPM)	U/TU	TH (PPM)	CE (PPM)	FE (%)	MN (PPM)	TI (PPM)	V (PPM)	Y (PPM)	ZR (PPM)
REP														
211102	20-37.709	-100.022	-3-15-	2.46	4.30	0.57	8	90	2.52	409	3240	74	23	117
211103	20-37.714	-100.042	-3-15-	2.55	3.10	0.82	13	76	1.94	371	2494	62	16	84
211104	20-37.719	-100.069	-3-15-	2.43	3.80	0.64	8	85	2.44	448	3193	73	18	91
211105	20-37.719	-100.074	-3-15-	3.41	2.80	1.22	10	72	2.21	402	2519	68	18	83
211106	20-37.736	-100.086	-3-15-	3.78	4.60	0.82	18	108	3.11	508	3735	86	21	108
211107	20-37.737	-100.112	-3-15-	3.18	3.40	0.94	16	90	2.49	495	2971	75	19	93
211108	20-37.742	-100.124	-3-15-	2.51	2.90	0.87	4	76	2.59	441	2755	78	19	85
211109	20-37.723	-100.236	-3-15-	2.36	3.30	0.72	9	68	2.36	434	2865	71	17	83
211110	20-37.650	-100.242	-3-15-	2.59	2.80	0.92	4	69	2.07	362	2445	64	16	80
211111	20-37.644	-100.172	-3-15-	3.07	4.70	0.65	14	105	3.04	541	4121	91	21	111
211112	20-37.643	-100.177	-3-15-	2.88	2.60	1.11	<2	45	1.67	283	2074	57	12	66
211113	20-37.640	-100.171	-3-15-	3.07	2.60	1.18	<2	62	2.06	370	2371	66	15	74
211114	20-37.636	-100.151	-3-15-	2.70	2.80	0.96	<2	62	2.05	373	2443	64	16	81
211115	20-37.633	-100.149	-3-15-	2.85	2.70	1.06	4	53	1.74	329	2224	56	14	75
211116	20-37.636	-100.134	-3-15-	2.18	3.00	0.73	3	68	1.89	397	2417	60	15	80
211117	20-37.627	-100.107	-3-15-	2.59			9	65	2.69	546	2634	84	18	84
211118	20-37.619	-100.095	-3-15-	2.81	3.40	0.83	3	71	1.70	357	2485	57	14	87
211119	20-37.606	-100.065	-3-15-	3.11	2.80	1.11	6	64	2.26	406	2383	72	17	78
211120	20-37.613	-100.071	-3-15-	3.33	3.60	0.93	4	75	1.74	382	2640	59	16	98
211121	20-37.606	-100.053	-3-15-	1.93	2.70	0.71	2	62	2.29	403	2485	72	16	83
211122	20-37.605	-100.026	-3-15-	1.54	3.40	0.45	4	70	2.18	397	2717	71	16	92
211123	20-37.596	-100.016	-3-15-	1.98	2.80	0.71	5	58	1.88	316	2490	61	15	87
211124	20-37.590	-100.004	-3-15-	2.04	2.60	0.76	9	69	2.48	368	2692	81	17	88
211125	20-37.519	-100.105	-3-15-	1.75	2.50	0.70	4	67	2.37	439	2590	69	18	87
211127	20-37.507	-100.119	-3-15-	2.02	3.00	0.67	17	73	1.97	385	2581	62	16	90
211128	20-37.505	-100.127	-3-15-	2.61	2.60	1.00	6	60	2.26	375	2605	73	17	84
211129	20-37.519	-100.160	-3-15-	2.10	3.00	0.70	9	75	2.05	412	2715	62	17	93
211130	20-37.505	-100.162	-3-15-	2.15	2.70	0.81	3	67	2.06	391	2654	63	17	90
211131	20-37.506	-100.181	-3-15-	2.46	3.20	0.77	13	73	2.47	422	3147	76	18	101
211132	20-37.505	-100.221	-3-15-	2.45	2.70	0.91	9	79	2.83	521	2881	84	20	95
211133	20-37.505	-100.235	-3-15-	2.25	2.40	0.94	6	74	2.43	382	2390	70	16	78
211134	20-37.416	-100.586	-3-15-	1.95	2.50	0.76	8	56	1.88	375	2157	56	14	71
211135	20-37.416	-100.547	-3-15-	2.13	3.10	0.69	7	81	2.32	514	2811	68	18	94
211136	20-37.140	-100.800	-3-15-	1.30	1.70	0.76	4	36	1.05	216	1392	31	8	43
211137	20-37.152	-100.819	-3-15-	2.08	3.10	0.67	6	56	1.60	298	2579	47	12	74
211138	20-37.208	-100.855	-3-15-	1.60	2.50	0.64	3	43	1.40	321	2066	38	13	68
211140	20-37.231	-100.859	-3-15-	1.39	2.70	0.51	9	49	1.20	271	2013	38	10	60
211141	20-37.216	-100.848	-3-15-	1.79	2.40	0.75	<2	53	1.43	297	1923	48	11	60
211142	20-37.184	-100.819	-3-15-	2.45	3.10	0.79	8	78	2.82	664	2884	84	18	84
211143	20-37.240	-100.905	-3-15-	1.65	5.00	0.33	14	101	3.41	718	4996	87	19	100
211144	20-37.237	-100.896	-3-15-	1.23	3.20	0.38	7	65	2.71	568	2793	81	14	64
211145	20-37.246	-100.932	-3-15-	0.95	1.90	0.50	5	52	1.27	249	1779	40	10	56
211146	20-37.255	-100.921	-3-15-	1.61	3.00	0.54	5	71	2.78	466	3033	77	14	76
211147	20-37.307	-100.950	-3-15-	1.72	2.60	0.66	4	71	2.80	552	2819	80	17	86
211148	20-37.316	-100.984	-3-15-	1.40	2.40	0.58	4	47	1.29	244	2234	41	12	75
211149	20-37.356	-101.024	-3-15-	0.95	2.40	0.40	9	60	2.23	465	2541	68	14	66
211150	20-37.376	-101.023	-3-15-	1.29	2.00	0.64	<2	49	1.05	208	1685	30	9	55
211151	20-37.385	-101.030	-3-15-	1.77	4.10	0.43	5	107	2.89	612	4431	83	21	107
211152	20-37.394	-101.047	-3-15-	2.68	6.20	0.43	10	135	4.52	851	6471	118	23	128
211153	20-37.395	-101.049	-3-15-	1.66	2.70	0.61	2	70	1.78	366	2435	54	13	73
211154	20-37.310	-101.014	-3-15-	2.35	4.30	0.55	8	90	4.07	705	4409	112	17	87
211155	20-37.317	-101.021	-3-15-	2.85	2.80	1.02	8	64	2.29	447	2407	69	17	81
211156	20-37.338	-101.041	-3-15-	3.84	6.20	0.62	14	129	7.03	1074	8320	181	26	133
211157	20-37.356	-101.041	-3-15-	3.04	5.60	0.54	7	90	5.96	673	5497	152	20	106
211158	20-37.394	-101.143	-3-15-	2.28	2.70	0.84	14	68	2.01	385	2288	63	15	80

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	ST	D. O. E. LAT	SAMPLE LCNG	NUMBER L TY REF	U (PPM)	J-NT (PPM)	U/TU	TH (PPM)	CE (PPM)	FE (%)	MN (PPM)	TI (PPM)	V (PPM)	Y (PPM)	ZR (PPM)
211159	20-37.407	-101.210	-3-15-		2.17	2.70	0.80	4	59	1.78	347	2125	56	13	73
211160	20-37.413	-101.216	-3-15-		3.04	3.10	0.98	<2	46	2.03	538	2110	75	14	64
211161	20-37.482	-101.235	-3-15-		2.24	2.50	0.90	8	58	1.48	310	2017	47	13	74
211162	20-37.483	-101.152	-3-15-		4.82	6.00	0.80	20	125	6.33	995	7870	170	31	160
211163	20-37.432	-101.160	-3-15-		2.74	3.80	0.72	16	84	2.40	501	3550	73	17	88
211164	20-37.423	-101.110	-3-15-		2.17	2.80	0.77	7	73	2.87	439	3735	75	15	91
211165	20-37.420	-101.094	-3-15-		1.94	3.40	0.57	8	60	2.48	442	3244	71	15	82
211166	20-37.403	-101.055	-3-15-		3.27	5.30	0.62	9	101	4.29	681	5187	115	20	108
211167	20-37.635	-101.015	-3-15-		3.15	3.20	0.98	7	71	2.44	526	2438	74	19	93
211169	20-37.690	-100.798	-3-15-		2.43	2.70	0.90	18	75	2.84	526	2685	86	20	88
211170	20-37.693	-100.782	-3-15-		2.82	3.20	0.88	3	74	2.21	409	2595	69	15	82
211201	20-37.754	-100.134	-3-15-		2.48	3.20	0.77	10	62	2.28	380	2749	70	17	88
211202	20-37.771	-100.179	-3-15-		3.25	3.10	1.05	13	61	1.96	391	2631	61	14	77
211204	20-37.853	-100.136	-3-15-		2.47	3.00	0.82	7	83	2.22	429	2781	69	18	98
211205	20-37.870	-100.248	-3-15-		2.38	2.90	0.82	4	75	2.05	378	2696	68	16	93
211207	20-37.902	-100.028	-3-15-		2.31	2.90	0.80	19	68	2.14	439	2544	79	15	85
211208	20-37.900	-100.013	-3-15-		2.18	3.00	0.73	7	65	2.15	446	2608	77	15	86
211209	20-37.907	-100.011	-3-15-		2.42	2.90	0.83	3	62	1.99	363	2592	65	14	79
211210	20-37.913	-100.002	-3-15-		2.24	3.20	0.70	10	62	1.88	345	2568	64	14	87
211211	20-37.907	-100.059	-3-15-		2.19	2.90	0.76	12	69	1.90	421	2685	60	15	82
211212	20-37.897	-100.238	-3-15-		1.62	2.80	0.58	13	65	1.71	319	2314	55	13	70
211213	20-37.894	-100.238	-3-15-		1.58	2.60	0.61	9	67	1.99	366	2353	62	15	81
211214	20-37.954	-100.218	-3-15-		1.61	2.80	0.65	12	71	2.62	419	2727	82	18	89
211216	20-37.972	-100.180	-3-15-		2.14	2.70	0.79	11	67	2.28	444	2741	74	16	90
211217	20-37.974	-100.142	-3-15-		1.81	3.00	0.60	9	69	2.17	487	2970	69	17	94
211219	20-37.999	-100.112	-3-15-		2.52	2.80	0.90	3	72	1.86	415	2659	61	17	93
211220	20-37.987	-100.063	-3-15-		1.97	2.90	0.68	12	69	2.20	520	2854	70	18	105
211221	20-37.987	-100.028	-3-15-		2.03	4.40	0.46	8	90	2.97	945	7408	87	19	113
211222	20-37.986	-100.010	-3-15-		2.08	2.60	0.80	11	75	2.34	463	2428	69	18	81
211223	20-37.838	-100.009	-3-15-		2.43	3.10	0.80	13	76	2.12	537	2583	67	17	84
211224	20-37.823	-100.015	-3-15-		2.53	3.10	0.82	4	82	2.16	435	2771	68	18	102
211225	20-37.817	-100.007	-3-15-		2.26	2.60	0.87	12	71	2.65	463	2771	83	20	94
211226	20-37.212	-100.039	-3-15-		2.80			12	38	1.54	540	1785	41	12	52
211227	20-37.236	-100.081	-3-15-		2.15			7	39	1.51	523	1686	39	11	50
211228	20-37.182	-100.022	-3-15-		1.38	2.70	0.51	10	75	2.21	432	2651	64	15	83
211229	20-37.185	-100.087	-3-15-		2.17	3.10	0.70	11	55	1.33	347	2139	40	11	69
211230	20-37.183	-100.111	-3-15-		1.54	2.50	0.62	15	56	1.34	304	2342	43	12	81
211231	20-37.183	-100.117	-3-15-		2.17			<2	<10	1.58	879	2924	36	11	58
211233	20-37.175	-100.179	-3-15-		1.94	5.50	0.35	13	110	3.34	758	5842	93	23	154
211234	20-37.169	-100.155	-3-15-		2.67	4.30	0.62	26	97	2.38	491	3830	69	18	123
211235	20-37.075	-100.247	-3-15-		1.54	2.40	0.64	12	61	1.82	367	2368	56	14	73
211236	20-37.069	-100.204	-3-15-		2.24	3.00	0.75	9	81	2.53	491	2739	79	17	92
211237	20-37.038	-100.188	-3-15-		2.93	3.50	0.84	24	61	2.69	605	4596	76	15	103
211238	20-37.036	-100.175	-3-15-		1.97	2.30	0.86	9	61	1.95	410	2335	60	14	72
211239	20-37.028	-100.056	-3-15-		1.87	2.60	0.72	7	65	1.94	445	2656	59	14	83
211240	20-37.042	-100.046	-3-15-		1.72	2.30	0.75	4	41	1.58	361	2395	43	13	74
211241	20-37.065	-100.075	-3-15-		2.69			9	87	2.74	1104	7607	74	23	126
211243	20-37.092	-100.090	-3-15-		2.79	2.70	1.03	12	76	2.06	343	2736	59	16	108
211244	20-37.111	-100.004	-3-15-		2.36	2.50	0.94	21	70	1.85	335	2215	59	15	87
211245	20-37.125	-100.036	-3-15-		2.36	2.10	1.12	13	54	1.39	308	1629	43	11	66
211246	20-37.088	-100.133	-3-15-		2.34	2.50	0.94	6	56	1.82	414	1978	52	13	80
211247	20-37.100	-100.127	-3-15-		1.43	2.30	0.62	3	54	1.63	469	2100	47	12	75
211248	20-37.219	-100.108	-3-15-		2.35	4.00	0.59	2	66	1.24	382	3519	34	15	95
211249	20-37.244	-100.156	-3-15-		3.26	6.90	0.47	12	146	5.14	1100	10132	133	31	160
211250	20-37.186	-100.156	-3-15-		2.01	3.10	0.65	10	60	1.88	362	2465	55	14	79

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. ST	E. SAMPLE LAT	NUMBER LCNG	TY REP	U (PPM)	U-NT (PPM)	U/TU	TH (PPM)	CE (PPM)	FE (%)	MN (PPM)	TI (PPM)	V (PPM)	Y (PPM)	ZR (PPM)
211251	20-37.184	-100.176	-3-15-		1.89	2.50	0.76	9	56	1.57	276	1975	50	13	76
211252	20-37.199	-100.194	-3-15-		1.97	2.30	0.86	11	49	1.67	266	1878	53	13	72
211253	20-37.262	-100.393	-3-15-		3.77	6.00	0.63	8	119	4.31	924	7764	115	35	154
211254	20-37.275	-100.455	-3-15-		2.10	2.60	0.81	4	52	1.84	363	2178	54	13	72
211255	20-37.296	-100.461	-3-15-		2.02	2.60	0.78	11	57	1.79	300	1934	60	13	67
211256	20-37.323	-100.468	-3-15-		2.34	2.80	0.84	14	72	2.27	476	2344	65	18	88
211257	20-37.393	-100.498	-3-15-		2.50	3.20	0.78	3	70	2.46	401	2305	70	18	80
211258	20-37.486	-100.435	-3-15-		2.35	3.20	0.73	6	65	2.42	404	2230	70	17	81
211259	20-37.492	-100.468	-3-15-		1.97	3.00	0.66	<2	60	2.01	359	2319	59	15	86
211260	20-37.490	-100.407	-3-15-		2.81	3.00	0.94	10	70	2.24	389	2573	67	17	96
211261	20-37.475	-100.372	-3-15-		2.54	2.90	0.88	4	67	2.09	346	2154	63	14	80
211262	20-37.475	-100.332	-3-15-		2.31	3.00	0.77	<2	61	2.05	457	2287	61	13	76
211263	20-37.406	-100.344	-3-15-		2.27	3.00	0.76	7	66	2.04	422	2310	60	15	76
211264	20-37.395	-100.271	-3-15-		2.19	2.80	0.78	<2	73	1.87	416	1995	54	14	74
211265	20-37.417	-100.262	-3-15-		3.08	3.30	0.93	17	73	1.96	397	2445	56	15	91
211266	20-37.477	-100.252	-3-15-		2.15	3.00	0.72	10	72	1.78	361	2288	51	15	84
211301	20-37.800	-100.279	-3-15-		2.62	3.00	0.87	8	64	2.10	348	2148	64	14	75
211302	20-37.960	-100.255	-3-15-		2.46	3.10	0.79	8	75	2.21	436	2384	65	17	94
211303	20-37.942	-100.310	-3-15-		2.15	2.70	0.80	5	67	2.65	462	2514	77	18	92
211304	20-37.958	-100.319	-3-15-		2.58	3.10	0.83	12	78	2.38	477	2329	69	18	91
211305	20-37.814	-100.361	-3-15-		1.93	2.70	0.71	10	64	2.13	385	2251	63	16	85
211306	20-37.812	-100.376	-3-15-		2.46	3.60	0.68	10	60	2.35	330	2069	66	15	71
211307	20-37.812	-100.397	-3-15-		3.15	3.70	0.85	7	74	2.70	500	2606	90	16	84
211308	20-37.815	-100.419	-3-15-		2.30	3.00	0.77	9	60	2.30	461	2315	71	16	76
211309	20-37.821	-100.439	-3-15-		2.07	2.50	0.83	6	69	2.60	410	2164	70	16	76
211310	20-37.676	-100.437	-3-15-		2.23	2.80	0.80	3	73	2.23	294	2435	63	15	76
211311	20-37.665	-100.411	-3-15-		2.33	2.90	0.80	3	60	1.70	380	2131	50	14	81
211312	20-37.693	-100.334	-3-15-		3.30	3.00	1.10	10	75	2.13	458	2162	62	17	81
211313	20-37.722	-100.269	-3-15-		2.42	3.10	0.78	11	80	2.33	530	2771	72	20	115
211314	20-37.504	-100.258	-3-15-		2.05	2.70	0.76	11	68	2.31	432	2368	71	18	93
211315	20-37.506	-100.297	-3-15-		2.36	2.70	0.87	8	68	2.26	398	2278	72	18	90
211316	20-37.505	-100.300	-3-15-		2.32	2.90	0.80	<2	58	2.12	390	2392	68	18	96
211317	20-37.522	-100.451	-3-15-		2.05	3.00	0.68	6	63	2.12	433	2499	65	18	96
211318	20-37.534	-100.474	-3-15-		2.14	2.60	0.82	9	64	1.90	324	2030	59	15	81
211319	20-37.518	-100.500	-3-15-		3.27	4.40	0.74	18	88	2.57	436	3469	78	18	124
211320	20-37.212	-100.253	-3-15-		3.92	4.20	0.93	13	52	1.45	293	2200	49	13	72
211321	20-37.213	-100.261	-3-15-		3.41	2.80	1.22	11	62	2.26	370	2458	70	17	87
211322	20-37.210	-100.269	-3-15-		2.64	2.80	0.94	4	71	2.03	371	2686	65	17	97
211323	20-37.193	-100.278	-3-15-		1.87	2.50	0.75	10	44	1.10	254	1733	38	12	68
211324	20-37.126	-100.372	-3-15-		1.82	3.20	0.57	8	68	2.31	435	2934	65	16	95
211325	20-37.092	-100.331	-3-15-		2.16	3.80	0.57	20	71	2.62	486	3216	74	16	75
211327	20-37.040	-100.402	-3-15-		1.58	2.30	0.69	13	55	1.35	287	2113	40	14	86
211328	20-37.021	-100.446	-3-15-		1.88	2.70	0.70	<2	52	1.83	379	2688	53	15	83
211329	20-37.084	-100.370	-3-15-		1.72	2.00	0.86	11	50	1.43	253	1833	43	13	70
211330	20-37.094	-100.368	-3-15-		2.08	2.40	0.87	7	54	1.37	266	1984	46	13	77
211332	20-37.174	-100.400	-3-15-		1.66	2.70	0.61	13	54	1.25	274	2132	38	13	71
211333	20-37.184	-100.388	-3-15-		2.18	3.10	0.70	11	66	1.96	406	2494	55	16	88
211334	20-37.198	-100.381	-3-12-		2.65	3.60	0.74	3	65	1.46	256	2181	44	14	77
211335	20-37.221	-100.377	-3-15-		1.73	2.50	0.69	6	64	1.74	439	1997	54	13	67
211336	20-37.175	-100.454	-3-15-		1.99			<2	60	2.13	419	3086	57	15	83
211337	20-37.176	-100.460	-3-12-		1.18	4.10	0.29	9	58	1.43	357	1949	46	12	67
211338	20-37.164	-100.451	-3-15-		0.95	2.70	0.35	10	89	1.76	360	2139	54	14	65
211339	20-37.142	-100.428	-3-15-		1.73	2.60	0.67	6	61	2.01	376	2462	58	15	79
211340	20-37.141	-100.496	-3-15-		1.43	2.40	0.60	15	58	2.15	415	2368	62	15	78
211341	20-37.130	-100.453	-3-15-		2.12	2.60	0.82	11	65	2.19	420	2482	61	16	83

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCAG	NUMBER L TY REP	U (PPM)	J-NT (PPM)	L/TU	TH (PPM)	CE (PPM)	FE (%)	MN (PPM)	TI (PPM)	V (PPM)	Y (PPM)	ZR (PPM)
211342	20-37.102	-100.435	-3-15-	1.47	2.10	0.70	<2	47	1.73	312	1917	48	12	67
211343	20-37.096	-100.493	-3-15-	1.78	2.30	0.77	<2	60	2.11	367	2281	59	13	67
211344	20-37.025	-100.481	-3-15-	1.70	5.70	0.30	7	56	2.26	610	4066	57	17	105
211345	20-37.028	-100.494	-3-15-	2.27	5.20	0.44	14	64	2.19	599	3583	56	16	88
211346	20-37.141	-100.514	-3-15-	2.14	2.30	0.93	4	62	1.72	341	2113	50	13	69
211347	20-37.111	-100.277	-3-15-	0.89	2.20	0.40	5	56	1.43	331	2091	41	11	45
211348	20-37.108	-100.273	-3-15-	1.16	2.10	0.55	<2	34	1.28	296	1888	36	10	48
211349	20-37.014	-100.534	-3-15-	1.28	2.70	0.47	9	56	1.65	400	2577	47	15	67
211350	20-37.022	-100.517	-3-15-	2.12	3.20	0.66	7	60	1.29	306	2553	40	14	95
211351	20-37.014	-100.557	-3-15-	1.70	2.40	0.71	5	46	1.13	248	1960	33	13	71
211352	20-37.021	-100.574	-3-15-	2.24	2.80	0.80	9	54	1.65	374	2452	51	15	85
211353	20-37.025	-100.589	-3-15-	1.39	2.70	0.51	4	53	1.45	300	2497	46	12	64
211354	20-37.032	-100.605	-3-15-	2.83	1.80	1.57	7	29	0.80	203	1401	25	9	56
211355	20-37.070	-100.673	-3-15-	3.00	3.60	0.82	<2	64	2.59	645	4215	69	19	135
211356	20-37.036	-100.632	-3-15-	2.05	3.50	0.59	3	66	3.12	722	4571	81	16	98
211357	20-37.014	-100.599	-3-15-	1.36	2.30	0.59	11	47	1.47	285	1955	47	13	73
211358	20-37.061	-100.629	-3-15-	2.11	2.90	0.73	9	66	2.18	421	2943	63	15	100
211359	20-37.068	-100.638	-3-15-	3.13	3.70	0.85	7	67	2.60	496	3506	73	17	108
211360	20-37.087	-100.666	-3-15-	1.80	4.40	0.41	8	48	2.16	474	3416	60	12	75
211401	20-37.858	-100.511	-3-15-	2.17	2.90	0.75	<2	57	1.68	363	2106	52	15	88
211402	20-37.861	-100.537	-3-15-	2.48	3.10	0.80	8	59	2.13	398	2717	67	16	90
211403	20-37.873	-100.621	-3-15-	2.36	2.90	0.81	14	58	2.64	461	3233	78	17	87
211404	20-37.879	-100.661	-3-15-	2.08	2.60	0.80	13	50	1.87	387	2132	57	16	85
211405	20-37.883	-100.672	-3-15-	2.20	3.40	0.65	11	68	1.80	364	2474	57	16	93
211406	20-37.889	-100.689	-3-15-	2.51	2.80	0.90	4	59	2.26	480	2177	70	17	86
211407	20-37.678	-100.745	-3-15-	2.81	3.50	0.80	8	97	2.27	544	2776	69	20	108
211408	20-37.678	-100.726	-3-15-	2.29	3.10	0.74	10	72	2.31	510	2451	70	18	93
211409	20-37.661	-100.689	-3-15-	2.17	2.90	0.75	9	69	2.01	436	2242	60	15	78
211410	20-37.585	-100.598	-3-15-	1.96	2.70	0.73	4	65	1.78	317	2151	56	14	79
211411	20-37.572	-100.598	-3-15-	2.77	2.80	0.95	2	67	2.23	420	2329	69	18	88
211412	20-37.569	-100.584	-3-15-	1.93	2.80	0.65	3	62	1.52	306	2139	47	14	81
211413	20-37.570	-100.585	-3-15-	2.95	2.80	0.01	8	67	2.23	392	2334	68	19	91
211414	20-37.567	-100.555	-3-15-	3.10	2.90	1.07	8	61	2.62	476	2320	82	18	82
211416	20-37.560	-100.552	-3-15-	2.55	2.80	0.91	6	67	1.70	347	2318	53	14	79
211417	20-37.529	-100.507	-3-15-	2.18	3.20	0.66	4	64	2.04	396	2002	60	15	75
211418	20-37.763	-101.759	-3-15-	2.73	3.50	0.76	7	72	2.15	378	2358	69	15	83
211419	20-37.758	-101.709	-3-15-	2.07	3.60	0.57	11	72	2.31	453	2492	63	17	97
211420	20-37.782	-101.814	-3-15-	2.42	2.80	0.86	10	60	1.97	375	2278	63	14	66
211421	20-37.762	-101.829	-3-15-	1.66	3.10	0.63	6	62	2.24	455	2408	73	15	66
211422	20-37.808	-101.852	-3-15-	1.54	2.90	0.52	10	71	2.27	448	2445	68	17	79
211423	20-37.828	-101.882	-3-15-	2.38	3.30	0.72	9	56	1.87	382	2228	66	15	75
211424	20-37.828	-101.897	-3-15-	2.06	3.00	0.69	10	68	1.96	361	2386	59	16	85
211425	20-37.828	-101.903	-3-15-	2.09	3.30	0.63	9	73	2.18	410	2576	66	18	90
211426	20-37.842	-101.915	-3-15-	2.19	2.50	0.84	13	64	2.32	466	2373	70	17	80
211427	20-37.855	-101.940	-3-15-	2.45	3.30	0.74	5	67	1.97	359	2410	63	17	86
211428	20-37.928	-101.992	-3-15-	2.45	3.20	0.77	18	82	2.22	420	2503	67	19	90
211429	20-37.928	-101.955	-3-15-	2.12	3.30	0.64	11	77	2.24	399	2554	63	18	83
211430	20-37.928	-101.920	-3-15-	2.35	3.00	0.78	36	108	2.30	486	2604	77	21	90
211431	20-37.928	-101.909	-3-15-	2.09	2.90	0.72	10	73	2.09	387	2373	60	18	80
211432	20-37.904	-101.837	-3-15-	2.25	3.20	0.72	12	68	2.22	420	2441	65	18	82
211433	20-37.914	-101.773	-3-15-	1.90	3.00	0.63	4	62	2.11	390	2463	63	17	81
211434	20-37.979	-101.733	-3-15-	2.58	3.00	0.52	13	91	3.44	504	3497	95	23	107
211435	20-37.974	-101.710	-3-15-	2.08	3.40	0.61	10	72	2.42	453	2715	69	19	91
211436	20-37.970	-101.638	-3-15-	2.81	3.20	0.86	19	77	2.27	413	2647	67	19	96
211437	20-37.964	-101.618	-3-15-	4.40	3.20	0.39	18	192	7.32	1312	11452	193	34	191

Table B-3, Continued

PARTIAL DATA LISTING FOR STREAM SEDIMENT OF THE DODGE CITY QUADRANGLE

OR SAMPLE NUMBER	D. O. E. ST LAT	SAMPLE LCNG	NUMER L TY REP	U (PPM)	U-NT (PPM)	U/TU	TH (PPM)	CE (PPM)	FE (%)	MN (PPM)	TI (PPM)	V (PPM)	Y (PPM)	ZR (PPM)
211438	20-37.958	-101.598	-3-15-	2.18	3.30	0.66	10	73	1.91	397	2441	58	17	83
211439	20-37.915	-101.579	-3-15-	2.04	3.00	0.68	2	79	2.55	502	2693	70	18	85
211440	20-37.918	-101.635	-3-15-	2.18	4.30	0.51	14	122	3.07	492	3219	75	24	96
211441	20-37.887	-101.663	-3-15-	2.18	3.00	0.73	8	63	2.36	456	2585	68	18	91
211442	20-37.885	-101.704	-3-15-	1.58	2.70	0.73	6	36	1.31	276	1919	43	11	62
211443	20-37.494	-101.253	-3-15-	3.47	7.50	0.46	9	74	4.35	1110	8125	117	22	136
211445	20-37.428	-101.327	-3-15-	2.10	3.30	0.64	12	63	1.82	344	2633	57	15	83
211447	20-37.489	-101.536	-3-15-	1.58	2.90	0.68	7	70	1.93	403	2508	58	16	88
211448	20-37.488	-101.635	-3-15-	1.50	2.90	0.52	6	73	2.01	418	2841	63	15	77
211449	20-37.490	-101.727	-3-15-	1.91	3.00	0.64	5	63	2.11	421	2434	61	18	97
211450	20-37.417	-101.662	-3-15-	2.62	3.30	0.79	9	78	2.08	485	2519	57	17	90
211452	20-37.305	-101.503	-3-15-	1.59	2.70	0.59	<2	55	1.70	305	2088	51	13	86
211454	20-37.278	-101.683	-3-15-	2.43	3.00	0.81	11	72	2.36	449	2364	67	17	92
211456	20-37.034	-101.650	-3-15-	2.05	3.00	0.68	<2	52	1.93	336	2626	53	13	91
211457	20-37.039	-101.903	-3-15-	1.69	2.60	0.65	4	62	2.08	374	2111	59	15	85
211458	20-37.126	-101.904	-3-15-	1.95	2.70	0.72	<2	66	2.09	395	2205	65	14	77
211459	20-37.100	-101.949	-3-15-	2.54	2.80	0.91	4	57	1.91	371	2159	55	15	87
211460	20-37.089	-101.975	-3-15-	1.95	3.00	0.65	2	50	2.17	449	2522	63	13	72
211461	20-37.148	-101.831	-3-15-	2.51	2.60	0.97	3	60	1.80	365	1953	53	13	72
211462	20-37.161	-101.779	-3-15-	1.82	2.60	0.70	4	47	1.46	296	2059	47	12	71
211464	20-37.166	-101.746	-3-15-	2.78	2.80	0.99	3	56	1.58	339	2333	51	12	80

APPENDIX C
MICROFICHE OF FIELD AND LABORATORY DATA

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APPENDIX C

MICROFICHE OF FIELD AND LABORATORY DATA

LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
C-1	Computer Code List of Geochemical Variables	C-4
C-2	Oak Ridge Geochemical Sampling Form Showing Field Data Recorded on Microfiche	C-5
Microfiche		C-7

Table C-1

COMPUTER CODE LIST OF GEOCHEMICAL VARIABLES

Variable(a)	Code	Variable(a)	Code
Uranium Measured by Fluorometry (Sediments and Waters)	U-FL	Lead	PB
Uranium Measured by Mass Spectrometry (Waters Only)	U-MS	Platinum	PT
Uranium by Fluorometry (Waters and Sediments)(b)	U	Scandium	SC
Uranium Measured by Neutron Activation	U-NT	Silicon	SI
Arsenic	AS	Strontium	SR
Selenium	SE	Thorium	TH
Silver	AG	Titanium	TI
Aluminum	AL	Vanadium	V
Boron	B	Yttrium	Y
Barium	BA	Zinc	ZN
Beryllium	BE	Zirconium	ZR
Calcium	CA	Sulfate (ppm)	SO ₄
Cerium	CE	Chloride (ppm)	CL
Cobalt	CO	Conductivity from Lab (μ mhos/cm)	CT-L
Chromium	CR	Conductivity from Field (μ mhos/cm)	CT-F
Copper	CU	Dissolved Oxygen (ppm)	DO
Iron	FE	Air Temperature (°C)	ATEM
Hafnium	HF	Water Temperature (°C)	WTEM
Potassium	K	pH	PH
Lanthanum	LA	pH Measured by Lo Ion Paper	PH-P
Lithium	LI	Total Alkalinity (ppm)	T-AK
Magnesium	MG	M-Alkalinity (ppm)	M-AK
Manganese	MN	P-Alkalinity (ppm)	P-AK
Molybdenum	MO	Carbonate (ppm)(c)	CB
Sodium	NA	Bicarbonate (ppm)(c)	BC
Niobium	NB	Undissolved Carbonic Acid (ppm)(c)	CAB
Nickel	NI	U-NT/U-FL	TU/U
Phosphorus	P	U-FL/U-NT	U/TU
		TH/U-NT	TH/U
		1,000-U/SP	U/SP
		1,000-U/B	U/B
		1,000-U/SO	U/SO
		Sodium/Chloride	NA/C
		Log of Sodium/Chloride	LN/C

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

(b) If available, for water samples the U-MS value is used, if not, the U-FL value is used.

(c) These variables were approximated using cubic spline functions to fit the curves in Hem (1970), p. 155.

OAK RIDGE GEOCHEMICAL SAMPLING FORM

UCN-11882
(1 9-77)

Table C-2, Continued

OAK RIDGE GEOCHEMICAL SAMPLING FORM SHOWING FIELD DATA RECORDED ON MICROFICHE

STREAM OR LAKE SEDIMENT

Sample Condition

31
D
W

Dry
wet

Sample Treatment

32
N
S
Q

None
Sieved
Other

33	34

Number of Grabs

35	36

% Organic Material (Field Estimate)

GENERAL WATER SAMPLES

Water Sample Treatment

37
N
F
C
A
Q

None
Filtered Only
Acidified Only
Acidified and Filtered
Other

Depth of Visibility (m)

38	39	40

C = Clear

41	42	43	44	45

Conductivity
($\mu\text{mhos/cm}$)

46	47	48

Dissolved O_2 (ppm)

49	50	51

Temperature ($^{\circ}\text{C}$)

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
M
A
Q

Clear
Murky
Algal
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
R
S

High Degree
Probable
Possible

Source of Producing Horizon Identification

79
P
W
U
G
Q

Publication
Owner
User
Geologic Inference
Other

80
3

Card Number

WELL WATER

Type of Well

81
D
P
G
U
Q

Drilled
Drive Point
Dug
Unknown
Other

Power Classification

82
A
E
G
W
H
Q

Artesian Flow
Electric
Gasoline
Wind
Hand
Other

Casing

83
N
S
G
P
U
Q

None (Below Water Table)
Steel
Galvanized
Plastic
Unknown
Other

Pipe Composition

84
F
Z
C
P
U
Q

Steel
Galvanized
Copper
Plastic
Unknown
Other

Sample Location

85	86	87

Meters from Well Head
H = Holding Tank (Use Remarks)

Where Sample Taken With Respect To Pressure Tank

88
B
A
N
F

Before
After
No Pressure Tank
From Pressure Tank (Use Remarks)

Use of Well

89
M
H
S
I
A
X
Y
Z
N
Q

Municipal
Household
Stock
Irrigation
All of above
H and S
H and I
S and I
None
Other

Frequency of Pumping

90
C
F
I
R

Constant (hourly)
Frequent (daily)
Infrequent (weekly)
Rare (no recent use)

Depth to top of Producing Horizon

91	92	93	94

(Meters)

Confidence of Producing Depth

95
H
R
S

High
Probable
Possible

Source of Producing Depth Information

96
P
W
U
G
Q

Publication
Owner
User
Geologic Inference
Other

Total Well Depth

97	98	99	00

(Meters)

Confidence of Total Depth

100
H
R
S

High
Probable
Possible

Source of Total Depth Information

101
P
W
U
G
Q

Publications
Owner
User
Geologic Inference
Other

LAKE WATER

Type of Lake

102
N
M

Natural
Manmade

Lake Area

103	104	105	106

(sq km)

MICROFICHE OF FIELD AND LABORATORY DATA

CONTENTS

<u>Laboratory Data</u>	<u>Page</u>
Well Water (W)	1-42
Stream Sediment (M)	43-60
<u>Field Data</u>	
Page 1	62-269
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DODGE CITY QUAD
BASIC DATA

11/26/80

PAGE 1

LEGEND
○ WELL WATER

PLATE 1 DODGE CITY QUADRANGLE GROUNDWATER SAMPLE LOCATION MAP

SCALE 1: 250000
756 SAMPLES PLOTTED

SYMBOL RANGES FOR
PLOTTED VARIABLE (X)

+	0.0	≤ X <	0.20
x	0.20	≤ X <	0.67
.	0.67	≤ X <	2.42
.	2.42	≤ X <	3.14
o	3.14	≤ X <	3.77
o	3.77	≤ X <	4.76
o	4.76	≤ X <	6.16
o	6.16	≤ X <	8.82
o	8.82	≤ X <	11.39
o	11.39	≤ X <	14.44
o	14.44	≤ X <	18.19
o	18.19	≤ X <	22.30
o	22.30	≤ X <	31.08
■	31.08	≤ X <	46.95
★	X	≥	46.95

PLATE 2
DODGE CITY QUADRANGLE
SYMBOL PLOT
GROUNDWATER
URANIUM (PPB)

SYMBOL RANGES FOR PLOTTED VARIABLE (X)		
+	$0 \leq X <$	184
x	$184 \leq X <$	227
.	$227 \leq X <$	306
.	$306 \leq X <$	377
o	$377 \leq X <$	488
o	$488 \leq X <$	578
o	$578 \leq X <$	650
o	$650 \leq X <$	738
o	$738 \leq X <$	840
o	$840 \leq X <$	969
o	$969 \leq X <$	1197
o	$1197 \leq X <$	1615
●	$1615 \leq X <$	3204
■	$3204 \leq X <$	5217
★	$X \geq$	5217

PLATE 3
 DODGE CITY QUADRANGLE
 SYMBOL PLOT
 GROUNDWATER
 SPECIFIC CONDUCTANCE (UMHOS/CM)
 SCALE 1: 250000
 756 SAMPLES PLOTTED

LEGEND

□ STREAM SEDIMENT

PLATE 4
 DODGE CITY QUADRANGLE
 STREAM SEDIMENT LOCATION
 AND DRAINAGE BASIN MAP

SCALE 1: 250000
 321 SAMPLES PLOTTED

SYMBOL RANGES FOR
PLOTTED VARIABLE (X)

+	$0.0 \leq X < 0.92$
x	$0.92 \leq X < 1.11$
.	$1.11 \leq X < 1.34$
o	$1.34 \leq X < 1.54$
o	$1.54 \leq X < 1.72$
o	$1.72 \leq X < 1.96$
o	$1.96 \leq X < 2.12$
o	$2.12 \leq X < 2.31$
.	$2.31 \leq X < 2.48$
.	$2.48 \leq X < 2.81$
o	$2.81 \leq X < 3.10$
o	$3.10 \leq X < 3.41$
o	$3.41 \leq X < 3.94$
o	$3.94 \leq X < 4.73$
★	$X \geq 4.73$

PLATE 5
DODGE CITY QUADRANGLE
SYMBOL PLOT
STREAM SEDIMENT
URANIUM (PPM)

SCALE 1: 250000
320 SAMPLES PLOTTED

SYMBOL RANGES FOR
PLOTTED VARIABLE (X)

x	$0 \leq X <$	2
.	$2 \leq X <$	3
o	$3 \leq X <$	5
○	$5 \leq X <$	7
⊙	$7 \leq X <$	9
⊗	$9 \leq X <$	10
⦿	$10 \leq X <$	12
⦿	$12 \leq X <$	14
⦿	$14 \leq X <$	17
●	$17 \leq X <$	19
■	$19 \leq X <$	25
★	$X \geq$	25

PLATE 6
DODGE CITY QUADRANGLE
SYMBOL PLOT
STREAM SEDIMENT
THORIUM (PPM)

SCALE 1: 250000
320 SAMPLES PLOTTED

STRATIGRAPHIC COLUMN FOR THE DODGE CITY QUADRANGLE					
ERA	SYSTEM	SERIES	GEOLOGIC MAP CODE	GEOLOGIC FORMATION	MAXIMUM THICKNESS METERS FEET
CENOZOIC	QUATERNARY	HOLOCENE	QAL	ALLUVIUM	23 75
			QSD	DUNE SAND	23 75
		PLEISTOCENE	QPLO	LOESS & TERRACE DEPOSITS	98 320
	TERTIARY	PLIOCENE	TPO	OGALLALA FORMATION	181 595
MESOZOIC	CRETACEOUS		KGGG	GREENHORN LIMESTONE	60 197
			KGDD	DAKOTA FORMATION	40 130
			KCDK	KIOWA FORMATION AND CHEYENNE SANDSTONE	76 250
	JURASSIC		JMOR	MORRISON FORMATION	73 240
PALEOZOIC	PERMIAN		PCBA	BIG BASIN FORMATION AND DAY CREEK DOLOMITE	15 48
			PCN	NIPPEWALLA GROUP	284 930

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LEGEND
COUNTY LINE ————
GEOLOGIC CONTACT ————

PLATE 7
GENERALIZED GEOLOGIC MAP
DODGE CITY QUADRANGLE,
KANSAS