

CHEMICAL QUALITY OF IRRIGATION WATERS IN HAMILTON, KEARNY, FINNEY, AND NORTHERN GRAY COUNTIES

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COVER PHOTO: Video color-enhanced imagery of Finney Co. southwest of Garden City based on LandSat band 5 (black and white) imagery. The Arkansas River and irrigated summer crops show as red, illustrating the large number of center-pivot irrigation systems in use. Photograph by Curtis D. Conley, Kansas Geological Survey.

# CHEMICAL QUALITY OF IRRIGATION WATERS IN HAMILTON, KEARNY, FINNEY AND NORTHERN GRAY COUNTIES

CHEMICAL QUALITY SERIES 4

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#### EXECUTIVE SUMMARY

The utilization of irrigation waters in Kansas has increased dramatically since the drought period of the 1950's. With this development has come the need for information which can be used in the determination of compatability of groundwaters with soils and crops and in the management of the groundwater systems tapped for agricultural purposes. An important component of this information is the chemical character of the waters under consideration.

The chemical quality data contained in this report show that ground-water presently in use from the Arkansas River valley in Kearny, Hamilton, and Finney counties and a band north of the river in Finney County is of sufficiently poor quality that it could produce adverse effects upon soils and crop yields with uncontrolled long-term usage. In most cases, poorer quality groundwater is associated with the presence of saline soils and shallow water tables.

Further efforts in this study are being directed toward correlating the chemistry of the groundwaters with natural variables such as soil association, bedrock types, depth to water, and surface and bedrock topography, and using these correlations to produce areal presentations of the chemical quality data. With these correlations and more complete coverage of western Kansas, positive policy recommendations concerning the conservation and proper use of the groundwater supplies of the state will be possible. This series of studies was begun on a limited scale in 1974 with that goal in mind. Greeley, Wichita, Scott, Lane, and southern Wallace counties were covered in that year; the results were reported in Kansas Geological Survey Chemical Quality Series 2. This report covers work done in 1975. In 1976, the rest of the southwest portion of the state was sampled; a report on that area is in preparation. This summer the Great Bend Prairie area will be sampled.

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## CHEMICAL QUALITY OF IRRIGATION WATERS IN HAMILTON, KEARNY, FINNEY, AND NORTHERN GRAY COUNTIES

#### ABSTRACT

One-hundred-ninety-nine pumping irrigation wells were sampled in Hamilton, Kearny, Finney, and northern Gray counties and adjoining portions of Wichita, Scott, Grant, Stanton, and Haskell counties during late July 1975. Saline water of a SO<sub>4</sub> type is found in the western three-fourths of the Arkansas River valley and a zone north of the river in Finney County. A better quality water of a Ca - HCO<sub>3</sub> type exists in the sandy regions south of the river. Localized variations exist in the Scott -Finney Depression area.

Compiled chemical quality data and chemical quality maps are presented for the study area.

#### INTRODUCTION

A program to establish chemical quality base-line data for irrigation waters of the Central High Plains region of western Kansas was initiated in the west-central Kansas area in 1974 (Hathaway et al., 1975). The present 3 1/2 county study area lies immediately south of the west-central region, and represents the upper portion of the southwestern Kansas region of groundwater studies (Figure 1).

Irrigation waters in the present study are derived mainly from the Ogallala Formation of Pliocene age or undifferentiated Quaternary—
Tertiary sequences. Alluvium associated with the Arkansas River valley, which trends in a southeastward direction through the study area, also serves as an aquifer for wells located in that valley.

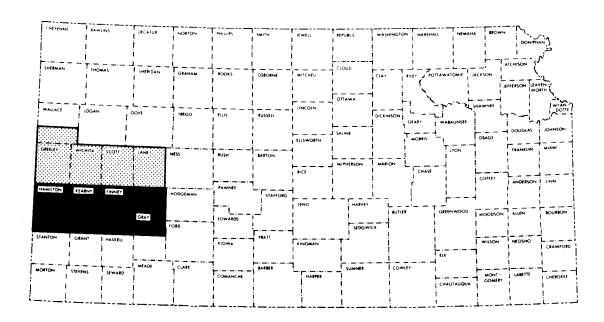


Figure 1. Index map of Kansas showing area covered by this report (shaded area). The region covered by the 1974 west-central Kansas chemical quality study is shown also (solid area).

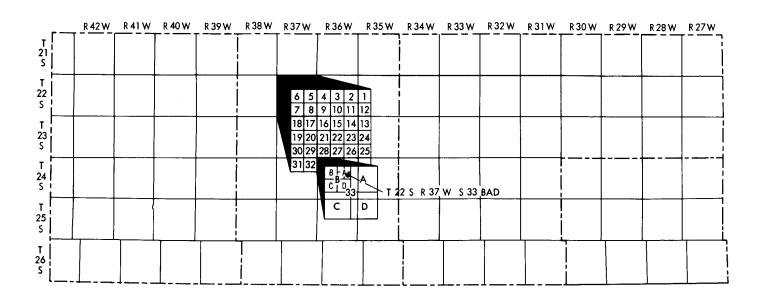


Figure 2. Well location system used in this report.

Well locations given in this report are based upon the Bureau of Land Management numbering system. The location is composed of the township, the range, and the section number followed by letters denoting the subdivision of the section on which the well is located (Figure 2).

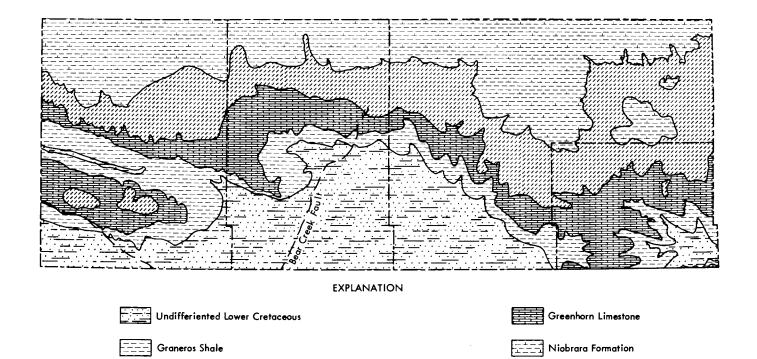
#### TOPOGRAPHY

The general topography of southwestern Kansas has been described by H.T.U. Smith (1941). The area covered by this report is characterized by a plains type topography. A general west to east slope of the land surface is noted for the study area. The Arkansas River is the major stream in this region and has a course which trends in a southeastward direction through the area covered by this report.

North of the Arkansas River at Garden City the plains are divided by the Scott-Finney depression which is a broad shallow depression extending northward to the Scott Basin. Little surface drainage occurs from this depression into the Arkansas River, and numerous smaller depressions are found upon the floor of this feature. The Pawnee River, located in the northeastern portion of the study area, joins the Arkansas River at some distance to the east of the region under investigation.

#### BEDROCK

The consolidated rocks of Cretaceous age underlying the unconsolidated deposits of Tertiary and Quaternary age serve as bedrock in the study area. Figure 3 shows that a general increase in age of the bedrock formations occurs in passing from north to south through much of the study area, i.e., Niobrara Formation to Carlile Shale to Greenhorn Limestone to Graneros Shale to undifferentiated lower Cretaceous--which



Bear Creek Fault

Figure 3. Bedrock geology of the study area.

Carlile Shale

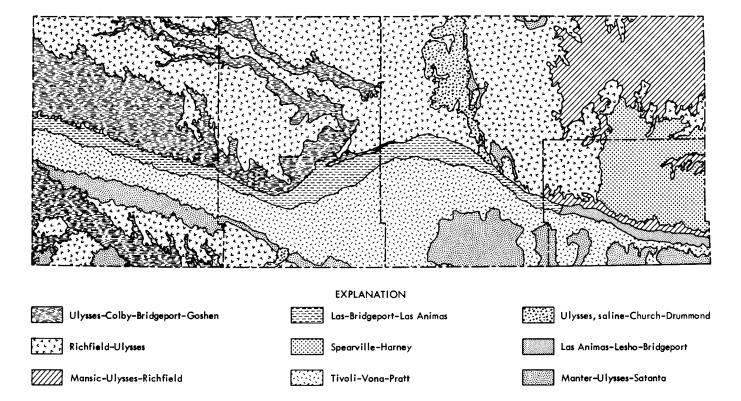


Figure 4. Soil association map of the study area. Saline conditions are generally associated with the Ulysses (saline)-Church-Drummond and Las-Bridgeport-Las Animas groups in the study area.

includes the Cheyenne Sandstone, the Kiowa Shale, and the Dakota Formation (H.E. McGovern and W.A. Long, 1974; E.D. Gutentag et al., 1972; D.H. Lobmeyer and C.G. Sauer, 1974; E.D. Gutentag, D.H. Lobmeyer and H.E. McGovern, 1972). This general trend is partially altered in southwest Hamilton County, presumably as a result of deep erosion by the ancestral Arkansas River and movement along the Bear Creek fault (D.H. Lobmeyer and C.G. Sauer, 1974).

#### SOILS

Figure 4 represents a general soil map for the study area which has been produced through a combination of the individual county general soil maps (Harner et al., 1965; Tomasu and Roth, 1968; McBee et al., 1961; Sallee et al., 1963). The continuity needed for the regional general soil map necessitated a certain amount of grouping of the various soil associations presented on the county general soil maps, or in some cases a regrouping of mapping units was needed to reflect the proportional pattern of soils in natural landscapes on a multi-county basis. The soil associations used on this regional map are listed in Table 1 along with a general description and the typical locations of these soil associations.

#### SAMPLING AND ANALYSIS

Groundwater samples were collected from 199 pumping wells over a four-day period during the high production portion of the season, July 28-31, 1975. Sampling procedures and field determinations were the same as those described for the west-central Kansas study. Historical chemical quality data was found to exist for about 14% of the wells sampled in

Table 1. Soil Associations for Hamilton, Kearny, Finney, and Northern Gray Counties.

Gray Counties.	
Soil Association Tivoli-Vona-Pratt	Description These sandy soils are found on undulating and hilly landscapes. The dominant area of occurrence for these soils is south of the Arkansas River valley. They are also found locally in patches on the eastern edge of the Scott-Finney depression. Little or no runoff occurs from these areas to stream systems.
Manter-Ulysses-Satanta	Loamy soils occuring on nearly level and gently undulating landscapes. The dominant region is a transitional band between the sandhills and the silty loess areas south of the Arkansas River valley. Small areas also exist along the eastern edge of the Scott-Finney depression. Little or no runoff occurs from these areas to stream systems.
Ulysses-Colby-Bridgeport-Goshen	Most of this association consists of silty and loamy soils on nearly level to strongly sloping landscapes. These soils occur mainly in the western half of the study area along upland drainageways and on the north wall of the Arkansas River valley.
Las-Bridgeport-Las Animas	These loamy, sandy, and silty soils are on nearly level to gently undulating landscapes. These soils occupy the Arkansas River valley to about the Gray county line in the study area. Soils in the lower valley positions are slightly to moderately saline.
Richfield-Ulysses	These silty soils are on broad, nearly level landscapes. This is the dominant soil association of the uplands. Little or no runoff occurs from these areas to stream systems.

Spearville-Harney

These clayey and silty soils are located

on broad, nearly level landscapes in the eastern one-fourth of the study area.

Mansic-Ulysses-Richfield

Loamy and silty soils occurring on nearly level to strongly sloping landscapes. Found in the eastern one-fourth of the study area along upland drainage ways and the north wall of the Arkansas River valley.

Ulysses (saline) -Church-Drummond

Silty and clayey soils found on nearly level landscapes. They are slightly to highly saline, and are found in the Scott-Finney depression.

Las Animas-Lesho-Bridgeport

These loamy, sandy, and silty soils are on nearly level to gently undulating landscapes. These soils occur in the Arkansas River valley through most of Gray County. The soils in the lower valley positions tend to be slightly to moderately saline.

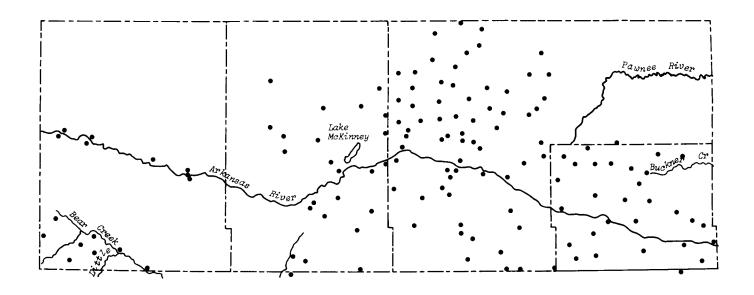


Figure 5. Distribution of irrigation wells sampled during study.

Principal drainage systems in the area are also indicated.

this study. Duplicate sets of samples were collected at 15 sites distributed across the study area. These wells were located along the boundaries of individual field personnel sampling areas and thus each duplicate set represents different samplings of the same well by two people. The time interval between collection of the pair of samples at these duplicate sites ranged from the same day to two days.

Figure 5 indicates the locations of the wells sampled in this study. Wells were sampled in township 27 of Stanton, Grant, and Haskell counties and townships 19-21 of Wichita and Scott counties to provide greater control at the boundaries of the main 3 1/2 county study area during mapping of the chemical quality data. Analytical data for these control wells are listed in the compilation of chemical quality data of Appendix A, but are not included in the mapped areas of the chemical

quality maps. The distribution of wells sampled for this study follows closely the regions shown as having pumping potentials of 100-500 gal./min. or greater on Map M-4A--General Availability of Ground Water and Normal Annual Precipitation in Kansas (C.K. Bayne et al., 1975).

Analytical procedures for all species except the trace elements iron (Fe) and manganese (Mn) were the same as described in the west-central Kansas report. The specific conductance and pH were measured at the time of collection. A field laboratory was established at Garden City and bicarbonate (HCO3), chloride (Cl), and fluoride (F) analyses were performed there. All other chemical determinations were made at the Kansas Geological Survey laboratories in Lawrence. Iron, manganese, nickel (Ni), and copper (Cu) were determined by atomic absorption spectroscopy using flameless atomization via a graphite furnace. Preconcentration of these elements and removal from interfering salts was achieved through the use of ammonium pyrrolidine dithiocarbamate as a complexing agent and methylisobutyl ketone as an extraction solvent. The major advantages of this procedure over that used in the west-central Kansas study are lower detection limits, reduced influence of dissolved solids, and smaller volumes of samples necessary for analysis.

A variation of about 9% in the reported specific conductance values was obtained for the sets of duplicate samples. Variations in the analytical data for the major chemical species from these same sets average about 4%. The greater fluctuation noted in the specific conductance values probably results from variations in field equipment used

and operator technique. Standard deviations for replicate determinations of a given sample are comparable to those listed in the west-central Kansas study.

Compiled chemical quality data for groundwater samples taken during this study are listed in the Appendix by county and location.

#### CORRELATION AND MAPPING OF CHEMICAL QUALITY DATA

Significant correlations are found to exist between the major chemical species of the groundwaters and areal parameters such as soil association, depth to water, bedrock and surface topographies, and bedrock type. The study area is divided roughly into three parts based upon these correlations: 1) area north of the Arkansas River, 2) Arkansas River valley, and 3) area south of the Arkansas River. These distinctions, however, become less clear in the eastern portion of the study area.

Due to the complexity of the study area and concentration distributions of the various chemical species, the simple computerized plotting routine used in the west-central Kansas chemical quality study was found to be inadequate for mapping the present study area. Chemical quality maps presented in this report were plotted manually using the soil associations as the principal guide. Mapping was cut off along the <100 gal/min boundary of the water quantity map M-4A. Work is currently underway to develop methods for using the correlation relationships between areal parameters and observed concentrations of the various chemical species to produce computer plotted areal chemical quality maps.

#### RESULTS AND DISCUSSION

Figures 6 and 7 are areal representations of the specific conductance and total dissolved solids data, respectively, for irrigation waters from the study region. Both figures indicate the greatest dissolved salts load is associated generally with groundwaters from the Arkansas River valley in Hamilton, Kearny, and Finney counties, with the amount of dissolved solids decreasing from west to east. The soil association in this area is the Las-Bridgeport-Las Animas group which is saline. Waters of higher specific conductance and total dissolved solids are found to extend out of the river valley in a band north and west of Garden City in Finney County to about the Kearny-Finney county line. In Gray County, groundwaters from the river valley, which are associated with the Las Animas-Lesho-Bridgeport soil group, appear to be more similar in character to waters from the sandy regions south of the Arkansas River than to groundwaters from the western two-thirds of the river valley system in the study area.

Areal concentration distributions for Na and SO<sub>4</sub> are presented in Figures 8 and 9, respectively. The chemical quality data for the study area are also presented in a modified Piper diagram (Piper, 1944) in Figure 10. Factors for conversion from parts per million (ppm) to milliequivalents per liter are listed in Table 2. Water type classifications used in this report are based upon percent milliequivalent contributions of the various chemical species to the total number of milliequivalents per liter of cations or anions.

Figures 8 and 9 indicate high levels of Na and  ${\rm SO}_4$  are found in waters from the Arkansas River valley in Hamilton, Kearny, and Finney counties, immediately north of the river valley in Finney County in a

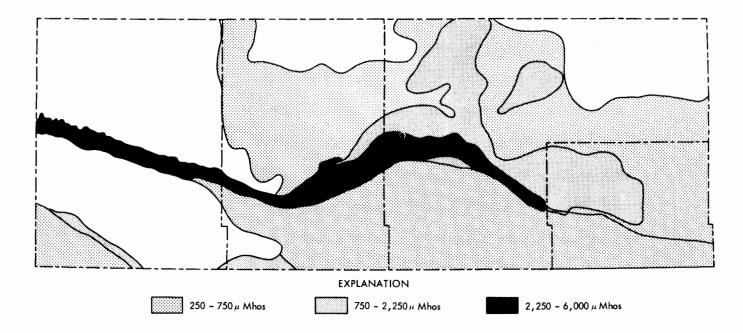


Figure 6. Map of specific conductance for the study area. Levels correspond to medium, high, and very high salinity hazard ranges.

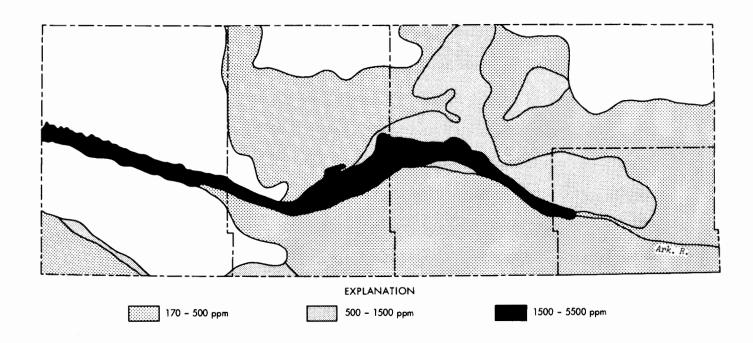


Figure 7. Map of total dissolved solids for the study area.

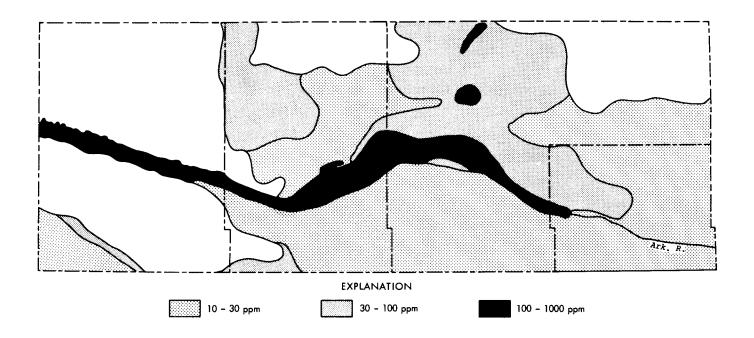


Figure 8. Map of concentration level of sodium for the study area.

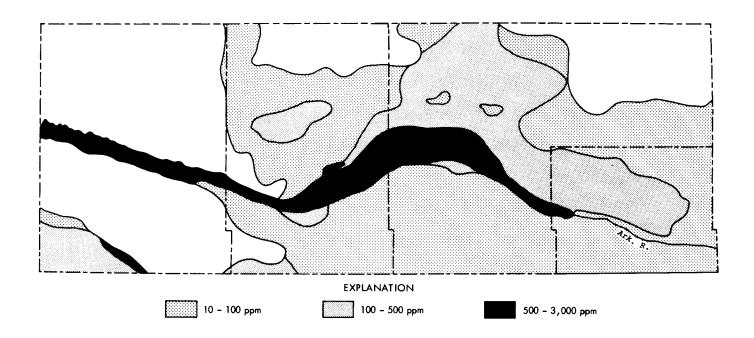


Figure 9. Map of concentration levels of sulphate for the study area.

Factors for Conversion of Parts Per Million to Milliequivalents Per Liter

Table 2

Species	Multiply by
Calcium	0.04990
Magnesium	0.08226
Sodium	0.04350
Potassium	0.02557
Strontium	0.02283
Bicarbonate	0.01639
Sulfate	0.02082
Chloride	0.02821
Fluoride	0.05264
Nitrate	0.01613

band extending north and west from Garden City, and locally for Na in the Scott-Finney depression. Waters from this portion of the river valley are clustered in the upper left portion of Figure 10. These are  $SO_4$  type waters in which no single cationic species makes a contribution to the total number of cation milliequivalents which is equal to or greater than 50%. The cation ranking varies from Na > Ca > Mg in Hamiltion County to a Ca > Na > Mg ranking in eastern Finney County. The more saline  $SO_4$  waters from the band north of the river in Finney County generally exhibit a ranking of Ca > Mg > Na. The boundary for the  $SO_4$  type waters in this region north of the river valley extends

slightly beyond that of the high  $SO_4$  level of Figure 9. In western Gray County the  $SO_4$  type waters are found to extend into a narrow zone north of the river. These waters are of lower salinity than those in the band north of the river in Finney County, but possess the same ranking of cations (Ca > Mg > Na).

The greater Na, SO<sub>4</sub>, and total dissolved solids contents of ground-waters in the band north of the river valley near Garden City may be related to buried saline soil horizons in the lower portions of the Scott-Finney depression and/or irrigation practices using water from the Arkansas River which have produced a saline soil in

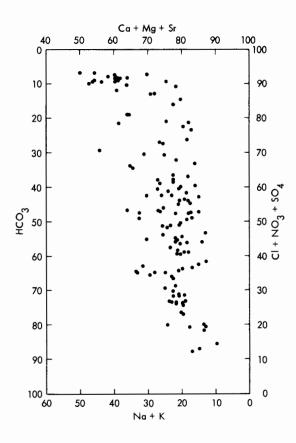


Figure 10. Modified Piper diagram for ground waters in the study area. Values represented are the milliequivalent contributions of chemical species to the total milliequivalents per liter of cations or anions.

this area (Harner et al., 1965; Meyer, Gutentag, and Lobmeyer, 1970). The latter authors have noted that higher concentrations of total dissolved solids in Finney County are associated with regions having high water tables or depressions where water collects and salts are enriched through evaporation. Irrigation in areas of saline soils and higher water tables can be expected to lead to deterioration of the local groundwater quality as salts are flushed down into the water table.

Groundwater from wells in the eastern three-fourths of the Arkansas River valley in Gray County is relatively low in its Na and SO<sub>4</sub> content. These waters are Ca-HCO<sub>3</sub> in character, plot in the lower one-third of the central portion of Figure 10, and appear to be more closely related to waters from the sandy areas south of the river than to waters from the western two-thirds of the river valley in the study area. Meyer et al., (1970) have noted that the Arkansas River tends to be a losing stream in Finney County, and McGovern and Long (1974) indicate it becomes a gaining stream in Gray County. Preliminary evaluation of the chemical quality data suggests the change in character of the river valley waters in Gray County is dominated by inflow of groundwater from the sandy regions south of the river.

Groundwater samples from north of the Arkansas River, excluding the band of  $SO_4$  type water near Garden City, tend to be mixed type waters for the most part in which Ca > Mg > Na and  $HCO_3 > SO_4$ . Locally within the Scott-Finney depression, areas exist where  $SO_4 \ge 50$ % and Na or Mg become the dominate cationic species. Notable exceptions to the above trends are: 1)  $HCO_3 \ge 50$ % for an area northwest of Lakin in Kearny County and for much of the outer perimeter of the mapped area north of the river in Kearny, Finney, and Gray counties, and 2)  $Ca \ge 50$ % in waters from an area along the Kearny-Finney county line north of the river.

Values of total dissolved solids and specific conductance for groundwaters from the sandy regions south of the Arkansas River in Kearny, Finney, and Gray counties include the lowest measured in the study area. The waters from this area are a Ca-HCO<sub>3</sub> type and tend to cluster in the lower one-third of Figure 10.

Samples from southwestern Hamilton tend to be Ca-HCO<sub>3</sub>-SO<sub>4</sub> type waters, except for samples taken from wells located along Bear Creek. In these wells there is an enrichment in dissolved salts and the waters tend to be of a Ca-SO<sub>4</sub> type. The water classifications for the entire study area are summarized in Figures 11 and 12. Areas shown as having no control within the mapped region are those areas in which samples were not available for extension of the water type boundaries.

The Arkansas River has a strong influence on the distribution patterns of K, Mg, and Cl as well as that already noted for Na and  $\mathrm{SO}_{\Lambda}$ . The highest K concentrations (10-20 ppm) are observed in the river valley westward from Finney-Gray county border and the band of SO, type waters north of the river in Finney County. The lowest K concentrations (1.9-2.8 ppm) occur in portions of the sandy regions of Kearny and Finney counties south of the river. The distribution of high (90-236 ppm) concentrations of Mg is similar to that of K. Moderately high concentrations of Mg occur locally in the Scott-Finney depression. The sandy regions of Kearny, Finney, and Gray counties south of the river exhibit the lowest Mg concentrations (5.9-12 ppm). The highest C1 concentrations (106-331 ppm) occur in Hamilton and Kearny counties in the river valley and in Finney in the band of  $SO_A$  type waters north of the river, the river valley eastward from Garden City to the Finney-Gray County border, and locally within the Scott-Finney depression. Very low Cl concentrations (<2 ppm) occur in portions of the sandy areas of Kearny and Finney counties south of the river.

Levels of F greater than 1.5 ppm are generally associated with waters from north of the Arkansas River in Finney and Gray counties, and are mainly concentrated above a line running from the northwest corner

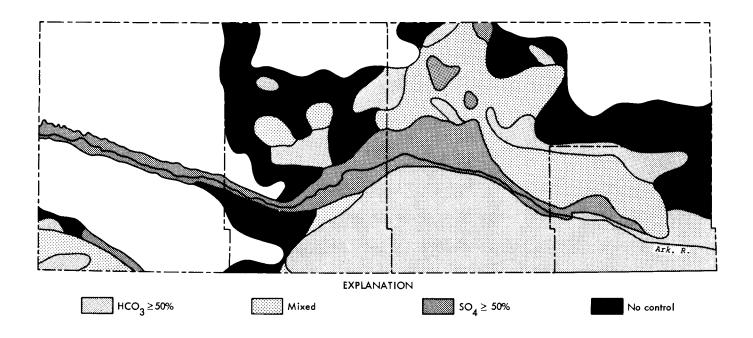


Figure 11. Groundwater classification by anion type.

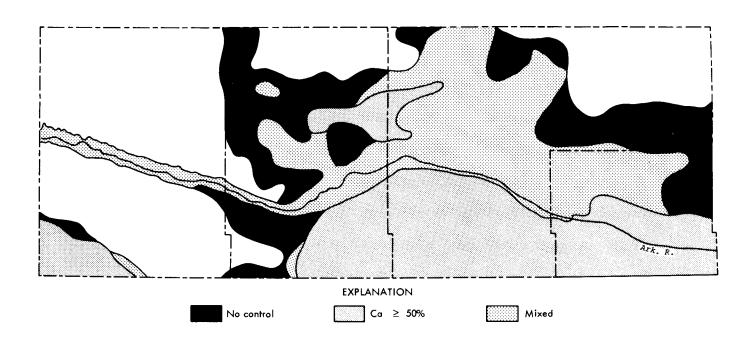


Figure 12. Groundwater classification by cation type.

of Finney County to the river at the Finney-Gray County border. In Gray County, high fluoride levels coincide fairly well with the occurrence of  ${\rm HCO}_3$  type waters. General trends for  ${\rm NO}_3$  are much less apparent than those noted for other species.

The foregoing discussion has treated chemical quality aspects of the study area as if the area was only two dimensional, i.e., no variation in quality with depth in the aquifer. This is necessitated in most cases by a lack of information regarding screened intervals in the wells used in this study. Meyer, Gutentag, and Lobmeyer (1970) have found concentration variations in the total dissolved solids for waters from Tertiary and Quaternary deposits along a north-south traverse in Finney County (through the Garden City area). Variations in chemical quality of groundwaters generally can be expected to be smeared out downdip of the water table, however intensive pumping of wells neighboring and somewhat updip of zones of poorer water quality might be able to cause a local deterioration of groundwater quality under favorable hydrologic conditions which lead to a local reversal of the water table gradient.

Figure 13 is an areal presentation of the sodium-adsorption-ratio (SAR) for the study area. SAR values are computed using the equation

$$SAR = \frac{(Na)}{\sqrt{\frac{(Ca) + (Mg)}{2}}}$$

where values in parentheses are milliequivalents per liter of the specified ions. SAR and specific conductance values can be used to evaluate alkali and salinity hazards, respectively, in regard to suitability of a water for irrigation purposes (U.S. Salinity Laboratory

Staff, 1954). Levels for specific conductance in Figure 6 correspond to medium, high, and very high salinity hazard classifications.

The general range of SAR values for the SO<sub>4</sub> type waters of the Arkansas River valley in Hamilton, Kearny, and Finney counties and localized sites in the Scott-Finney depression is 3-9. Values in the range of 0.2-1 are typical for most of the study area south of the river and north of the river in Gray County. Figure 14 relates SAR values to specific conductance values for determining the suitability of a water for irrigation.

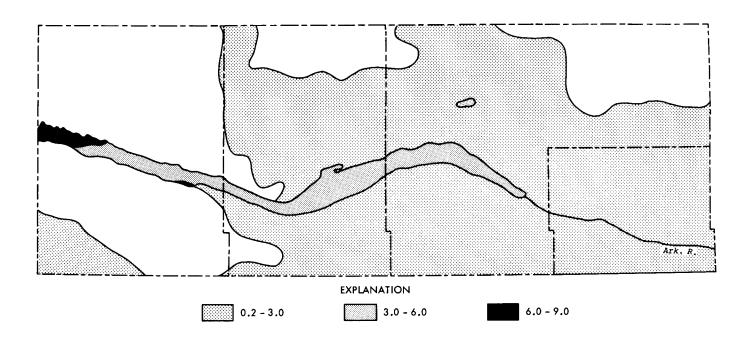


Figure 13. Map of values of the sodium adsorbtion ratio for the study area.

In summary, the chemical quality of groundwaters in the study is complex, with sandy areas south of the Arkansas River exhibiting the best chemical quality (low total dissolved solids, SAR, etc.) and the western three-fourths of the Arkansas River valley and portions of the Scott-Finney depression exhibiting the poorest chemical quality. Poorer water quality tends to correlate with the presence of saline soils and the existance of a high water table and/or small, poor draining shallow depressions. The similarity between water from the Arkansas River valley in Gray County and water from the sandy areas south of the river in that region suggests that

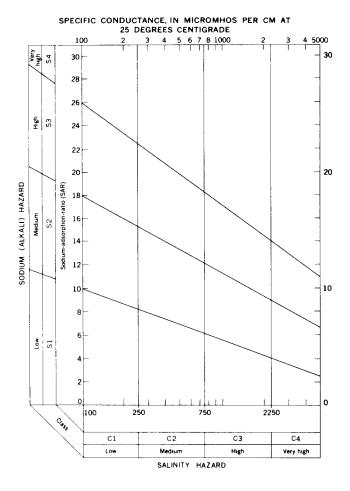


Figure 14: Diagram showing the relationship between specific conductance and the sodium adsorption ratio in evaluation of salinity and alkali hazards for irrigation waters.

groundwater movement from the sandy regions is a dominant factor in the change in chemical quality of waters of the river valley near the Finney-Gray County border.

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**APPENDIX** 

Chemical Quality Data

Finney County

Well	Geological	Historical	SiO <sub>2</sub>	Ca	Mg	Na	K	Sr	нсо 3	so <sub>4</sub>	Cl	F	NO.
Location	Unit*	Data**	ppm <sup>2</sup>	ppm	ppm	ppm	ppm	ppm	ppm <sup>3</sup>	ppm ppm	ppm	ppm	NO <sub>3</sub>
21-31W-26CCC	TO		64	36	28	35	6.8	1.3	244	50	25	5.0	5.2
21-32W-8ABD	Qu		66	112	66	110	8.5	2.9	312	444	70	3.2	22
21-32W-20CBD	Qu,TO		70	65	46	74	6.4	2.0	308	187	48	4.2	9.0
21-33W-2ACB	Qu		43	82	40	60	5.1	1.8	244	233	52	2.5	5.8
21-33W-7DDA	Qu		50	38	37	53	7.2	1.3	301	74	30	4.4	5.1
21-33W-25CAA	Qu,TO		53	54	68	100	4.4	2.0	282	307	79	3.7	4.1
21-33W-31CBB3	Qu,TO		36	138	59	82	8.2	2.7	204	400	133	1.5	22
22-31W-9DCC	Qu,TO		55	79	32	52	7.6	1.3	229	210	31	2.3	6.1
22-31W-12CDC2	Qu,TO		62	67	38	39	7.3	1.6	204	152	63	3.3	13
22-31W-35ABB	Qu,TO		55	70	36	61	6.8	1.4	246	186	42	2.7	15
22-32W-21CCD	Qu', TO		36	98	53	67	7.4	2.6	250	272	107	1.5	16
22-32W-25BBB	Qu,TO		43	50	28	50	5.4	1.1	227	132	27	2.6	12
22-33W-3DBC	Qu,TO		33	110	52	77	7.9	2.4	222	362	76	1.8	9.3
22-33W-17DCD	Qu,TO		24	167	48	58	7.7	2.3	195	408	110	1.0	11
22-33W-22BAA	Qu,TO		24	67	24	39	5.2	1.3	203	127	38	1.4	7.8
22-33W-32CBC	Qu,TO		24	53	19	27	4.2	1.1	195	82	19	1.0	4.5
22-33W-36AAA	Qu,TO		26	86	43	170	7.6	2.1	289	466	48	1.5	6.7
22-34W-8BCB	KN		24	53	22	32	5.6	.9	200	74	34	1.3	14
22-34W-10ADD	Qu,TO		25	73	26	34	5.5	1.3	216	110	48	1.1	15
22-34W-22CCC	Qu,TO		20	86	25	35	5.1	1.3	197	134	63	1.2	11
22-34W-32BCB	Qu,TO		20	58	22	25	4.8	1.0	188	92	32	1.0	11
23-29W-34CDD	TO		50	54	22	25	5.4	.8	215	71	20	2.4	13
23-31W-3DCD	Qu,TO		50	59	25	38	5.6	1.1	211	115	40	2.1	18
23-31W-9DBB	Qu,TO		22	58	22	28	4.5	.4	218	92	27	.8	4.6
23-31W-35CCC	Qu,TO		43	52	27	28	5.2	1.2	214	82	26	2.3	15
	2,					•	3.2	1.2		02	20	2.5	13
23-32W-4DDD	Qu,TO		37	48	18	41	4.5	.9	241	72	16	2.0	5.9
23-32W-11ADC	Qu,TO		36	70	28	44	5.1	1.3	207	118	62	2.1	18
23-32W-18BCD	Qu,TO		26	104	47	54	6.4	2.6	232	309	53	1.1	7.5
23-32W-22DAB	Qu,TO		28	53	26	33	4.8	1.2	213	101	30	1.3	12
23-32W-31CA	Qu,TO		23	167	78	120	7.3	3.7	206	661	106	1.3	11
23-33W-10DCC	Qu,TO		24	59	30	40	5.0	1.5	238	124	32	1.3	6.8
23-33W-17BBB	Qu,TO		24	111	46	45	6.1	2.5	197	313	81	1.1	7.2
23-33W-26ABB	Qu,TO		26	161	89	97	8.4	4.6	200	663	113	1.2	9.8
23-33W-28CDC	Qu,TO		25	168	85	220	8.9	4.3	196	959	121	1.1	5.6
23-33W-32ABB	Qu,TO		26	112	60	130	6.9	2.6	200	562	80	1.2	9.7
23-33W-35ACC	Qu,TO		29	327	145	360	13	7.0	*305	1804	183	.8	8.9
23-34W-3BCB	Qu,TO		24	67	25	29	4.9	1.3	188	110	50	1.1	7.9
23-34W-14BDC	Qu,TO		26	104	43	65	6.0	2.1	205	346	50	1.0	12
23-34W-17CCC	Qu,TO		22	121	33	37	5.8	1.3	161	241	116	.6	12
23-34W-21DDC	Qu,TO		30	178	58	73	7.4	3.0	162	565	127	.8	11
23-34W-28CDA	Qu,TO		29	300	108	170	12	6.0	186	1230	142	.8	7.9
24-31W-11DBD	Qu,TO		42	70	36	49	6.0	1.6	218	184	50	1.8	14
24-31W-17DDD	Qu,TO		34	64	32	46	5.0	1.4	233	158	26	1.8	9.9
24-32W-5BCB	Qu,TO		24	218	97	169	11	4.6	227	983	152	.9	14
24-32W-25CBB2	QA		22	226	96	270	11	3.6	403	879	185	2.0	23
24-32W-29AC	QA		19	46	6.8	9.2	2.3	.4	166	26	<1	.7	4.7
24-32W-29AC 24-33W-14BBB	QA QA		19	72	24	65	4.0	.8	192	251	22	.9	4.7
24-33W-14BBB 24-33W-21CAB	Qu,TO		19	45	10	19	2.7	.6	181	50	2.4	.8	5.5
24-33W-21CAB 24-33W-22DCA	Qu,TO		19	45 67	12	29	3.2	.6	182	114	9.6	.8	6.9
24-33W-28DAA			17	49	11	29	2.7	.7	184	56	5.3		5.3
24-33W-20DAA	Qu,TO		1/	49	11	21	2./	. /	104	36	5.3	.0	5.3
24-34W-5AA	Qu,TO		28	370	172	310	14	8.6	214	1841	179	.8	13
24-34W-17BBC	Qu,TO		20	423	158	500	13	4.8	314	2336	206	1.3	38
25-32W-24DDA	Qu,TO		20	55	8.8	19	3.0	.5	200	48	4.3		9.7
25-33W-5ABD	Qu,TO		17	49	9.8	20	2.6	.6	179	59	4.4		6.0
25-33W-9ABD	Qu,TO		17	47	9.4	22	2.6	.7	172	61	4.2	.8	5.4

<sup>\*</sup>Geological Unit: QA, Alluvium; Qu, Quaternary Undifferentiated; TO, Ogallala Formation; KN, Niobrara Chalk; KJ, Undifferentiated Lower Cretaceous and Upper Jurassic Deposits.

\*\* a - Chemical Quality of Irrigation Waters in West-Central Kansas
b - U.S.G.S. Kansas Ground Water Data Base
All wells sampled tested below 0.1 ppm Ortho Phosphate

Hardness as

							CaCO <sub>2</sub>			
Fe	Mn	Cu	Ni	Tempera-	Total Solids	Total	Non-Carbonate	Specific Conductance	SAR	pН
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	ppm	ppm	(micromhos at 25°C)		-
10	.3	2.0	7.6	16.0	388	206	7	600	1.06	7.7
47	1.6	20	3.2	16.0	1091	554	299	1500	2.03	7.6
39	3.8	1.4	3.0	16.0	670	354	101	1000	1.71	7.7
16	3.8	1.8	13	15.5	683	371	171	935	1.35	7.8
24	4.2	3.4	2.2	17.0	451	248	2	700		
24	4.2	3.4	2.2	17.0	451	248	2	700	1.46	7.6
F 2	1.0	1.6	7.0	16.0	222	41.7	100			
53	1.0	1.6	7.0	16.0	820	417	186	1275	2.13	7.6
8.6	. 2	1.6	4.3	15.0	1035	590	423	1480	1.47	7.4
22	. 3	1.4	9.8	16.0	603	330	143	870	1.24	7.4
22	.3	1.2	9.0	16.0	586	325	158	820	.94	7.6
19	.5	2.0	11	16.0	618	324	123	900	1.47	7.6
16	.4	1.1	7.5	16.0	845	465	261	1240	1.35	7.3
21	1.2	2.9	8.2	16.0	461	241	55	690	1.40	7.6
16	.5	.7	4.9	17.0	903	491	309	1240		7.8
16	2.4	1.0	3.7	15.0					1.51	
					1031	617	457	1460	1.02	7.3
15	. 4	1.3	6.4	16.0	476	267	101	750	1.04	7.5
_										
15	. 4	1.0	7.5	16.0	349	212	52	560	.81	7.5
20	.8	1.0	6.4	17.0	1013	394	157	1440	3.73	7.5
18	1.0	4.7	19	19.0	384	224	60	580	.93	7.6
18	1.5	2.0	7.5	16.0	457	291	114	730	.87	7.5
10	.2	1.5	11	16.0	509	319	157	780	.85	7.6
						323	10.	700	.05	7.0
42	2.9	5.2	8.1	16.0	395	236	82	630	71	2.2
42	.6							630	.71	7.7
		1.1	9.8	16.0	386	226	50	630	.72	7.7
18	.4	2.2	7.5	16.0	442	251	78	660	1.04	7.6
16	4.8	.7	8.9	17.0	399	236	57	620	.79	7.6
12	. 2	1.6	5.4	16.0	415	242	67	610	.78	7.8
12	. 2	2.7	17	16.0	382	195	0	480	1 20	7.6
14	2.2	1.5	8.0	16.0	504	291			1.28	7.6
4.5	.3	1.8	6.4				122	770	1.12	7.5
				17.0	788	456	266	1100	1.10	7.8
20	. 4	1.6	13	16.0	439	241	66	650	.93	7.6
19	2.2	1.2	7.8	17.0	1343	742	573	1560	1.92	7.3
17	.6	1.1	17	16.0	444	272	77	680	1.05	7.5
21	.4	1.4	5.8	16.0	752	469	308	1120	.90	7.7
52	10	23	22	17.0	1365	773	609	1560	1.52	7.5
18	.6	.8	12	18.0	1776	774	613			
18	.3	5.0	10	19.0	1130	529	365	2200	3.44	7.7
	• •	3.0	10	13.0	1130	323	303	1600	2.46	7.7
38	1.8	1.6	11	10.0	2124	1.400	1.55			
				18.0	3134	1420	1170	3600	4.16	7.1
24	2.3	6.4	6.4	16.0	434	271	117	700	.77	7.5
19	.6	1.0	9.5	17.0	778	439	271	1140	1.35	7.7
12	.6	4.8	35	17.0	677	439	307	1120	.77	7.3
40	1.6	3.2	11	17.0	1193	686	553	1700	1.21	7.7
24	.5	1.0	14	18.0	2251	1200	1047	2500	2.14	7.5
14	.6	3.5	9.2	16.5	578	325	146			
18	1.9	2.2	3.4	17.0	514			860	1.18	7.5
24	.5	1.4				293	102	830	1.17	7.4
			11	16.0	1809	948	762	2350	2.39	7.2
21	.7	1.7	5.5	20.0	1993	963	633	2810	3.79	7.1
11	.5	2.4	7.2	18.0	237	143	7	450	.33	7.5
18	3.1	.9	5.8	16.0	587	279	122	1050	1.69	7.7
11	.3	3.6	9.6	18.0	236	154	6	450	.67	7.6
18	3.8	126	11	18.0	358	217	68	610		
20	2.0	3.1	8.0	18.0	260	168			.86	7.5
	0	٠. ـ	0.0	10.0	200	108	18	560	.70	7.5
46	10	6.1	16	16 5	2256	16.0	1.465			
			16	16.5	3256	1640	1465	3780	3.33	7.3
57	8.7	1.6	13	15.0	3936	1710	1453	4800	5.26	7.3
21	.9	1.2	12	18.0	269	174	10	560	.63	7.6
12	.2	4.5	10	18.5	261	163	17	555	.68	7.7
12	.5	3.1	24	19.0	247	157	16	495	.76	7.6
					-			193	. 10	7.0

Finney County (cont.)

Finney County	(CONT.)												
Well	Geological	Historical	SiO <sub>2</sub>	Ca	Mg	Na	ĸ	Sr	HCO <sub>3</sub>	so,	Cl	F	NO.
Location	Unit	Data	ppm <sup>2</sup>	ppm	ppm	ppm	ppm	ppm	ppm <sup>3</sup>	SO <sub>4</sub> ppm	ppm	ppm	NO <sub>3</sub>
												_	
25~33W~35CCA	Qu,TO		20	55	7.4	15	2.7	.4	205	12	3.6	.6	6.7
25-34W-6BAD	Qu,TO		17	57	11	22	2.8	.2	173	75 <b>4</b> 5	9.5 3.2	.8 .5	9.7 3.9
25-34W-11DDD	Qu,TO		17	49	8.2	19	2.5	.5 .4	188 181	25	1.4	.7	5.0
25-34W-34DBD 26-31W-6BBC	Qu,TO		17 18	<b>4</b> 8 56	7.2 8.5	10 17	2.4 2.8	.5	196	36	9.2	.5	6.7
20-31 <b>W</b> -0BBC	Qu,TO		10	36	0.5	1,	2.0		170	30	٠,٠		•••
26-31W-31CDC	Qu,TO		19	54	7.9	22	2.7	.5	201	36	11	.4	6.8
26-31W-36CAC2	Qu,TO		20	50	8.0	20	2.8	.5	200	42	4.8	.5	8.2
26-32W-22ABB	Qu,TO		17	79	11	25	3.3	.6	214	67	32	.4	9.1
26-32W-35CDA	Qu,TO		19	74	10	26	2.9	.7	226	48	31	.5	9.1
26-33W-3DBB	Qu,TO		17	60	9.3	20	2.6	.6	212	21	13	.5	12
												-	
26-33W-12BDC	Qu,TO		19	67	8.0	17	3.2	.5	203	55	21	.5 .6	8.4 3.6
26-33W-26ABB	Qu,TO		15	49	6.5	11	2.3	.4	184	16	1.1	.0	3.0
Grant County													
Well	Geological	Historical	$sio_2$	Ca	Mg	Na	K	Sr	HCO <sub>3</sub>	SO <sub>4</sub>	Cl	F	NO 3 ppm
Location	Unit	Data	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
							2.5		174	49	24	.4	4.4
27-35W-17ADD	Qu,TO		19	62	7.5	13	2.5 2.1	.4 .6	174	28	7.9	.5	9.6
27-35W-34BBA	Qu,TO		18 18	48 50	8.4 13	12 27	3.0	.8	211	57	8.0	.9	4.8
27-36W-15DDD	Qu,TO		29	64	32	64	4.4	1.8	278	176	18	1.7	22
27-36W-18DCB 27-37W-4ABB	Qu,TO Qu,TO		23	68	38	67	6.1	1.8	271	217	23	1.9	10
27-37W-4ADD	24,10		23		• • • • • • • • • • • • • • • • • • • •	•							
27-37W-11ABA	Qu,TO		25	46	28	55	4.5	1.3	258	123	9.5	2.3	7.1
27-37W-22BBB	Qu,TO		29	81	32	38	4.6	1.8	253	183	18	1.4	10
27-37W-26BCB	Qu,TO		24	63	26	75	4.3	1.5	242	215	18	1.4	6.1
27-37W-29CBB	Qu,TO		24	85	31	55	4.6	2.0	231	188	56 20	1.6	13 27
27-38W-22CBB	Qu,TO		24	86	29	45	4.8	1.7	244	168	29	1.2	21
07 20W 25DDD	O MO		24	92	32	50	4.2	2.0	199	224	36	1.3	30
27-38W-25BBB 27-38W-32BBC	Qu,TO		23	76	27	46	4.4	1.7	202	202	20	1.2	4.6
27-30W-32BBC	Qu,TO		23	70	2.7	•••							
Gray County													
							,,	0	1100	60	C1	P	NO
Well	Geological	Historical	SiO <sub>2</sub>	Ca	Mg	Na Dom	K	Sr	нсо 3	SO <sub>4</sub>	Cl	F	NO <sub>3</sub>
	Geological Unit	Historical Data	SiO <sub>2</sub>	Ca ppm	Mg ppm	Na ppm	K ppm	Sr ppm	HCO 3	SO <sub>4</sub>	Cl ppm	F ppm	NO 3
Well Location	Unit		ppm	ppm	ppm				HCO ppm <sup>3</sup>	SO <sub>4</sub> ppm			NO <sub>3</sub> ppm
Well Location 24-27W-8CCC	Unit Qu,TO		SiO <sub>2</sub> ppm <sup>2</sup> 49 47			ppm	ppm	ppm	ppm		ppm	ppm	9.1 15
Well Location	Unit		ppm 49	<b>ррт</b> 58	ppm 24	рр <b>т</b> 25	<b>ррт</b> 5.6	ppm 1.0	210	83 69 63	32 20 16	2.3 2.0 1.4	9.1 15 8.2
Well Location 24-27W-8CCC 24-28W-10ADD	Unit Qu,TO Qu,TO		49 47	<b>ppm</b> 58 55	24 20 24 31	25 23 27 26	5.6 5.5 5.4 5.6	1.0 .9 1.2 1.5	210 210 233 210	83 69 63 129	32 20 16 32	2.3 2.0 1.4 1.1	9.1 15 8.2
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA	Unit Qu,TO Qu,TO Qu,TO		ppm 49 47 45	58 55 52	24 20 24	25 23 27	5.6 5.5 5.4	1.0 .9 1.2	210 210 233	83 69 63	32 20 16	2.3 2.0 1.4	9.1 15 8.2
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA	Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		49 47 45 42 41	58 55 52 67 69	24 20 24 31 32	25 23 27 26 21	5.6 5.5 5.4 5.6 5.9	1.0 .9 1.2 1.5 1.4	210 210 233 210 201	83 69 63 129 125	32 20 16 32 49	2.3 2.0 1.4 1.1	9.1 15 8.2 11 16
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-18CCB	Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		49 47 45 42 41	58 55 52 67 69	24 20 24 31 32	25 23 27 26 21	5.6 5.5 5.4 5.6 5.9	ppm 1.0 .9 1.2 1.5 1.4	210 210 233 210 201	83 69 63 129 125	32 20 16 32 49	2.3 2.0 1.4 1.1 1.5	9.1 15 8.2 11 16
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-18CCB 24-29W-24ADD	Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO	Data	49 47 45 42 41 43 43	58 55 52 67 69 65 52	24 20 24 31 32 33 25	25 23 27 26 21 27 21	5.6 5.5 5.4 5.6 5.9 5.9	ppm 1.0 .9 1.2 1.5 1.4 1.4	210 210 233 210 201 206 210	83 69 63 129 125	32 20 16 32 49 61 27	2.3 2.0 1.4 1.1 1.5	9.1 15 8.2 11 16
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-16DCA 24-29W-18CCB 24-29W-24ADD 24-30W-1BCB	Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		49 47 45 42 41 43 43 55	58 55 52 67 69 65 52 56	24 20 24 31 32 33 25 24	25 23 27 26 21 27 21 28	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5	ppm 1.0 .9 1.2 1.5 1.4 1.4 1.1	210 210 233 210 201 206 210 209	83 69 63 129 125 111 66 88	32 20 16 32 49 61 27 25	2.3 2.0 1.4 1.1 1.5	9.1 15 8.2 11 16
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-16CCB 24-29W-24ADD 24-30W-1BCB 24-30W-8DCD	Qu,TO	Data	49 47 45 42 41 43 43 55 45	58 55 52 67 69 65 52 56 70	24 20 24 31 32 33 25 24 33	25 23 27 26 21 27 21 28 41	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2	1.0 .9 1.2 1.5 1.4 1.4 1.1	210 210 233 210 201 206 210	83 69 63 129 125	32 20 16 32 49 61 27	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6	9.1 15 8.2 11 16
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-16DCA 24-29W-18CCB 24-29W-24ADD 24-30W-1BCB	Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO	Data	49 47 45 42 41 43 43 55	58 55 52 67 69 65 52 56	24 20 24 31 32 33 25 24	25 23 27 26 21 27 21 28	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5	ppm 1.0 .9 1.2 1.5 1.4 1.4 1.1	210 210 233 210 201 206 210 209 211	83 69 63 129 125 111 66 88 165	32 20 16 32 49 61 27 25 45	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8	9.1 15 8.2 11 16 10 12 8.9 9.8
Well Location 24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-16CCB 24-29W-24ADD 24-30W-1BCB 24-30W-8DCD	Qu,TO	Data	49 47 45 42 41 43 43 55 45	58 55 52 67 69 65 52 56 70	24 20 24 31 32 33 25 24 33	25 23 27 26 21 27 21 28 41 42	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6	210 210 233 210 201 206 210 209 211 208	83 69 63 129 125 111 66 88 165 194	9pm 32 20 16 32 49 61 27 25 45 45	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-26W-31DD 24-29W-16DCA  24-29W-16CCB 24-29W-24ADD 24-30W-1BCB 24-30W-8DCD 24-30W-15CCC	Qu,TO	Data	49 47 45 42 41 43 55 45 40	58 55 52 67 69 65 52 56 70 81 79 70	24 20 24 31 32 33 25 24 33 34	25 23 27 26 21 27 21 28 41 42	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6	210 210 233 210 201 206 210 209 211 208 218 217	83 69 63 129 125 111 66 88 165 194	9Pm  32 20 16 32 49 61 27 25 45 45 21 24	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16CCB 24-29W-24ADD 24-30W-1BCB 24-30W-8DCD 24-30W-15CCC  24-30W-31ABB	Qu,TO	Data	49 47 45 42 41 43 43 55 45 40	58 55 52 67 69 65 52 56 70 81 79 70 60	24 20 24 31 32 33 25 24 33 34	25 23 27 26 21 27 21 28 41 42 34 17 16	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 6.2	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215	83 69 63 129 125 111 66 88 165 194 184 107 91	9Pm 32 20 16 32 49 61 27 25 45 45 21 24 24	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-26W-31DD 24-29W-16DCA  24-29W-16CCB 24-30W-18CCB 24-30W-8DCD 24-30W-8DCD 24-30W-31ABB 25-27W-33ABB 25-27W-33ABB	Qu,TO	Data	49 47 45 42 41 43 43 55 40 32 37 37 36	58 55 52 67 69 65 52 56 70 81 79 70 60 55	24 20 24 31 32 33 25 24 33 34 33 28 25 26	25 23 27 26 21 27 21 28 41 42 34 17 16 14	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215 228	83 69 63 129 125 111 66 88 165 194 184 107 91	9pm 32 20 16 32 49 61 27 25 45 45 45 45	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA 24-29W-16DCA 24-29W-24ADD 24-30W-1BCB 24-30W-1BCCD 24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB	Qu, TO	Data	49 47 45 42 41 43 43 55 45 40	58 55 52 67 69 65 52 56 70 81 79 70 60	24 20 24 31 32 33 25 24 33 34	25 23 27 26 21 27 21 28 41 42 34 17 16	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 6.2	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215	83 69 63 129 125 111 66 88 165 194 184 107 91	9Pm 32 20 16 32 49 61 27 25 45 45 21 24 24	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-16CCB 24-30W-1BCB 24-30W-1BCCC  24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB	Qu,TO	Data	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22	5.6 5.5 5.4 5.6 5.9 5.9 5.5 6.2 6.2 5.1 5.4 5.0	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.3 1.2 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140	32 20 16 32 49 61 27 25 45 45 45 21 24 24 19 27	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCB 24-30W-1BCB 24-30W-1BCB 24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-35CDC 25-28W-16BBB	Qu, TO	Data	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140	9pm 32 20 16 32 49 61 27 25 45 45 45 45	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-18CCB 24-30W-1BCB 24-30W-1BCB 24-30W-1BCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB  25-28W-31BBC 25-28W-31BBC 25-29W-7BCB	Qu,TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 36 39	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92	24 20 24 31 32 33 25 24 33 34 33 25 26 32 28 35	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140	9pm 32 20 16 32 49 61 27 25 45 45 21 24 24 19 27 26	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16CCB 24-29W-16CCB 24-30W-1BCCB 24-30W-1BCCB 24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-35CDC 25-28W-16BBB  25-28W-31BBC 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB	Qu,TO	Data	49 47 45 42 41 43 43 55 45 40 32 37 37 37 36 39 25	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140	9pm 32 20 16 32 49 61 27 25 45 45 45 21 24 24 19 27	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-18CCB 24-30W-1BCB 24-30W-1BCB 24-30W-1BCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB  25-28W-31BBC 25-28W-31BBC 25-29W-7BCB	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 36 39	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 36	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 246	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140	9pm  32 20 16 32 49 61 27 25 45 45 21 24 29 27 26 32 50	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 4.8 6.9
Well Location  24-27W-8CCC 24-26W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16CCB 24-29W-16CCB 24-30W-1BCB 24-30W-1BCCC 24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-35CDC 25-28W-31BBC 25-28W-31BBC 25-28W-31BBC 25-29W-7BCB 25-29W-7BCB	Qu,TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199	24 20 24 31 32 33 25 24 33 34 33 25 26 32 28 35 35 31 35 36 37 38 38 38 38 38 38 38 38 38 38 38 38 38	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 36 25 186	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 29 6	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806	9pm 32 20 16 32 49 61 27 25 45 45 21 24 24 19 27 26 32 50 9.8 55	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16CCB 24-29W-16CCB 24-30W-1BCCB 24-30W-1BCCB 24-30W-15CCC  24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-35CDC 25-28W-16BBB  25-28W-31BBC 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-33BBC 25-29W-33BBC 25-30W-20BCB  26-27W-13BBC	Qu,TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 37 36 39 25 30 29 19 14	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 35 13	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 25 186	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 6.0 3.6 7.1	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.8 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 29 216 204 218 243 229 267	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806	9pm 32 20 16 32 49 61 27 25 45 45 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 4.8 6.9 12 14 24
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16CCB 24-29W-16CCB 24-30W-1BCB 24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB 25-28W-16BBB 25-28W-31BBC 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-33BBC 25-29W-33BBC 25-30W-20BCB	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19 14	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199 54 66	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 25 186	5.6 5.5 5.4 5.6 5.9 5.9 5.0 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.0 4.7 5.6	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215 228 246 204 218 243 229 267	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806	9pm 32 20 16 32 49 61 27 25 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.5 1.6 .9 .8 1.0 1.0 1.6 1.2	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9 12 14 24
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-16CCB 24-30W-1BCB 24-30W-1BCCC  24-30W-15CCC  24-30W-15CCC  24-30W-15CCC  25-27W-33ABB 25-27W-19CCC 25-28W-16BBB  25-28W-16BBB  25-28W-16BBB  25-29W-7BCB 25-29W-7BCB 25-29W-14ABB 25-29W-14ABB 25-29W-14BBC 25-27W-13BBC 26-27W-18ADC 26-27W-18ADC 26-27W-27CDD	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19 14	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199 54 66 66 62	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 36 25 186	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9 5.4 6.2	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.7 1.5 1.8 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216 204 218 243 229 267	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 42 46 29	9pm 32 20 16 32 49 61 27 25 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.5 1.6 .9 .8 1.0 1.0 1.2	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9 12 14 24
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-16DCB 24-30W-8DCD 24-30W-8DCD 24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB  25-28W-16BBB  25-29W-7BCB 25-29W-7BCB 25-29W-33BBC 25-30W-20BCB  26-27W-13BBC	Unit  Qu,TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 29 19 14	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 25 186 21	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9 5.4 6.0 3.6 7.1	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.8 1.7 6 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215 228 296 204 218 243 229 267 204 227 242 200	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806	9pm  32 20 16 32 49 61 27 25 45 45 21 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4 5.4	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9 .8 1.0 1.0 .6 1.2	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9 12 14 24 3.9 15 8.0 6.9
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-16CCB 24-30W-1BCB 24-30W-1BCCC  24-30W-15CCC  24-30W-15CCC  24-30W-15CCC  25-27W-33ABB 25-27W-19CCC 25-28W-16BBB  25-28W-16BBB  25-28W-16BBB  25-29W-7BCB 25-29W-7BCB 25-29W-14ABB 25-29W-14ABB 25-29W-14BBC 25-27W-13BBC 26-27W-18ADC 26-27W-18ADC 26-27W-27CDD	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19 14	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199 54 66 66 62	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 36 25 186	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9 5.4 6.2	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.7 1.5 1.8 1.7	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216 204 218 243 229 267	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 42 46 29	9pm 32 20 16 32 49 61 27 25 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.5 1.6 .9 .8 1.0 1.0 1.2	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9 12 14 24
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16CCB 24-29W-16CCB 24-30W-1BCB 24-30W-1BCCB 24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-19CCC 25-28W-16BBB 25-27W-19CCC 25-28W-16BBC 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-14ABB 25-29W-33BBC 25-29W-14BBC 25-29W-14BBC 25-29W-14ABB	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19 14 20 21 20 18	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58 10 13 9.3 8.8 9.0	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 25 186 21 22 26 21	5.6 5.5 5.4 5.6 5.9 5.9 5.0 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.0 3.6 7.1 3.3 3.4 4.1 3.3 2.7	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.8 1.7 .6 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215 228 296 204 218 243 229 267 204 227 242 200	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806	9pm  32 20 16 32 49 61 27 25 45 45 21 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4 5.4	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9 .8 1.0 1.0 .6 1.2	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9 12 14 24 3.9 15 8.0 6.9
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16CCB 24-30W-1BCB 24-30W-1BCCC  24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-7BCB 25-28W-16BBB  25-28W-16BBB  25-28W-16BBB  25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-14ABB 25-29W-7BCB 25-29W-14BABC 26-27W-13BBC 26-27W-13BBC 26-27W-13BBC 26-27W-15DD 26-28W-19ABD 26-30W-1CDA	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19 14 20 21 20 18	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 62 55 51 59	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 25 186 21	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9 5.4 6.0 3.6 7.1	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.8 1.7 6 1.6	210 210 233 210 201 206 210 209 211 208 218 217 215 228 246 204 218 243 229 267 204 227 242 200 190	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806 42 46 29 41	9pm 32 20 16 32 49 61 27 25 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4 4.4	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9 8 1.0 1.0 1.2	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.8 13 8.6 7.7 8.0 8.4 9.9 12 14 24
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16DCA  24-29W-16DCB 24-30W-1BCB 24-30W-1BCB 24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB  25-28W-16BBB  25-28W-16BBB  25-29W-7BCB 25-29W-7BCB 25-29W-13BBC 25-30W-20BCB  26-27W-13BBC 26-30W-17AD 26-30W-17AD 26-30W-17AD	Unit  Qu,TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 36 39 25 30 29 19 14 20 21 20 18	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58 10 13 9.3 8.8 9.0	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 36 25 186 21 22 26 21 21	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9 5.4 6.2 7.1 3.3 4.1 3.3 2.7	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.8 1.7 .6 1.6 .6 .7 .5 .6	210 210 233 210 201 206 210 209 211 208 218 217 215 228 216 204 218 243 229 267 204 218 243 229 267 204 219 209 211 208 209 209 209 209 209 209 209 209 209 209	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 41 49 41 49	9pm  32 20 16 32 49 61 27 25 45 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4 4.4 6.7 14 6.7	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9 .8 1.0 1.0 .6 1.2 .6 .8 .5 .6 .6	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 4.8 6.9 12 14 24 3.9 15 8.0 6.2 3.3
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16DCA  24-29W-16CCB 24-30W-1BCB 24-30W-1BCCC  24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-7BCB 25-28W-16BBB  25-28W-16BBB  25-28W-16BBB  25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-14ABB 25-29W-7BCB 25-29W-14BABC 26-27W-13BBC 26-27W-13BBC 26-27W-13BBC 26-27W-15DD 26-28W-19ABD 26-30W-1CDA	Unit  Qu, TO	Data b	49 47 45 42 41 43 43 45 40 32 37 37 36 39 25 30 29 19 14 20 21 20 18	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199 54 66 62 55 51	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58 10 13 9.3 8.8 9.0	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 25 186 21 22 26 21 21	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.0 3.6 7.1 3.3 3.4 4.1 3.3 2.7	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.7 1.5 1.8 1.7 .6 1.6 1.6 1.7 .5 .5 .5	210 210 233 210 201 206 210 209 211 208 218 217 215 228 246 204 218 243 229 267 204 227 242 200 190 208 232 208 224	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806 42 46 29 41 49	9pm  32 20 16 32 49 61 27 25 45 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4 5.4 4.4 6.7 14 6.7 8.7	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9 8 1.0 1.0 6 1.2 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 8.4 9.6 4.8 6.9 12 14 24 3.9 15 8.0 6.2 3.3 3.3
Well Location  24-27W-8CCC 24-28W-10ADD 24-28W-28BBA 24-28W-31DD 24-29W-16CCB 24-29W-16CCB 24-30W-1BCB 24-30W-1BCCB 24-30W-15CCC  24-30W-15CCC  24-30W-15CCC  24-30W-31ABB 25-27W-19CCC 25-27W-33ABB 25-27W-35CDC 25-28W-16BBB  25-28W-31BBC 25-29W-7BCB 25-29W-7BCB 25-29W-7BCB 25-29W-14ABB 25-29W-33BBC 25-29W-14ABB 25-29W-14ABB 25-29W-3BBC 26-27W-18ADC 26-27W-18ADC 26-27W-17AD 26-30W-1CDA	Qu, TO	Data b	49 47 45 42 41 43 43 55 45 40 32 37 37 37 36 39 25 30 29 19 14 20 20 21 20 18 17 20 17	58 55 52 67 69 65 52 56 70 81 79 70 60 55 72 92 97 96 72 199 54 66 62 55 51	24 20 24 31 32 33 25 24 33 34 33 28 25 26 32 28 35 35 13 58 10 13 9.0 9.1 10 8.7	25 23 27 26 21 27 21 28 41 42 34 17 16 14 22 27 36 36 25 186 21 22 26 21 21 22 26 21 27 21 28 20 21 21 21 21 21 21 21 21 21 21 21 21 21	5.6 5.5 5.4 5.6 5.9 5.9 5.0 5.5 6.2 6.2 5.1 5.4 5.0 4.7 5.6 5.9 5.4 6.0 3.6 7.1 3.3 3.4 4.1 3.3 2.7	1.0 .9 1.2 1.5 1.4 1.1 1.1 1.5 1.6 1.6 1.3 1.2 1.2 1.7 1.5 1.6 1.6 1.6 1.6 1.6 1.6	210 210 233 210 201 202 201 208 211 208 218 217 215 228 29 267 204 218 243 229 267 204 219 209 211 208 209 211 208 209 211 209 209 211 209 209 211 209 209 209 209 209 209 209 209 209 209	83 69 63 129 125 111 66 88 165 194 184 107 91 74 140 204 240 190 71 806 42 46 29 41 49	9pm  32 20 16 32 49 61 27 25 45 45 45 21 24 24 19 27 26 32 50 9.8 55 4.7 8.0 8.4 4.4 6.7 14 6.7	2.3 2.0 1.4 1.1 1.5 2.0 1.5 2.6 1.8 1.5 1.3 1.3 1.5 1.6 .9 .8 1.0 1.0 .6 1.2 .6 .8 .5 .6 .6	9.1 15 8.2 11 16 10 12 8.9 9.8 13 8.6 7.7 8.0 4.8 6.9 12 14 24 3.9 15 8.0 6.2 3.3

						Ha	ardness as			
D -	Nr	G	***	m	m-+-1 C-1:4-	m- + - 1	CaCO	Smarific Carduatana	CAD	**
Fe	Mn ppb	Cu ppb	Ni ppb	Tempera- ture °C	Total Solids (Residue at 180°C)	ppm	Non-Cărbonate ppm	Specific Conductance (micromhos at 25°C)	SAR	рН
ррь	рры	ppb	ррь	ture c	(Residue at 100 C)	PPIII	ppiii	(MICIONIOS at 23 C)		
18	. 4	1.7	8.9	16.5	253	168	0	464	.50	7.5
18	3.0	15	16	17.0	315	188	46	575	.70	7.5
7.2	.1	14	2.1	17.0	270	157	2	440	.66	7.6
13	.2	4.8	10	18.0	227	150	2	448	.36	7.7
150	19	1.7	5.5	19.0	279	175	15	550	.56	7.5
23	4.5	1.4	4.9	17.5	294	168	3	570	.74	7.6
21	2.6	40	6.4	17.5	278	158	0	570	.69	7.6
13	1.6	.8	6.7	20.0	376	243	68	756	.70	7.5
31	2.9	1.2	3.1	17.0	373	227	41	690	.75	7.5
62	11	1.6	8.3	16.5	297	189	15	348	.63	7.6
24	.1	2.1	3.1	17.5	319	201	34	570	.52	7.5
22	8.2	1.2	2.1	17.0	199	149	0	460	.39	7.9
						Ha	rdness as CaCO			
Fe	Mn	Cu	Ni	Tempera-	Total Solids	Total	Non-Carbonate	Specific Conductance	SAR	рН
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	ppm	ppm	(micromhos at 25°C)		
27	<b>.</b> .	1.0	3.0	20.0	270	106	42	460	41	7.0
27 16	5.2	1.8	3.0 6.1	20.0	279 223	186	43	460	.41	7.9
24	.1 .9	1.5 1.4	12	19.0 19.0	317	155 179	15 6	330 <b>4</b> 75	.42 .88	7.5 7.6
37	2.0	4.0	2.8	19.0	569	293	66	825	1.63	7.9
20	.3	1.5	9.5	18.0	623	328	106	930	1.61	7.4
20	. 3	1.3	9.3	10.0	023	320	100	930	1.01	7.4
27	.8	1.8	17	19.0	466	231	20	690	1.57	7.8
23	.7	2.5	2.4	18.0	545	336	128	740	.90	7.6
14	.5	2.4	2.1	19.0	585	266	68	880	2.00	7.6
15	.3	2.3	3.0	18.0	613	342	153	825	1.29	7.7
18	.4	2.8	3.2	17.0	584	336	136	750	1.07	7.6
19	.3	44	3.6	19.0	610	363	200	815	1.14	7.5
38	4.0	1.8	11	18.5	528	303	137	765	1.15	7.7
						На	ardness as			
							CaCO			
Fe	Mn daa	Cu	Ní ppb	Tempera-	Total Solids	Total	Non-Carbonate	Specific Conductance	SAR	рН
Fe ppb	Mn ppb	Cu ppb	Ni ppb	Tempera- ture °C	Total Solids (Residue at 180°C)		CaCO	Specific Conductance (micromhos at 25°C)	SAR	рН
ppb 255	ppb 10	ppb 408	ppb 25	ture °C	(Residue at 180°C) 427	Total ppm 245	CaCO Non-Carbonate ppm		SAR	рН 
ppb 255 19	ppb 10 .7	ppb 408 1.1	ppb 25 8.0	16.0 16.0	(Residue at 180°C) 427 376	Total ppm 245 221	Non-Carbonate ppm 72 48	(micromhos at 25°C)  705 582	.70 .67	7.7
255 19 11	ppb 10 .7 .8	ppb 408 1.1 1.6	25 8.0 9.8	16.0 16.0 16.0	(Residue at 180°C)  427  376  377	Total ppm 245 221 230	CaCO Non-Carbonate ppm 72 48 39	(micromhos at 25°C)  705 582 580	.70 .67 .77	7.7 7.7 7.7
255 19 11 11	10 .7 .8 .9	408 1.1 1.6 1.1	25 8.0 9.8 3.8	16.0 16.0 16.0 16.0	(Residue at 180°C) 427 376 377 481	Total ppm 245 221 230 296	CaCO, Non-Carbonate ppm 72 48 39 124	705 582 580 770	.70 .67 .77	7.7 7.7 7.7 7.7
255 19 11	ppb 10 .7 .8	ppb 408 1.1 1.6	25 8.0 9.8	16.0 16.0 16.0	(Residue at 180°C)  427  376  377	Total ppm 245 221 230	CaCO Non-Carbonate ppm 72 48 39	(micromhos at 25°C)  705 582 580	.70 .67 .77	7.7 7.7 7.7
255 19 11 11 13	ppb  10 .7 .8 .9 .6	ppb 408 1.1 1.6 1.1 6.8 4.9	25 8.0 9.8 3.8	16.0 16.0 16.0 16.0	(Residue at 180°C) 427 376 377 481	Total ppm 245 221 230 296	CaCO, Non-Carbonate ppm 72 48 39 124	705 582 580 770	.70 .67 .77	7.7 7.7 7.7 7.7
255 19 11 11 13	10 .7 .8 .9	ppb  408 1.1 1.6 1.1 6.8 4.9 1.2	25 8.0 9.8 3.8 40	16.0 16.0 16.0 16.5 17.0	(Residue at 180°C)  427 376 377 481 526	Total ppm 245 221 230 296 305	72 48 39 124 141	(micromhos at 25°C)  705 582 580 770 775	.70 .67 .77 .66	7.7 7.7 7.7 7.7 7.8
255 19 11 11 13 16 22 8.7	ppb  10 .7 .8 .9 .6 .1 1.0 1.7	408 1.1 1.6 1.1 6.8 4.9 1.2 1.9	25 8.0 9.8 3.8 40 9.9 5.0 7.1	ture °C  16.0 16.0 16.5 17.0  16.0 16.0 16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422	Total ppm 245 221 230 296 305 300 234 240	CaCO_ Non-Carbonate ppm 72 48 39 124 141 131 62 68	(micromhos at 25°C)  705 582 580 770 775  820 615 655	.70 .67 .77 .66 .52	7.7 7.7 7.7 7.7 7.8 7.7 7.7 7.8
255 19 11 11 13 16 22 8.7	ppb  10     .7     .8     .9     .6     .1 1.0 1.7 .3	408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2	ppb  25 8.0 9.8 3.8 40  9.9 5.0 7.1 2.0	ture °C  16.0  16.0  16.5  17.0  16.0  16.0  16.0  16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543	Total ppm  245 221 230 296 305  300 234 240 312	CaCO_ Non-Carbonate ppm  72 48 39 124 141  131 62 68 139	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865	.70 .67 .77 .66 .52 .68 .60 .79	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7
255 19 11 11 13 16 22 8.7	ppb  10 .7 .8 .9 .6 .1 1.0 1.7	408 1.1 1.6 1.1 6.8 4.9 1.2 1.9	25 8.0 9.8 3.8 40 9.9 5.0 7.1	ture °C  16.0 16.0 16.5 17.0  16.0 16.0 16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422	Total ppm 245 221 230 296 305 300 234 240	CaCO_ Non-Carbonate ppm 72 48 39 124 141 131 62 68	(micromhos at 25°C)  705 582 580 770 775  820 615 655	.70 .67 .77 .66 .52	7.7 7.7 7.7 7.7 7.8 7.7 7.7 7.8
255 19 11 11 13 16 22 8.7 18 23	ppb  10     .7     .8     .9     .6     .1 1.0 1.7 .3	408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2	ppb  25 8.0 9.8 3.8 40  9.9 5.0 7.1 2.0	ture °C  16.0  16.0  16.5  17.0  16.0  16.0  16.0  16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590	Total ppm  245 221 230 296 305  300 234 240 312	CaCO_ Non-Carbonate ppm  72 48 39 124 141  131 62 68 139	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865	.70 .67 .77 .66 .52 .68 .60 .79	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7
255 19 11 11 13 16 22 8.7 18 23	ppb  107 .8 .961 1.0 1.73683	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 17.5	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590	Total ppm 245 221 230 296 305 300 234 240 312 344	CaCO_Non-Carbonate ppm 72 48 39 124 141 131 62 68 139 173	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875	.70 .67 .77 .66 .52 .68 .60 .79 1.01	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7
255 19 11 11 13 16 22 8.7 18 23	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9	408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3	ture °C  16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590	Total ppm 245 221 230 296 305 300 234 240 312 344 335	CaCO_Non-Carbonate ppm 72 48 39 124 141 131 62 68 139 173 156	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0	9.9 5.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 17.5 17.0 18.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291	CaCO_Non-Carbonate ppm 72 48 39 124 141 131 62 68 139 173 156 113	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.7 7.8
255 19 11 11 13 16 22 8.7 18 23 20 16 33	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9	408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 17.5 17.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254	CaCO_Non-Carbonate ppm  72 48 39 124 141  131 62 68 139 173  156 113 78	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0	9.9 5.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 17.5 17.0 18.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14	10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4	9.9 5.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313	CaCO_Non-Carbonate ppm 72 48 39 124 141 131 62 68 139 173 156 113 78 59 136	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521	Total ppm 245 221 230 296 305 300 234 240 312 344 246 313 346	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .9 .1 6.2	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8	9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3	9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6	ture °C  16.0  16.0  16.0  16.5  17.0  16.0  16.0  16.0  16.0  17.5  17.0  18.0  16.5	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388 385	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910 915	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6	9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 7.6 2.3 5.2 8.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388 385 234 737	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910 915 570 2120	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7 7.7 7.5 7.5
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8	9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 2.3 5.2 8.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388 385 234 737 177	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910 915 570 2120	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7 7.7 7.5 7.5 7.3
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6	9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 7.6 2.3 5.2 8.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530	Total ppm 245 221 230 296 305 300 234 240 312 344 246 313 346 388 385 234 737 177 218	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875  790 650 640 632 740 810 910 915 570 2120 425 510	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.7 7.6 7.7 7.7 7.5 7.5 7.3
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0 .2	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6 2.5 2.9	9.9 5.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 7.6 7.6 7.6 7.5 2.8 5.2 8.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388 385 234 737 177	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875  790 650 640 632 740 810 910 915 570 2120 425 510 495	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.7 7.6 7.7 7.6 7.7 7.6 7.7 7.6 7.7 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0 .2 .6	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6 2.5 2.9 2.6	9.9 5.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 2.3 5.2 8.6	ture °C  16.0  16.0  16.0  16.5  17.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.5  17.0  18.0  16.5  16.0  16.0  16.5  16.0  16.0  16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342 323	Total ppm 245 221 230 296 305 300 234 240 312 344 246 313 346 388 385 234 737 177 218 194	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875  790 650 640 632 740 810 910 915 570 2120 425 510	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.7 7.6 7.7 7.7 7.5 7.5 7.3
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24  8.6 12 19 14 12	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0 .2 .6 .4 .3	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 7.6 2.5 2.9 2.6 2.8 2.9	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 7.6 7.3 5.2 8.6 7.5 2.3 5.2 8.6	ture °C  16.0 16.0 16.0 16.5 17.0  16.0 16.0 16.0 16.0 16.0 16.0 16.0 1	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342 323 279 274	Total ppm 245 221 230 296 305 300 234 240 312 344 246 313 346 388 385 234 737 177 218 194 174 165	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875  790 650 640 632 740 810 910 915 570 2120  425 510 495 490 350	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98 .69 .65 .81 .69 .71	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.7 7.6 7.7 7.5 7.5 7.5 7.5 7.5
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24 8.6 12 19 14 12 9.0	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0 .2 .6 .4 .3 .7	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6 2.5 2.9 2.6 2.8 2.9	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 2.3 5.2 8.6 5.4 5.9 5.2	ture °C  16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342 323 279 274	Total ppm 245 221 230 296 305 300 234 240 312 344 246 313 346 388 385 234 737 177 218 194 174 165 185	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875  790 650 640 632 740 810 910 915 570 2120  425 510 495 490 350	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.7 7.6 7.7 7.6 7.7 7.6 7.7 7.6 7.7 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24 8.6 12 19 14 12 9.0 14	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0 .2 .6 .4 .3 .7 .1	PPb  408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 2.5 2.9 2.6 2.8 2.9	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 7.6 2.3 5.2 8.6 5.4 5.9 10 9.9	ture °C  16.0 16.0 16.0 16.0 16.0 16.0 16.0 16.	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342 323 279 274	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388 385 234 737 177 218 194 165 185 201	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910 915 570 2120  425 510 495 490 350	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7 7.7 7.5 7.5 7.5 7.3
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24 8.6 12 19 14 12 9.0	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 4.0 .3 .3 .9 .1 6.2 .8 1.0 .2 .6 .4 .3 .7	9pb 408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6 2.5 2.9 2.6 2.8 2.9	25 8.0 9.8 3.8 40 9.9 5.0 7.1 2.0 3.2 6.3 24 9.0 8.2 2.6 7.6 2.3 5.2 8.6 5.4 5.9 5.2	ture °C  16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342 2323 279 274	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 6313 346 388 385 234 737 177 218 194 165 185 201 184	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910 915 570 2120  425 510 495 490 350  440 440 440 430	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98 .69 .71	7.7 7.7 7.7 7.7 7.8 7.7 7.8 7.7 7.8 7.6 7.7 7.7 7.5 7.5 7.5 7.3 7.8 7.7
255 19 11 11 13 16 22 8.7 18 23 20 16 33 22 14 13 16 6.4 126 24 8.6 12 19 14 12 9.0 14 7.9	ppb  10 .7 .8 .9 .6 .1 1.0 1.7 .3 .6 .8 .3 .9 .1 6.2 .8 1.0 .2 .6 .4 .3 .7 .1 .1	PPb  408 1.1 1.6 1.1 6.8 4.9 1.2 1.9 3.2 1.8 4.2 11 20 1.0 1.4 2.8 3.8 1.3 2.8 7.6 2.5 2.9 2.6 2.8 2.9 1.8 4.9 4.7	ppb  25 8.0 9.8 3.8 40  9.9 5.0 7.1 2.0 6.3 24 9.0 8.2 2.6 7.6 2.3 5.2 8.6 5.4 5.9 5.2 10 9.6 6.6 4.7 2.2	ture °C  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  17.5  17.0  18.0  16.5  16.0  16.0  17.0  17.0  18.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0  16.0	(Residue at 180°C)  427 376 377 481 526  513 382 422 543 590  533 477 395 399 521  551 637 612 370 1530  288 342 323 279 274	Total ppm 245 221 230 296 305 300 234 240 312 344 335 291 254 246 313 346 388 385 234 737 177 218 194 165 185 201	CaCO_Non-Carbonate ppm	(micromhos at 25°C)  705 582 580 770 775 820 615 655 865 875 790 650 640 632 740 810 910 915 570 2120  425 510 495 490 350	.70 .67 .77 .66 .52 .68 .60 .79 1.01 .99 .81 .43 .44 .39 .54 .63 .79 .80 .71 2.98	7.7 7.7 7.7 7.8 7.7 7.8 7.6 7.4 7.7 7.6 7.7 7.7 7.5 7.5 7.5 7.3

Gray County (cont.)

Gray County (c	.0110.7												
Well Location	Geological Unit	Historical Data	SiO <sub>2</sub>	Ca ppm	Mg ppm	Na ppm	K pp <b>m</b>	Sr pp <b>m</b>	HCO ppm	SO <sub>4</sub>	Cl pp <b>m</b>	F ppm	NO <sub>3</sub>
27-27W-19BBD	Qu,TO		20	59	8.0	19	3.8	. 4	222	29	4.5	.5	11
27-28W-30CCA	Qu,TO		20	54	8.2	20	3.3	.5	205	31	4.5	.6	14
27-29W-9DA	Qu,TO		18	59	9.9	22	3.7	.6	224	38	7.0	.5	6.8
27-29W-18DBB 27-29W-23ADC	Qu,TO Qu,TO		19 18	58 56	8.7 8.0	21 18	3.3 3.6	.5 .5	21 <b>4</b> 206	36 29	5.3 4.7	.6 .6	8.8 7.9
27-29W-33CCC	Qu,TO		20	62	9.2	17	3.3	.5	226	25	6.8	.5	24
27-30W-8BB 27-30W-25CCB	Qu,TO Qu,TO		20 17	110 <b>7</b> 2	17 11	38 20	4.0 3.0	.9 .6	229 200	109 52	82 36	.4 .5	9.0 10
27-30W-34CCC	Qu,TO		18	71	11	20	2.8	.6	217	55	19	.5	6.8
28-30 <b>W</b> -6BBA	Qu,TO		16	60	8.2	18	2.7	.5	204	31	14	.4	10
Hamilton Count	·Υ												
Well	Geological	Historical	SiO <sub>2</sub>	Ca	Mg	Na	K	Sr	HCO <sub>3</sub>	so <sub>4</sub>	Cl	F	NO <sub>3</sub>
Location	Unit	Data	ppm²	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
23-42W-19CBB	QA,Qu	b	31	430	174	715	20	7.0	431	2757	206	.9	18
23-42W-27DDB	QA	ī	16	389	176	647	15	5.9	285	2622	221	1.0	9.9
23-42W-34CBB 23-43W-25CBD	QA QA	b	12 14	295 436	123 214	469 890	10 13	3.4 5.3	258 335	1818 3094	179 331	.9 .6	17 3.8
24-39W-19CBC	QA		14	443	152	560	11	3.7	294	2354	201	.8	15
24-39W-30BBD	QA		13	339	145	504	11	4.1	303	2093	151	1.0	3.4
24-39W-30CAD	QA		17	413	236	769	14	5.6	447	2981	230	1.2	2.4
24-40W-17BBB	QA		18	522	145	550	11	5.3	334	2389	252	.8	12
25-43W-26DDD 26-41W-20BBD	Qu,TO Qu,TO		13 21	58 213	16 66	20 83	3.7 8.4	1.1 4.3	178 283	95 640	5.5 89	.8 1.1	5.3 4.0
26-41W-36CC	Qu,TO		28 10	97 108	37 33	49 33	5.9 5.1	2.1 2.0	232 203	280 291	20 22	1.4	8.5 2.5
26-42W-10BB2 26-42W-17CB	Qu,TO Qu,TO,KJ	b	14	72	16	22	4.1	1.1	176	122	15	.6	9.8
26-42W-22CDB	Qu,TO	~	14	68	16	22	4.0	1.1	174	117	12	.6	3.9
26-43W-8ADB	Qu,TO		12	64	14	18	4.2	.9	160	121	4.9	.6	3.7
26-43W-25DCC	Qu,TO,KJ		14	63	16	25	3.9	1.0	180	124	6.9	.7	2.6
Haskell County	<u> </u>												
Haskell County	Z Geological	Historical	SiO	Ca	Mg	Na	ĸ	Sr	нсо,	SO <sub>4</sub>	cl	F	NO <sub>3</sub>
	_	Historical Data	SiO <sub>2</sub>	Ca ppm	Mg ppm	Na ppm	K ppm	Sr ppm	HCO <sub>3</sub>	SO <sub>4</sub> ppm	Cl ppm	F ppm	NO <sub>3</sub>
Well	Geological		SiO <sub>2</sub> ppm  18						HCO 3 ppm 3	23	ррт 17	<b>ррт</b> .5	<b>ppm</b> 9.5
Well Location  27-31W-7BDA 27-31W-24CDC	Geological Unit Qu,TO Qu,TO		ppm 18 18	ppm 62 63	8.0 8.9	ppm 17 16	2.7 2.7	.5 .6	209 199	23 37	ppm 17 19	.5 .4	9.5 7.9
well Location 27-31W-7BDA 27-31W-24CDC 27-32W-6CBB	Geological Unit  Qu,TO Qu,TO Qu,TO Qu,TO		ppm 18 18 17	ppm 62 63 44	8.0 8.9 7.4	ppm 17 16 17	2.7 2.7 2.1	.5 .6	209 199 170	23 37 25	ppm 17 19 <1	.5 .4 .6	9.5 7.9 3.4
Well Location 27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD	Geological Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		18 18 17 17	62 63 44 54	8.0 8.9 7.4 7.0	ppm 17 16 17 14	2.7 2.7 2.1 2.3	.5 .6 .6	209 199 170 189	23 37 25 10	ppm 17 19	.5 .4	9.5 7.9
Well Location 27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD	Geological Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		18 18 17 17	62 63 44 54 46	8.0 8.9 7.4 7.0 7.6	ppm 17 16 17 14 15	2.7 2.7 2.1 2.3 2.1	.5 .6 .6 .4	209 199 170 189 174	23 37 25 10 18	17 19 <1 12 3.4	.5 .4 .6 .4	9.5 7.9 3.4 7.8 5.2
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD	Geological Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		18 18 17 17 18	62 63 44 54 46	8.0 8.9 7.4 7.0 7.6	ppm 17 16 17 14 15	2.7 2.7 2.1 2.3 2.1	.5 .6 .6 .4 .2	209 199 170 189 174	23 37 25 10 18	17 19 <1 12 3.4	.5 .4 .6 .4 .5	9.5 7.9 3.4 7.8 5.2
Well Location 27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD 27-33W-29DAA 27-33W-33DCD	Geological Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		18 18 17 17 18 18	62 63 44 54 46	8.0 8.9 7.4 7.0 7.6	ppm 17 16 17 14 15	2.7 2.7 2.1 2.3 2.1	.5 .6 .6 .4	209 199 170 189 174	23 37 25 10 18	17 19 <1 12 3.4	.5 .4 .6 .4	9.5 7.9 3.4 7.8 5.2
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD	Geological Unit  Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO Qu,TO		18 18 17 17 18 18 17 20 20	62 63 44 54 46 47 56 70 62	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 9.6	ppm  17 16 17 14 15  14 22 21 17	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4	.5 .6 .6 .4 .2 .4 .6 .5	209 199 170 189 174 172 174 212 188	23 37 25 10 18 36 31 63 45	17 19 <1 12 3.4 7.4 36 17 22	.5 .4 .6 .4 .5 .4	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8
Well Location 27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD 27-33W-27CAD 27-33W-33DCD 27-34W-16DDD	Geological Unit  Qu,TO		18 18 17 17 18 18 17 20	62 63 44 54 46 47 56 70	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6	ppm  17 16 17 14 15  14 22 21	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6	.5 .6 .6 .4 .2 .4	209 199 170 189 174 172 174 212	23 37 25 10 18 36 31 63	17 19 <1 12 3.4 7.4 36 17	.5 .4 .6 .4 .5	9.5 7.9 3.4 7.8 5.2 5.2 3.8
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD 27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA	Geological Unit  Qu,TO		18 18 17 17 18 18 17 20 20	62 63 44 54 46 47 56 70 62	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 9.6	ppm  17 16 17 14 15  14 22 21 17	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4	.5 .6 .6 .4 .2 .4 .6 .5	209 199 170 189 174 172 174 212 188	23 37 25 10 18 36 31 63 45	17 19 <1 12 3.4 7.4 36 17 22	.5 .4 .6 .4 .5 .4	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA	Geological Unit  Qu,TO		18 18 17 17 18 18 17 20 20	62 63 44 54 46 47 56 70 62	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 9.6	ppm  17 16 17 14 15  14 22 21 17	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4	.5 .6 .6 .4 .2 .4 .6 .5	209 199 170 189 174 172 174 212 188	23 37 25 10 18 36 31 63 45	17 19 <1 12 3.4 7.4 36 17 22	.5 .4 .6 .4 .5 .4	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD 27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location	Geological Unit  Qu,TO	Data Historical	18 18 17 17 18 18 17 20 20 18	9pm 62 63 44 54 46 47 56 70 62 58	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 14	17 16 17 14 15 14 22 21 17 20	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8	.5 .6 .6 .4 .2 .4 .6 .5 .2 .7	209 199 170 189 174 172 174 212 188 174	23 37 25 10 18 36 31 63 45 52	7.4 36 17 22 3.4 7.4 36 17 22 36	.5 .4 .6 .4 .5 .4 .5 .4 .8	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD	Geological Unit  Qu,TO	Data Historical	18 18 17 17 18 18 17 20 20 18	ppm 62 63 44 54 46 47 56 70 62 58	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 9.6	ppm  17 16 17 14 15 14 22 21 17 20	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7	209 199 170 189 174 172 174 212 188 174	23 37 25 10 18 36 31 63 45 52	7 19 <1 12 3.4 7.4 36 17 22 36	.5 .4 .6 .4 .5 .4 .5 .4 .8	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD	Geological Unit  Qu,TO	Data Historical	18 18 17 17 18 18 17 20 20 18	9pm  62 63 44 54 46 47 56 70 62 58  Ca ppm	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 9.6 14	17 16 17 14 15 14 22 21 17 20  Na ppm	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8	.5 .6 .6 .4 .2 .4 .6 .5 .2 .7	209 199 170 189 174 172 174 212 188 174	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm	7.4 36 17 22 36 17 19 17 17 17 17	.5 .4 .6 .4 .5 .4 .5 .4 .8	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO ppm
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD	Geological Unit  Qu,TO	Data Historical Data	18 18 17 17 18 18 17 20 20 18  SiO <sub>2</sub> ppm 22 20 19 22	9pm  62 63 44 54 46  47 56 70 62 58  Ca ppm  59 44 46 76	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 14	17 16 17 14 15 14 22 21 17 20  Na ppm 14 36 27 31	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8 K ppm 4.7 4.4 3.8 5.0	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7 .7 .9	209 199 170 189 174 172 174 212 188 174 HCO <sub>3</sub> ppm 201 192 192 182	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145	17 19 <1 12 3.4 7.4 36 17 22 36 17 12 42	.5 .4 .6 .4 .5 .4 .5 .4 .8 Fppm .7 1.4 1.0	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC	Geological Unit  Qu,TO TO TO	Data Historical	18 18 17 17 18 18 17 20 20 18 SiO <sub>2</sub> ppm	9pm  62 63 44 54 46  47 56 70 62 58  Ca ppm  59 44 46	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 14 Mg ppm	17 16 17 14 15 14 22 21 17 20  Na ppm  14 36 27	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8 K ppm	.5 .6 .6 .4 .2 .4 .6 .5 .2 .7	209 199 170 189 174 172 174 212 188 174 HCO 3 ppm 3	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53	7.4 36 17 22 36 17 19 17 17 17 17	.5 .4 .6 .4 .5 .4 .5 .4 .8	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO ppm
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC 23-35W-12CCC 23-35W-25BBB2 23-36W-4CBB	Geological Unit  Qu,TO TO TO TO TO Qu,TO	Data Historical Data	18 18 17 17 18 18 17 20 20 18  SiO ppm  22 20 19 22 26 18	9pm  62 63 44 54 46 47 56 70 62 58  Ca 9pm  59 44 46 76 334 69	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 14 Mg ppm	17 16 17 14 15 14 22 21 17 20  Na ppm  14 36 27 31 130 30	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8 K ppm 4.7 4.4 3.8 5.0 12	.5 .6 .6 .4 .2 .4 .6 .5 .2 .7 .7 .9 2.2	209 199 170 189 174 172 174 212 188 174 HCO 3 ppm 3 201 192 192 192 182 198	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145 1063	17 19 <1 12 3.4 7.4 36 17 22 36  C1 ppm  17 17 12 42 130 34	5 .4 .6 .4 .5 .4 .8 Fppm .7 1.4 1.0 .7 .4 .8	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County  Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC 23-35W-25BBB2  23-36W-4CBB 23-36W-4CBB 23-36W-32BBB	Geological Unit  Qu,TO TO TO TO TO TO	Data Historical Data	18 18 17 17 18 18 17 20 20 18 SiO 2 ppm 2 2 2 20 19 22 26 18 20	9pm  62 63 44 54 46  47 56 70 62 58  Ca ppm  59 44 46 76 334 69 31	8.0 8.9 7.4 7.0 7.6 7.3 9.6 9.6 14 Mg ppm	17 16 17 14 15 14 22 21 17 20  Na ppm 14 36 27 31 130 30 29	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8  K ppm  4.7 4.4 3.8 5.0 12 4.5 4.4	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7  Sr ppm 1.0 1.2 .7 .9 2.2 1.2 1.0	209 199 170 189 174 172 174 212 188 174  HCO <sub>3</sub> ppm 201 192 192 192 198 187 181	23 37 25 10 18 36 31 63 45 52 52 50 4 ppm 36 87 53 145 1063	17 19 <1 12 3.4 7.4 36 17 22 36  C1 ppm  17 17 12 42 130 34 12	Ppm  .5 .4 .6 .4 .5 .4 .5 .4 .8  F Ppm  .7 1.4 1.0 .7 .4 .8 1.7	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6 11
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-12CCC 23-35W-25BBB2 23-36W-4CBB 23-36W-42BBB 23-36W-32BBB 23-37W-19BCC	Geological Unit  Qu,TO TO TO TO TO TO TO TO TO	Data Historical Data	18 18 17 17 18 18 17 20 20 18  SiO <sub>2</sub> ppm <sup>2</sup> 22 20 19 22 26 18 20 20	9pm  62 63 44 54 46 47 56 70 62 58  Ca ppm  59 44 46 76 334 69 31 40	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 14 Mg ppm	17 16 17 14 15 14 22 21 17 20  Na ppm 14 36 27 31 130 30 29 49	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8  K ppm 4.7 4.4 3.8 5.0 12 4.5 4.4 5.4	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7  Sr ppm 1.0 1.2 .7 .9 2.2 1.0 1.4	209 199 170 189 174 172 174 212 188 174 HCO <sub>3</sub> ppm 201 192 192 192 198 187 181	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145 1063	17 19 <1 12 3.4 7.4 36 17 22 36  C1 ppm  17 17 12 42 130 34	5 .4 .6 .4 .5 .4 .8 Fppm .7 1.4 1.0 .7 .4 .8	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County  Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC 23-35W-25BBB2  23-36W-4CBB 23-36W-4CBB 23-36W-32BBB	Geological Unit  Qu,TO TO TO TO TO TO	Data Historical Data	18 18 17 17 18 18 17 20 20 18 SiO 2 ppm 2 2 2 20 19 22 26 18 20	9pm  62 63 44 54 46  47 56 70 62 58  Ca ppm  59 44 46 76 334 69 31	8.0 8.9 7.4 7.0 7.6 7.3 9.6 9.6 14 Mg ppm	17 16 17 14 15 14 22 21 17 20  Na ppm 14 36 27 31 130 30 29	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8  K ppm  4.7 4.4 3.8 5.0 12 4.5 4.4	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7  Sr ppm 1.0 1.2 .7 .9 2.2 1.2 1.0	209 199 170 189 174 172 174 212 188 174  HCO <sub>3</sub> ppm 201 192 192 192 198 187 181	23 37 25 10 18 36 31 63 45 52 52 50 4 ppm 36 87 53 145 1063	17 19 <1 12 3.4 7.4 36 17 22 36  Cl ppm 17 17 12 42 130 34 12 21	Ppm  .5 .4 .6 .4 .5 .4 .5 .4 .8  F ppm  .7 1.4 1.0 .7 .4 .8 1.7 1.7	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6 11
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County  Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-12CCC 23-35W-25BBB2 23-36W-4CBB 23-36W-4CBB 23-36W-32BBB 23-37W-19BCC 23-37W-28CCB 24-35W-13CCD2	Geological Unit  Qu,TO	Historical Data	18 18 17 17 18 18 17 20 20 18  SiO <sub>2</sub> 2ppm 22 20 19 22 26 18 20 20 18	Ppm  62 63 44 54 46 47 56 62 58  Ca Ppm  59 44 46 76 334 69 31 40 47 412	8.0 8.9 7.4 7.0 7.6 7.3 9.6 9.6 14 Mg ppm 14 20 12 22 64 23 17 25 29 146	17 16 17 14 15 14 22 21 17 20  Na ppm  14 36 27 31 130 30 29 49 30 460	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8 K ppm 4.7 4.4 3.8 5.0 12 4.5 4.4 5.4 5.1	55.66.4.22.4.66.55.22.77	209 199 170 189 174 172 174 212 188 174 HCO <sub>ppm</sub> 201 192 192 192 198 187 181 194 170	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145 1063	17 19 <1 12 3.4 7.4 36 17 22 36  Cl ppm  17 12 42 130 34 12 21 45	Ppm .5 .4 .6 .4 .5 .4 .8 .8 F .7 .4 .8 1.7 1.2	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6 11 7.6 9.3 11 15
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-27CAD  27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC 23-35W-52CC 23-35W-25BBB2 23-36W-4CBB 23-36W-4CBB 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC	Geological Unit  Qu,TO TO TO TO TO TO TO TO TO TO	Data Historical Data	18 18 17 17 18 18 17 20 20 18 SiO 2ppm 22 26 18 20 20 18	9pm  62 63 44 54 46 47 56 70 62 58  Ca ppm  59 44 46 67 76 334 69 31 40 47	8.0 8.9 7.4 7.0 7.6 7.3 9.3 9.6 9.6 14 Mg ppm	ppm  17 16 17 14 15 14 22 21 17 20  Na ppm  14 36 27 31 130 30 29 49 30	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8  K ppm  4.7 4.4 3.8 5.0 12 4.5 4.4 5.1 12 5.0	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7  Sr ppm 1.0 1.2 .7 .9 2.2 1.0 1.4 1.6 4.4 3.6 1.6	209 199 170 189 174 172 174 212 188 174 HCO <sub>3</sub> ppm 201 192 192 192 198 187 181 194 170 298	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145 1063 127 55 134 106 2096	17 19 <1 12 3.4 7.4 36 17 22 36  Cl ppm  17 12 42 130 34 12 21 45 158 168 22	Ppm .5 .4 .6 .4 .5 .4 .8 .8 F .7 .4 .8 1.7 1.2 1.6 .9 1.2	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6 11 7.6 9.3 11 15 31
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC 23-35W-5ACC 23-35W-25BBB2 23-36W-4CBB 23-36W-42BBB 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC 23-37W-19CCD 24-35W-13CCD2 24-35W-21CCD 24-35W-21CCD 24-35W-21CCD 24-35W-21CCD 24-35W-21CCD 24-35W-21CCD 24-35W-21CCD	Geological Unit  Qu,TO	Historical Data	18 18 17 17 18 18 17 20 20 18 20 18 20 21	Ppm  62 63 44 54 46 47 56 70 62 58  Ca Ppm  59 44 46 76 334 69 31 40 47 412 393 49 227	Mg ppm  14 20 12 22 64 23 17 25 29 146 136 29 105	PPM  17 16 17 14 15 14 22 21 17 20  Na PPM  14 36 27 31 130 30 29 49 30 460 460 460 26 172	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8  K ppm 4.7 4.4 3.8 5.0 12 4.5 4.4 5.1 12 12 5.0 9.5	DPM  .5 .6 .6 .4 .2 .4 .6 .5 .2 .7  Sr ppm  1.0 1.2 .7 .9 2.2 1.0 1.4 1.6 4.4 3.6 1.6 5.3	209 199 170 189 174 172 174 212 188 174  HCO 3 ppm  201 192 192 198 187 181 194 170 298 295 227 238	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145 1063 127 55 134 106 2096	17 19 <1 12 3.4 7.4 36 17 22 36  C1 ppm  17 17 12 42 130 34 12 21 45 158 168 22 128	Ppm  .5 .4 .6 .4 .5 .4 .5 .4 .8  F Ppm  .7 1.4 1.0 .7 .4 .8 1.7 1.7 1.2 1.6 .9 1.2 1.0	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6 11 7.6 9.3 11 15 31
Well Location  27-31W-7BDA 27-31W-24CDC 27-32W-6CBB 27-32W-19CCD 27-33W-27CAD  27-33W-29DAA 27-33W-33DCD 27-34W-16DDD 27-34W-23DDA 27-34W-28DA  Kearny County Well Location  22-35W-23CDD 22-37W-18CCD 23-35W-5ACC 23-35W-5ACC 23-35W-25BBB2 23-36W-4CBB 23-36W-4CBB 23-36W-32BBB 23-37W-19BCC 23-37W-19BCC 23-37W-19BCC 23-37W-19CCC 24-35W-13CCD2  24-35W-22CCC 24-36W-15BCB	Geological Unit  Qu,TO	Historical Data b	18 18 17 17 18 18 17 20 20 18 20 19 22 26 18 20 18 20 18 20 18 20	Ppm  62 63 44 54 46 47 56 70 62 58  Ca Ppm  59 44 46 334 69 31 40 47 412 393 49	Mg ppm  14 20 12 22 64 23 17 25 29 146 136 29	PPM  17 16 17 14 15 14 22 21 17 20  Na PPM  14 36 27 31 130 30 29 49 30 460 460 26	2.7 2.7 2.1 2.3 2.1 2.2 2.3 2.6 2.4 2.8  K ppm  4.7 4.4 3.8 5.0 12 4.5 4.4 5.1 12 5.0	ppm .5 .6 .6 .4 .2 .4 .6 .5 .2 .7  Sr ppm 1.0 1.2 .7 .9 2.2 1.0 1.4 1.6 4.4 3.6 1.6	209 199 170 189 174 172 174 212 188 174 HCO <sub>3</sub> ppm 201 192 192 192 198 187 181 194 170 298	23 37 25 10 18 36 31 63 45 52 SO <sub>4</sub> ppm 36 87 53 145 1063 127 55 134 106 2096	17 19 <1 12 3.4 7.4 36 17 22 36  C1 ppm  17 12 42 130 34 12 21 45 158 168 22	Ppm .5 .4 .6 .4 .5 .4 .8 .8 F .7 1.4 1.0 .7 .4 .8 1.7 1.2 1.6 .9 1.2	9.5 7.9 3.4 7.8 5.2 5.2 3.8 15 6.8 9.0 NO <sub>3</sub> ppm 42 13 12 7.6 11 7.6 9.3 11 15 31

Hardness as

						па	rdness as			
Fe	Mn	Cu	Ni	Tempera-	Total Solids	Total	CaCO <sub>3</sub> Non-Carbonate	Specific Conductance	SAR	pН
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	ppm	ppm	(micromhos at 25°C)	JAIN	pn
							_			
12 12	.4 .2	1.5 6.3	7.6 4.0	16.5 17.0	270 286	181 169	0 1	470 430	.62 .67	7.6 7.4
14	.2	2.3	21	17.0	294	189	5	500	.70	7.5
17	. 3	12	10	16.0	297	181	6	430	.68	7.5
12	.1	1.2	8.7	16.5	255	173	4	420	.59	7.5
28	.4	2.4	12	17.0	285	193	8	510	.53	7.5
18	.4	.9	4.7	16.0	536	345	158	780	.89	7.3
8.9	.2	1.4	2.5	16.0	352	226	62	530	.58	7.7
20	1.0	6.1	10	16.5	348	223	45	500	.58	7.7
11	1.5	1.6	6.8	17.0	290	184	17	520	.58	7.8
						Ha	rdness as			
							CaCO			
Fe ppb	Mn ppb	Cu ppb	Ni ppb	Tempera- ture °C	Total Solids (Residue at 180°C)	Total I	Non-Carbonate ppm	Specific Conductance (micromhos at 25°C)	SAR	рН
9.8	.3	7.1	30	15.5	4715	1706		F160	7 34	7.4
9.6	8.2	1.4	6.8	16.0	4366	1796 1701	1443 1468	5160 4680	7.34	7.4
22	.2	.9	9.0	15.0	3172	1246	1034	3600	6.82 5.78	7.5 7.5
65	3.7	1.1	8.0	14.5	5443	1974	1700	5850	8.71	7.4
14	135	3.4	7.7	14.5	4028	1735	1494	4560	5.85	7.3
15		0.5	22	3.4.5	25.45					
15 38	1.8 2.0	9.5 2.1	33 12	14.5	3547	1447	1199	3960	5.76	7.5
10	90	3.2	9.7	15.0 15.0	5123	2008	1641	5750	7.47	7.4
64	5.2	1.6	11	19.0	4268 349	1905	1631	4560	5.48	7.1
249	35	3.0	5.8	16.0	1325	212 808	66 576	495	.60	7.2
243	33	3.0	3.0	10.0	1323	000	576	1638	1.27	7.3
36	.7	5.9	6.2	17.0	669	397	206	948	1.07	7.5
34	40	2.3	5.8	18.0	635	407	241	87 <b>4</b>	.71	7.4
20	.2	2.0	4.6	17.0	405	247	102	560	.61	7.6
34	. 4	2.8	5.1	17.0	381	237	94	504	.62	7.5
24	.9	4.4	4.9	19.0	368	218	87	495	.53	7.5
11,	.4	2.9	9.9	18.0	364	224	77	482	.73	7.7
						Ha	rdness as			
_							CaCO <sub>2</sub>			
Fe ppb	Mn ppb	Cu ppb	Ni ppb	Tempera- ture °C	Total Solids (Residue at 180°C)	Total ppm	Non-Cărbonate ppm	Specific Conductance (micromhos at 25°C)	SAR	pН
	, ,	1.0	4.0	16.5						
12 18	1.5	1.2	4.2	16.5	287	188	17	580	.54	7.6
15	.4	1.4	5.6 <b>4.</b> 0	16.5	300	194	31	520	.50	7.6
13	3.3	1.4	2.5	19.5 17.5	232 272	141	2	436	.62	7.7
26	.6	4.2	5.7	19.0	230	164 146	9 4	570 <b>44</b> 0	.48 .54	7.8 7.8
	••		J.,	13.0	230	140	4	440	. 54	7.0
9.1	.5	2.7	7.5	18.0	251	148	7	450	.50	7.8
72	11	2.2	4.2	19.0	285	179	36	550	.72	7.7
36	.5	4.6	6.4	19.0	367	215	41	660	.62	7.5
62	3.4	6.7	18	17.5	293	194	40	570	.53	7.5
16	1.6	2.2	7.1	20.0	334	203	60	575	.61	7.8
						На	rdness as			
						114	Luness as			
							CaCO			
Fe ppb	Mn dqq	Cu ppb	Ni dag	Tempera- ture °C	Total Solids (Residue at 180°C)	Total	CaCO <sub>3</sub> Non-Carbonate	Specific Conductance (micromhos at 25°C)	SAR	рН
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	Total ppm	CaCO <sub>3</sub> Non-Carbonate ppm	(micromhos at 25°C)		
<u>ppb</u> 26	ppb .6	ppb 5.2	ppb 13	ture °C	(Residue at 180°C)	Total ppm 206	CaCO <sub>3</sub> Non-Carbonate ppm	(micromhos at 25°C) 515	.42	7.7
26 14	.6 .4	ppb 5.2 1.9	ppb 13 9.1	17.0 17.5	(Residue at 180°C) 308 342	Total   ppm   206   193	CaCO, Non-Carbonate ppm 41 36	(micromhos at 25°C) 515 521	.42	7.7 7.6
26 14 16	ppb .6 .4 .4	5.2 1.9 1.2	ppb 13 9.1 8.8	17.0 17.5 17.0	(Residue at 180°C)  308 342 278	Total   ppm   206   193   165	CaCO <sub>3</sub> Non-Carbonate ppm 41 36 8	(micromhos at 25°C)  515 521 440	.42 1.13 .91	7.7 7.6 7.3
26 14	.6 .4	ppb 5.2 1.9	ppb 13 9.1 8.8 5.6	17.0 17.5 17.0 17.0	(Residue at 180°C)  308 342 278 496	Total   ppm   206   193   165   281	CaCO3 Non-Carbonate ppm  41 36 8 132	(micromhos at 25°C)  515  521  440  700	.42 1.13 .91 .80	7.7 7.6 7.3 7.6
26 14 16 38 65	.6 .4 .4 2.2 1.3	5.2 1.9 1.2 4.0 2.9	ppb  13  9.1  8.8  5.6  8.0	17.0 17.5 17.0 17.0 17.0	(Residue at 180°C)  308  342  278  496  1844	Total ppm 206 193 165 281 1099	CaCO3 Non-Carbonate ppm 41 36 8 132 937	(micromhos at 25°C)  515 521 440 700 2050	.42 1.13 .91	7.7 7.6 7.3 7.6 7.3
26 14 16 38 65	.6 .4 .4 2.2 1.3	5.2 1.9 1.2 4.0 2.9	ppb  13  9.1  8.8  5.6  8.0  6.8	17.0 17.5 17.0 17.0 17.0 17.0	(Residue at 180°C)  308 342 278 496 1844 421	Total ppm 206 193 165 281 1099 268	CaCO <sub>3</sub> Non-Carbonate ppm 41 36 8 132 937	(micromhos at 25°C)  515 521 440 700 2050  612	.42 1.13 .91 .80 1.71	7.7 7.6 7.3 7.6 7.3
26 14 16 38 65 17 16	ppb .6 .4 .4 2.2 1.3 .7 .4	5.2 1.9 1.2 4.0 2.9	ppb  13  9.1  8.8  5.6  8.0  6.8  6.8	17.0 17.5 17.0 17.0 17.0 17.0	(Residue at 180°C)  308 342 278 496 1844  421 310	Total : ppm 206 193 165 281 1099 268 148	CaCO3 Non-Carbonate ppm  41 36 8 132 937 115 0	(micromhos at 25°C)  515 521 440 700 2050  612 403	.42 1.13 .91 .80 1.71	7.7 7.6 7.3 7.6 7.3 7.5 7.5
26 14 16 38 65 17 16 24	ppb .6 .4 .4 2.2 1.3 .7 .4 .4	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8	ppb  13 9.1 8.8 5.6 8.0 6.8 6.8 10	17.0 17.5 17.0 17.0 17.0 17.0 17.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410	Total ppm 206 193 165 281 1099 268 148 204	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937  115 0 45	(micromhos at 25°C)  515 521 440 700 2050  612 403 591	.42 1.13 .91 .80 1.71 .80 1.04 1.49	7.7 7.6 7.3 7.6 7.3 7.5 7.5 7.6
26 14 16 38 65 17 16 24 13	ppb .6 .4 .4 2.2 1.3 .7 .4 .4 .3	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8 2.5	ppb  13 9.1 8.8 5.6 8.0 6.8 6.8 10 7.9	17.0 17.5 17.0 17.0 17.0 17.0 17.0 16.0 17.5 17.0 19.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410 395	Total ppm 206 193 165 281 1099 268 148 204 238	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937 115 0 45 99	(micromhos at 25°C)  515 521 440 700 2050  612 403 591 604	.42 1.13 .91 .80 1.71 .80 1.04 1.49	7.7 7.6 7.3 7.6 7.3 7.5 7.6 7.7
26 14 16 38 65 17 16 24	ppb .6 .4 .4 2.2 1.3 .7 .4 .4	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8	ppb  13 9.1 8.8 5.6 8.0 6.8 6.8 10	17.0 17.5 17.0 17.0 17.0 17.0 17.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410	Total ppm 206 193 165 281 1099 268 148 204	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937  115 0 45	(micromhos at 25°C)  515 521 440 700 2050  612 403 591	.42 1.13 .91 .80 1.71 .80 1.04 1.49	7.7 7.6 7.3 7.6 7.3 7.5 7.5 7.6
26 14 16 38 65 17 16 24 13 14	.6 .4 .4 2.2 1.3 .7 .4 .4 .3 .8	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8 2.5 2.6	13 9.1 8.8 5.6 8.0 6.8 10 7.9 9.0	17.0 17.5 17.0 17.0 17.0 17.0 16.0 17.5 17.0 19.0 15.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410 395 3524	Total ppm 206 193 165 281 1099 268 148 204 238	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937  115 0 45 99 1389	(micromhos at 25°C)  515 521 440 700 2050  612 403 591 604	.42 1.13 .91 .80 1.71 .80 1.04 1.49	7.7 7.6 7.3 7.6 7.3 7.5 7.6 7.7 7.6 7.2
26 14 16 38 65 17 16 24 13 14	ppb  .6 .4 .4 2.2 1.3 .7 .4 .4 .3 .8 .2	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8 2.5 2.6	ppb  13 9.1 8.8 5.6 8.0 6.8 10 7.9 9.0 5.0 11	17.0 17.5 17.0 17.0 17.0 17.0 16.0 17.5 17.0 19.0 15.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410 395 3524  3477 394	Total ppm 206 193 165 281 1099 268 148 204 238 1633 1544 243	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937 115 0 45 99 1389 1302 57	(micromhos at 25°C)  515 521 440 700 2050  612 403 591 604 4200  4200 635	.42 1.13 .91 .80 1.71 .80 1.04 1.49 .85 4.95	7.7 7.6 7.3 7.6 7.3 7.5 7.6 7.7 7.6 7.2
26 14 16 38 65 17 16 24 13 14 15 22 28	ppb  .6 .4 .4 2.2 1.3 .7 .4 .4 .3 .8 .2 .4	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8 2.5 2.6	ppb  13 9.1 8.8 5.6 8.0 6.8 10 7.9 9.0 5.0 11 8.2	17.0 17.5 17.0 17.0 17.0 17.0 17.0 16.0 17.5 17.0 15.0 15.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410 395 3524  3477 394 1840	Total   ppm   206   193   165   281   1099   268   148   204   238   1633   1544   243   1004   243   1004	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937 115 0 45 99 1389 1302 57 809	(micromhos at 25°C)  515 521 440 700 2050  612 403 591 604 4200 4200 635 2350	.42 1.13 .91 .80 1.71 .80 1.04 1.49 .85 4.95 5.09 .73 2.36	7.7 7.6 7.3 7.6 7.3 7.5 7.6 7.7 7.6 7.2 7.1 7.7
26 14 16 38 65 17 16 24 13 14	ppb  .6 .4 .4 2.2 1.3 .7 .4 .4 .3 .8 .2	5.2 1.9 1.2 4.0 2.9 1.8 2.4 1.8 2.5 2.6	ppb  13 9.1 8.8 5.6 8.0 6.8 10 7.9 9.0 5.0 11	17.0 17.5 17.0 17.0 17.0 17.0 16.0 17.5 17.0 19.0 15.0	(Residue at 180°C)  308 342 278 496 1844  421 310 410 395 3524  3477 394	Total ppm 206 193 165 281 1099 268 148 204 238 1633 1544 243	CaCO <sub>3</sub> Non-Carbonate ppm  41 36 8 132 937 115 0 45 99 1389 1302 57	(micromhos at 25°C)  515 521 440 700 2050  612 403 591 604 4200  4200 635	.42 1.13 .91 .80 1.71 .80 1.04 1.49 .85 4.95	7.7 7.6 7.3 7.6 7.3 7.5 7.6 7.7 7.6 7.2

Kearny County	(cont.)												
Well Location	Geological Unit	Historical Data	SiO <sub>2</sub>	Ca ppm	Mg ppm	Na ppm	K ppm	Sr ppm	HCO3	50 ppm	Cl ppm	F ppm	NO <sub>3</sub>
25-36W-11CBC	QA		13	413	122	424	8.8	4.0	261	2018	166	1.2	20
25-36W-18ACC	TO	ь	13	400	115	438	9.6	3.3	236	2018	162	.8	25
25-36W-19BBB	Qu,TO		13	332	67	281	7.8	2.1	187	1397	113	.6	12
25-36W-28BBD	Qu,TO		13	70	12	20	2.7	.8	159	130	13	.7	6.4
26-35W-6BBD	Qu,TO		17	42	6.1	5.7	1.9	.5	154	8.1	4.1	.6	6.2
26-35W-31DCA	Qu,TO		21	46	5.9	9.0		.4	168	27	<1 7.4	.4 1.1	3.0 3.8
26-37W-21DDD 26-37W-26DBC	Qu,TO Qu,TO	b	21 20	56 <b>4</b> 3	21 12	32 14	3.9 2.6	1.1	258 199	73 27	2.6	.9	6.0
	• .												
Scott County													
Well	Geological	Historical	SiO <sub>2</sub>	Ca	Mg	Na	ĸ	Sr	HCO <sub>3</sub>	SO <sub>4</sub>	Cl	F	NO <sub>3</sub>
Location	Unit	Data	ppm <sup>2</sup>	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
18-32W-20CBB	TO	a	59	67	37	40	6.8	1.4	233	154	44	2.4	13
18-33W-35AAA	QA,TO	a	58	66	28	40	5.7	1.3	258	115	26	2.1	7.4
19-33W-12DDC	QA,TO	b	47	292	196	297	16	8.4	367	1572	236	2.0	14
19-33W-15DBD	TO	a	52	63	30	63	4.7	1.4	290	107	42	3.9	13
19-33W-25DCD	QA,TO	a	38	91	42	48	7.7	1.7	308	178	40	2.2	11
19-33W-29CBB2	QA,TO	a	44	56	30	32	6.0	1.6	251	40	38	1.8	26
19-33W-34DCC	QA,TO	a	30	47	16	22	5.5	.8	231	26	13	1.5	5.5
20-33W~2DBB	QA,TO	a	31	58	21	32	6.0	1.0	254	42	31	1.4	6.8
20-33W-21ABD	QA,TO	a	39	82	32	30	7.5	1.5	227	138	56	1.1	10
20-33W-26CBB	TO		37	47	18	23	5.6	.8	218	49	17	2.0	6.9
20-33W-35DBA	QA,TO	a	38	44	17	22	4.7	.7	212	38	14	2.0	4.2
20-33W-36CCD	TO		40	44	20	32	4.5	.9	225	46	21	2.3	4.6
Stanton County Well Location	Y Geological Unit	Historical Data	SiO <sub>2</sub> ppm <sup>2</sup>	Ca ppm	Mg ppm	Na ppm	K ppm	Sr ppm	HCO 3	SO <sub>4</sub>	Cl ppm	F ppm	NO3
					**		**	. 1 .					
27-39W-23ACC	Qu,TO		30	112	36	37	5.4	2.0	281	180	28	1.0	66
27-39W-27BBA	Qu,TO		27	86	26	37	4.4	1.7	205	178	30	1.0	6.1
27-40W-15DBC	Qu,TO		19	98	33	43	4.8	2.1	203	263	28 36	1.0 .9	4.9 6.9
27-40W-25CBC 27-40W-28CDD	Qu,10		18 16	86 59	24 19	29 23	3.9 3.8	1.6 1.2	160 180	176 99	11	1.0	8.5
27-40W-28CDD	Qu,TO		10	39	13	23	3.0	1.2	100				
27-41W-19BAD	Qu,TO		16	63	18	28	3.9	1.1	174	127	9.7	.8	5.6
27-41W-35CCC	Qu,TO		18	59	20	29	3.8	1.3	172	136	9.4	.9	4.8
27-42W-11DBB	Qu,TO		13	63	18	28	4.0	1.1	178 178	135 124	7.7 12	.7 .8	2.4 5.7
27-42W-17DCC 27-42W-31CCC	Qu,TO Qu,TO,KJ		13 12	62 50	16 13	28 23	3.9 3.3	1.1 .7	167	86	6.6	1.0	3.1
27 4211 31000	24,10,10												
27-43W-12BCC	Qu,TO		12	57	14	25	3.8	1.0	170	109	9.4	.8	10
	у												
Wichita County	_												
Wichita County Well	Geological	Historical	SiO_	Ca	Mg	Na	K	Sr	HCO,	so,	Cl	F	NO 3
	_	Historical Data	SiO <sub>2</sub>	Ca ppm	Mg ppm	Na ppm	ppm ppm	sr ppm	HCO <sub>3</sub>	SO <sub>4</sub> ppm	C1 ppm	F ppm	NO <sub>3</sub>
Well Location	Geological Unit	Data	ppm	ppm	ppm	ppm	ppm	ppm	PDm 3	SO <sub>4</sub> ppm		ppm	NO <sub>3</sub> ppm
Well	Geological		SiO <sub>2</sub> ppm <sup>2</sup> 49 50						ppm		ppm	2.5 2.8	12 9.5
Well Location	Geological Unit	Data a	ppm 49	<b>ppm</b>	ррт 18	<u>р</u> рт 37	ppm 5.0	ppm 1.0	201 193 209	46 29 47	7.9 8.8 10	2.5 2.8 1.7	12 9.5 7.9
Well Location 19-38W-14AAB 19-38W-18DCC	Geological Unit TO TO	Data a a	49 50 51 44	30 29 41 39	18 18 15 22	37 28 31 25	5.0 4.2 4.8 5.4	1.0 1.0 .8 1.4	201 193 209 183	46 29 47 73	7.9 8.8 10 20	2.5 2.8 1.7	12 9.5 7.9 9.4
well Location 19-38W-14AAB 19-38W-18DCC 19-38W-26CCB	Geological Unit TO TO	Data a a	49 50 51	30 29 41	18 18 15	37 28 31	5.0 4.2 4.8	1.0 1.0 .8	201 193 209	46 29 47	7.9 8.8 10	2.5 2.8 1.7	12 9.5 7.9

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На	rd	nes	SS	as

	Hardness as										
						CaCO					
Fe	Mn	Cu	Ni	Tempera-	Total Solids	Total	Non-Carbonate	Specific Conductance	SAR	pН	
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	ppm	ppm	(micromhos at 25°C)			
17	1.6	1.4	8.3	16.0	3390	1527	1222	2750	4 70		
13						1537	1323	3750	4.70	7.3	
	.1	1.3	8.8	15.0	3363	1475	1281	4100	4.96	7.4	
22	1.6	2.0	7.3	18.0	2254	1106	953	2800	3.68	7.3	
15	.2	1.5	2.6	18.0	365	225	95	565	.58	7.7	
16	.2	2.3	19	18.0	179	130	4	295	.22	7.8	
		2 2					_				
15	.2	3.3	8.1	19.0	185	139	2	290	.33	7.7	
17	.7	28	15	17.0	365	227	16	520	.92	7.3	
15	.4	1.5	15	18.0	241	158	0	370	.49	7.5	
						На	ardness as				
							CaCO <sub>2</sub>				
Fе	Mn	Cu	Ni	Tempera-	Total Solids	Total	Non-Carbonate	Specific Conductance	SAR	pН	
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	ppm	ppm	(micromhos at 25°C)			
43	5.1	1.1	11	15.5	579	321	130	760	.97	8.1	
14	3.5	3.6	8.5	14.0	496	281	70	730	1.04	7.7	
24	26	1.6	9.5	15.0	3003	1544	1244	3450	3.29	7.5	
30	5.9	18	11	14.5	539	282	45	830	1.63	7.8	
11	.6	1.2	12	15.0	642	402	149	990	1.04	7.8	
44	6.2	2.1	6.6	16.0	453	265	59	640	.86	7.7	
24	. 4	.9	3.2	14.5	324	184	0	460	.71	7.9	
23	7.2	1.8	5.8	14.0	384	232	24	580	.91	7.5	
14	.9	3.9	8.4	15.0	591	338	152	750	.71	7.8	
82	1.8	3.9	21	17.0	327	192	14	480	.72	8.0	
47	3.7	3.3	12	15.0	310	180	7	430	.71	8.0	
43	.9	14	2.5	16.0	348	193	9	560	1.00	7.9	
						н	ardness as				
					CaCo						
Fe	Mn	Cu	Ni	Tempera-	Total Solids	Total	Non-Carbonate	Specific Conductance	SAR	pН	
ppb	ppb	ppb	ppb	ture °C	(Residue at 180°C)	ppm	ppm	(micromhos at 25°C)		-	
17	.6	6.4	10	17.5	668	430	200	965	.78	7.4	
440	193	8.1	8.3	20.0	532	323	155	743	.89	7.8	
112	1.1	12	7.0	19.0	615	383	216	715	.96	7.7	
74	1.6	5.9	9.5	17.0	511	315	184	667	.71	7.7	
14	. 4	2.7	5.9	18.0	370	227	79	529	.66	7.7	
							,,	323	•00		
17	. 2	2.4	9.9	18.0	378	232	90	546	.80	7.6	
19	.5	3.0	6.4	18.0	380	231	90	549	.83	7.6	
21	.8	1.3	3.6	17.0	378	232	87	546	.80		
15	.1	1.6	10	18.0	372	222	76			7.5	
						222	/0	552	.82	7.9	
76			11	17.0	292	179	12	440	75		
76	3.1	3.2	11	17.0	292	179	42	449	.75	7.8	
76 14			8.3	17.0	292 339	179 201	<b>42</b> 62	449 483	.75	7.8	
	3.1	3.2									
	3.1	3.2				201	62 ardness as				
14	3.1	3.2	8.3	18.0	339	201 H	62 ardness as CaCO	483	.77	7.9	
14 Fe	3.1 3.7 Mn	3.2 2.4 Cu	8.3 Ni	18.0 Tempera-	339 Total Solids	201 H	62 ardness as	483 Specific Conductance			
14	3.1	3.2	8.3	18.0	339	201 H	62 ardness as CaCO	483	.77	7.9	
14 Fe ppb	3.1 3.7 Mn ppb	2.4 Cu	Ni ppb	18.0 Tempera- ture °C	339  Total Solids (Residue at 180°C)	201 H. Total ppm	62 ardness as CaCO Non-Carbonate ppm	483  Specific Conductance (micromhos at 25°C)	.77	7.9 pH	
Fe ppb	3.1 3.7 Mn ppb	3.2 2.4 Cu ppb 3.9	8.3 Ni ppb 7.8	Temperature °C	339  Total Solids (Residue at 180°C)  313	201  H.  Total ppm  150	ardness as CaCO Non-Carbonate ppm	483  Specific Conductance (micromhos at 25°C)  460	.77 SAR	7.9 pH	
14 Fe ppb 12 34	3.1 3.7 Mn ppb 1.7 3.4	3.2 2.4 Cu ppb 3.9	8.3 Ni ppb 7.8 1.4	Temperature °C	339  Total Solids (Residue at 180°C)  313 279	201  H.  Total ppm  150 148	ardness as CaCO Non-Carbonate ppm 0 0	Specific Conductance (micromhos at 25°C)  460 420	.77 SAR 1.31 1.00	7.9 pH 8.0 8.0	
Fe ppb 12 34 11	3.1 3.7 Mn ppb	3.2 2.4 Cu ppb 3.9 .8 1.6	8.3 Ni ppb 7.8 1.4 9.0	Tempera- ture °C 15.0 16.0 14.5	Total Solids (Residue at 180°C)  313 279 327	201  H.  Total ppm  150	ardness as CaCO Non-Carbonate ppm 0 0 0	483  Specific Conductance (micromhos at 25°C)  460	.77 SAR	7.9 pH	
14 Fe ppb 12 34 11 14	3.1 3.7 Mn ppb 1.7 3.4	3.2 2.4 Cu ppb 3.9 .8 1.6 5.2	Ni ppb 7.8 1.4 9.0 3.8	Temperature °C  15.0 16.0 14.5 15.0	339  Total Solids (Residue at 180°C)  313 279	201  H.  Total ppm  150 148	ardness as CaCO3 Non-Carbonate ppm 0 0 0 39	Specific Conductance (micromhos at 25°C)  460 420	.77 SAR 1.31 1.00	7.9 pH 8.0 8.0	
Fe ppb 12 34 11	3.1 3.7 Mn ppb 1.7 3.4 1.5	3.2 2.4 Cu ppb 3.9 .8 1.6	8.3 Ni ppb 7.8 1.4 9.0	Tempera- ture °C 15.0 16.0 14.5	Total Solids (Residue at 180°C)  313 279 327	201  H. Total ppm  150 148 165	ardness as CaCO Non-Carbonate ppm 0 0 0	Specific Conductance (micromhos at 25°C)  460 420 430	.77 SAR 1.31 1.00 1.05	7.9 pH 8.0 8.0 8.0	