GROUND-WATER-QUALITY ASSESSMENT OF THE CENTRAL OKLAHOMA AQUIFER, OKLAHOMA: HYDROLOGIC, WATER-QUALITY, AND QUALITY-ASSURANCE DATA 1987–90

By Dale M. Ferree, Scott Christenson, Alan H. Rea, and Benard A. Mesander

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Multiply	By	To obtain
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer

Temperature in degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) as follows:

$$°F = 1.8(°C) + 32$$

The following terms and abbreviations are also used in this report:

centimeters^2(cm^2)
liter(L)
micron (μ)
micrograms per liter (μg/L)
micrograms per kilogram per day [(μg/kg)/day]
microsiemens per centimeter (μS/cm)
milligrams per liter (mg/L)
milliliter (ml)
millirems per year (mrems/yr)
picocuries per liter (pCi/L)

National Geodetic Vertical Datum of 1929 (NGVD of 1929: A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

GROUND-WATER-QUALITY ASSESSMENT OF THE CENTRAL OKLAHOMA AQUIFER, OKLAHOMA: HYDROLOGIC, WATER-QUALITY, AND QUALITY-ASSURANCE DATA 1987–90

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ABSTRACT

This report presents data collected from 202 wells between June 1987 and September 1990 as part of the Central Oklahoma aquifer pilot study of the National Water-Quality Assessment Program. The report describes the sampling networks, the sampling procedures, and the results of the ground-water quality and quality-assurance sample analyses. The data tables consist of information about the wells sampled and the results of the chemical analyses of ground-water and quality-assurance sampling.

Chemical analyses of ground-water samples in four sampling networks are presented: A geochemical network, a low-density survey bedrock network, a low-density survey alluvium and terrace deposits network, and a targeted urban network. The analyses generally included physical properties, major ions, nutrients, trace substances, radionuclides, and organic constituents.

The chemical analyses of the ground-water samples are presented in five tables: (1) Physical properties and concentrations of major ions, nutrients, and trace substances; (2) concentrations of radionuclides and radioactivities; (3) carbon isotope ratios and delta values (δ-values) of selected isotopes; (4) concentrations of organic constituents; and (5) organic constituents not reported in ground-water samples.

The quality of the ground water sampled varied substantially. The sum of constituents (dissolved solids) concentrations ranged from 71 to 5,610 milligrams per liter, with 38 percent of the wells sampled exceeding the Secondary Maximum Contaminant Level of 500 milligrams per liter established under the Safe Drinking Water Act. Values of pH ranged from 5.7 to 9.2 units with 20 percent of the wells outside the Secondary Maximum Contaminant Level of 6.5 to 8.5 units. Nitrite plus nitrate concentrations ranged from less than 0.1 to 85 milligrams per liter with 8 percent of the wells exceeding the proposed Maximum Contaminant Level of 10 milligrams per liter. Concentrations of trace substances were highly variable, ranging from below the reporting level to concentrations over the Maximum Contaminant Levels for several constituents (arsenic, barium, cadmium, chromium, lead, and selenium). Radionuclide activities also were highly variable. Gross alpha radioactivity ranged from 0.1 to 210 picocuries per liter as ^{230}thorium. Of the wells sampled, 20 percent exceeded the proposed Maximum Contaminant Level of 15 picocuries per liter for gross alpha radioactivity. Organic constituents were detected in 39 percent of the 170 wells sampled for organic constituents; in most cases concentrations were at or near the laboratory minimum reporting levels. Ten of the wells sampled for organic

constituents had one or more constituents (chlordane, dieldrin, heptachlor epoxide, trichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane) at concentrations equal to or greater than the Maximum Contaminant Level or acceptable concentrations as suggested in the Environmental Protection Agency's Health Advisory Summaries.

Quality-assurance sampling included duplicate samples, repeated samples, blanks, spikes, and blind samples. These samples proved to be essential in evaluating the accuracy of the data, particularly in the case of volatile organic constituents.

INTRODUCTION

Beginning in 1986, Congress has appropriated funds annually for the U.S. Geological Survey to test and refine concepts for the National Water-Quality Assessment (NAWQA) Program. The long-term goals of the NAWQA Program are to:

(1) Provide a nationally consistent description of current water-quality conditions for a large part of the Nation's surface- and ground-water resources;

(2) Define long-term trends (or lack of trends) in water quality; and

(3) Identify, describe, and explain, as possible, the major factors that affect the observed water-quality conditions and trends.

The results of the NAWQA Program will be made available to water managers, policy makers, and the public, and will provide an improved scientific basis for evaluating the effectiveness of water-quality management programs (Hirsch, Alley, and Wilber, 1988).

Before implementing a full-scale NAWQA Program, pilot projects were initiated to test and refine concepts for a full-scale program. Seven pilot project areas were selected throughout the country that represent diverse hydrologic environments and water-quality conditions. Although each pilot project studied either ground water or surface water, the full-scale NAWQA programs will study both ground and surface water. For ground-water projects, the pilot study units are large parts of aquifers or aquifer systems, and for surface water the study units are major river basins. The study units are large, involving areas of a few thousand to several tens of thousands of square miles. Pilot project areas focusing primarily on ground water include the Carson basin in Nevada and California, the Central Oklahoma aquifer in Oklahoma, and the Delmarva Peninsula in Delaware, Maryland, and Virginia. Pilot project areas focusing primarily on surface water include the Yakima River basin in Washington, the lower Kansas River basin in Kansas and Nebraska, the Kentucky River basin in Kentucky, and the upper Illinois River basin in Illinois, Indiana, and Wisconsin.

The Central Oklahoma aquifer (fig. 1) was selected for study in the pilot NAWQA Program because it is a major source of water in central Oklahoma and because it has several known or suspected water-quality problems. These problems include: Arsenic, chromium, and selenium concentrations, and gross alpha radioactivity in excess of public drinking-water standards; contamination by synthetic organic constituents; and contamination by oil-field brines and drilling fluids. The aquifer also was chosen because it underlies the Oklahoma City urban area, and the effects of an urban environment on regional ground-water quality have not been studied extensively.

The objectives of the Central Oklahoma aquifer NAWQA project are to: (1) Investigate regional ground-water quality throughout the aquifer, emphasizing the occurrence and distribution of potentially toxic substances in ground water, including trace substances, organic constituents, and radioactive constituents; (2) describe the relation of ground-water quality to hydrogeologic and other pertinent factors; and (3) provide a general description of the location, nature, and causes of selected water-quality problems within the study unit.

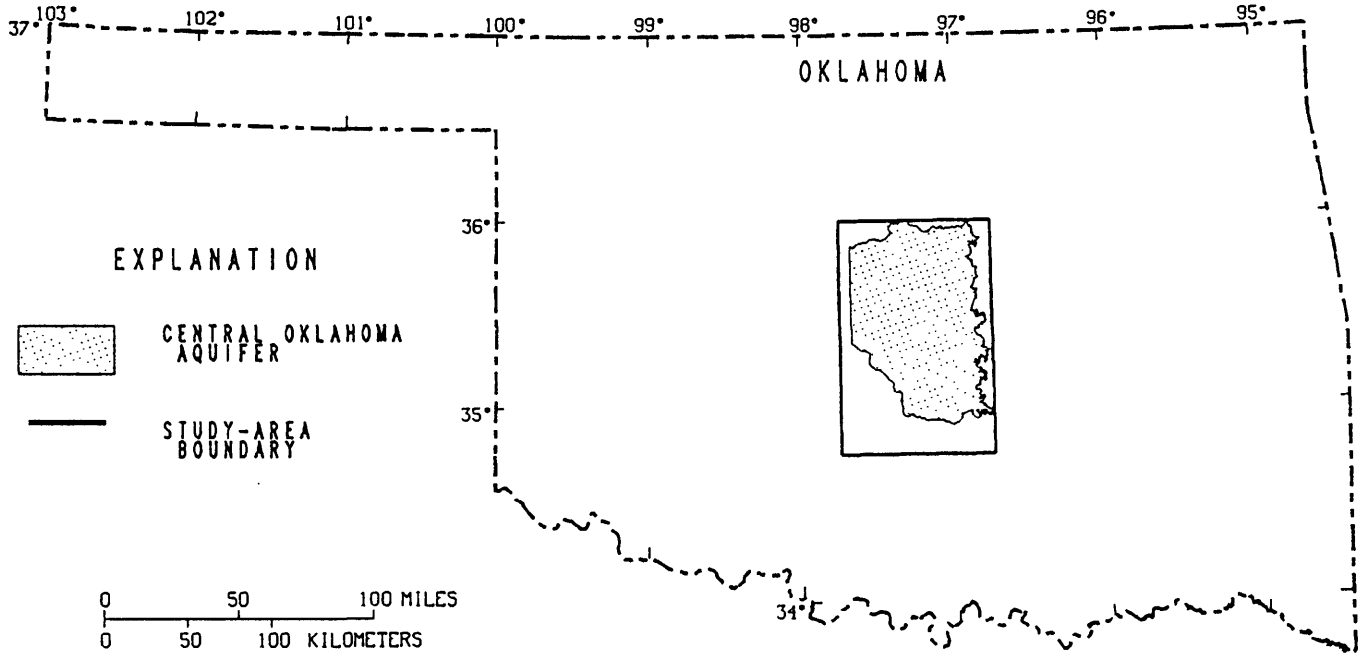

Figure 1.—Location of the Central Oklahoma aquifer and the study area.

Purpose and Scope

This report presents the data collected between 1987 and 1990 from 202 wells in four sampling networks. Maps are provided showing the locations of wells sampled in each sampling network. The report includes a discussion of the design of the sampling networks and sampling procedures and a description of the data tables. The data tables include well information, constituents analyzed, minimum reporting levels for each sampling network, and results of the analyses of the ground-water and the quality-assurance samples. Interpretation of the data is beyond the scope of this report, and will be included in subsequent reports.

SAMPLING NETWORK DESIGN

At the beginning of the Oklahoma NAWQA project, a decision was made to sample only existing water-supply and monitoring wells instead of drilling and completing monitoring wells. The decision was economic, based on the large cost associated with drilling wells in the consolidated geologic units of the Central Oklahoma aquifer. Ground-water sampling networks were designed at three different scales: (1) Geochemical sampling, designed to investigate the geochemistry of the Central Oklahoma aquifer, (2) low-density survey sampling, designed to provide a broad description of the water-quality of the Central Oklahoma aquifer, and (3) targeted sampling, designed to study specific water-quality problems. A single network was implemented to investigate geochemical processes. Two sampling networks were implemented for low-density survey sampling, a bedrock and an alluvium and terrace deposits network. The Permian bedrock geologic units of the Central Oklahoma Aquifer consist of the Garber Sandstone, the Wellington Formation, and the undivided Chase, Council Grove, and Admire Groups. The alluvium and terrace deposits are Quaternary alluvial deposits adjacent to streams (fig. 2). Two sampling networks were implemented for the targeted sampling, an urban sampling network in the Oklahoma City area and a network for investigating problems with naturally occurring trace substances.

Geochemical Network

A total of 37 wells were sampled for the geochemical network (fig. 3). Wells located along suspected flow paths were selected for the geochemical network sampling. Wells were located along flow paths to measure the changes in water chemistry as ground water moves through the Central Oklahoma aquifer. At some locations, one shallow and one deep well were selected.

Low-Density Survey Networks

Random-selection techniques were employed for both low-density survey sampling networks. These random-selection techniques were used to obtain water samples that were distributed throughout the study area, both areally and vertically, so that a representative sample of the water resource could be collected.

Wells sampled in the low-density networks were randomly selected using a computer program described by Scott (1990). The computer program was designed to select points such that all points in an area had an equal probability of being selected.

The well nearest the point was located by field personnel and sampled, if it met certain suitability requirements. A well was considered suitable for sampling if: (1) The well was completed in the appropriate geologic unit, (2) the well was of the appropriate depth for the network, (3)the well was equipped with a submersible pump, and (4) a water sample could be taken near the wellhead before the water passed through water-treatment systems or pressure tanks. If a suitable well could not be found near the computer-selected point, alternate points were used. The alternate points were selected by the program at the same time the primary point was selected.

The study area was subdivided into areas where either the Permian geologic units or the alluvium and terrace deposits are present at the land surface. The freshwater zone in the Permian geological units can be as much as 900 feet (ft) in thickness. To obtain water samples

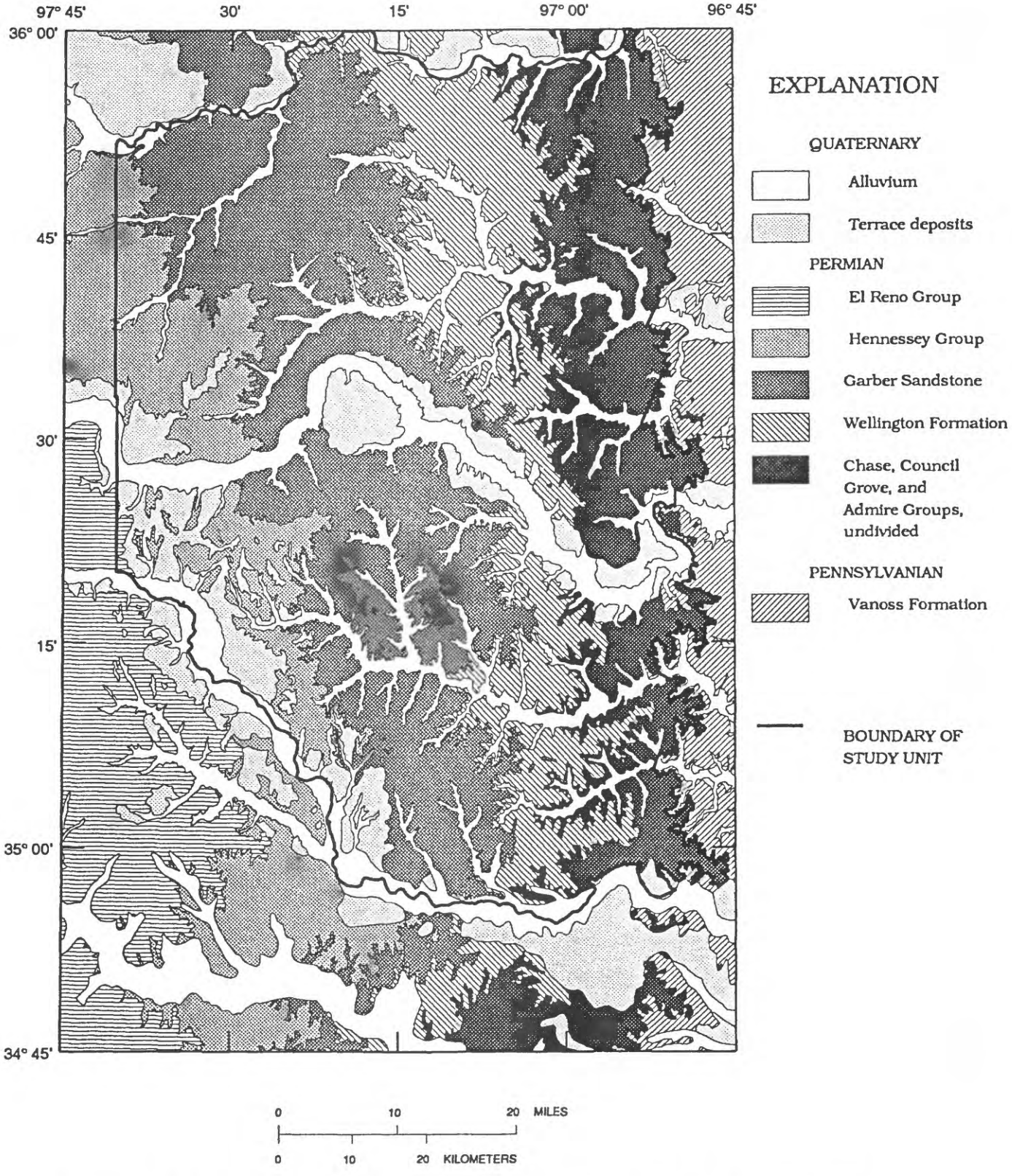

Figure 2.—Geologic map of central Oklahoma (modified from Bingham and Moore, 1975, and Hart, 1974).

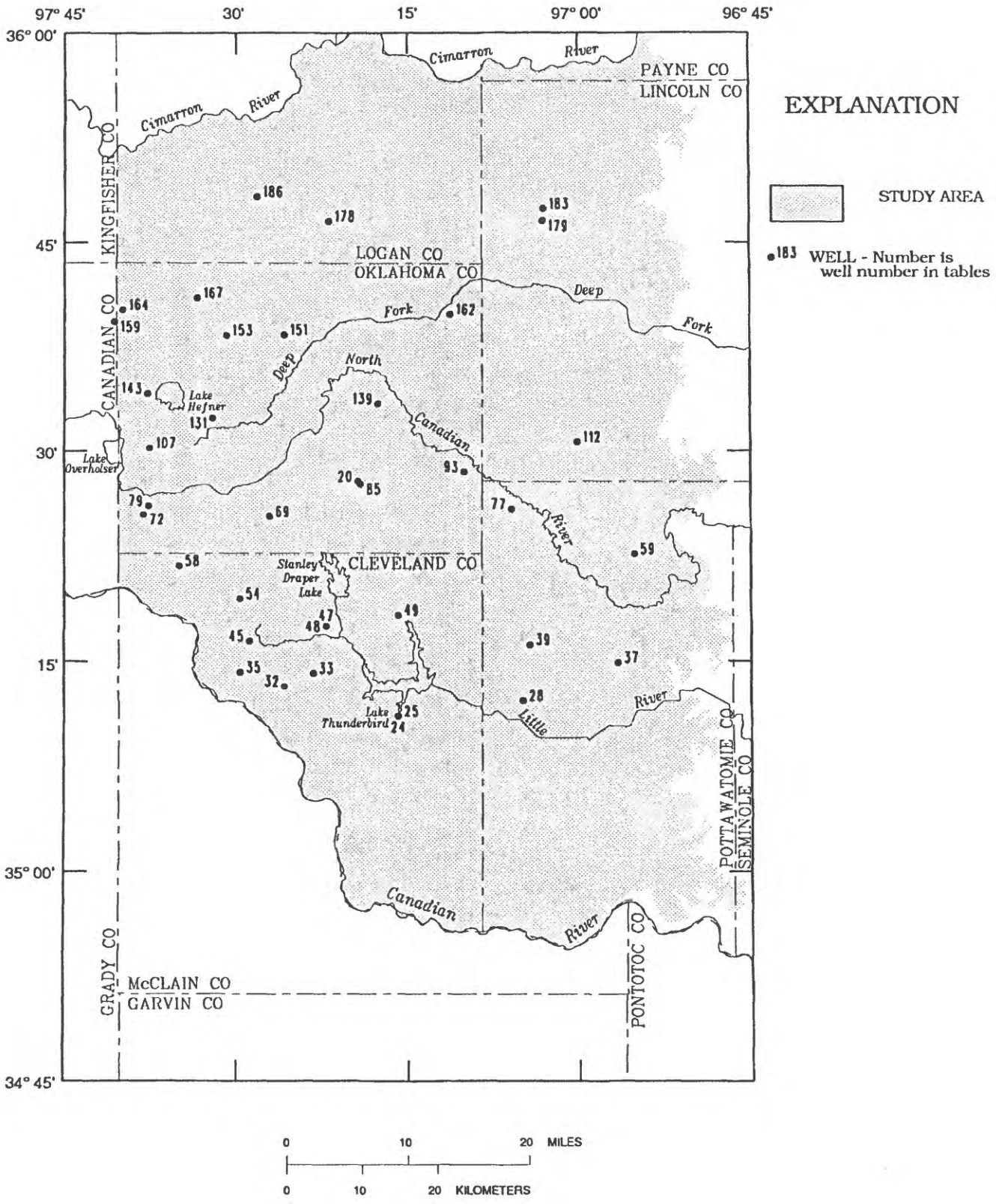

Figure 3.—Locations of wells sampled in the geochemical network.

distributed vertically as well as areally, the low-density survey sampling of Permian geologic units was divided into three categories based on well depth: (1) Shallow wells, less than 100 ft in depth, (2) intermediate-depth wells, 100 ft to 300 ft in depth, and (3) deep wells, greater than 300 ft in depth.

Deep wells are not as abundant in the study area as shallow or intermediate-depth wells. Deep wells suitable for sampling could not be found close to points generated by the computer program. Instead, an effort was made to locate all the deep wells in the study area, a grid was overlaid on the study unit map, and deep wells were selected randomly from each grid cell.

A total of 25 shallow, 35 intermediate, 27 deep wells completed in Permian geologic units were sampled (fig. 4). A total of 42 wells completed in the alluvium and terrace deposits were sampled (fig. 5).

Targeted Urban Network

Locating wells suitable for targeted urban sampling was difficult in the Oklahoma City area, because most of the water use in the urban area is from public water supplies. To locate wells, a television news story and an announcement in a local newspaper briefly explained the NAWQA project and requested that well owners in the area contact the U.S. Geological Survey if they were interested in having their wells sampled. Candidate wells were subject to the same sampling suitability requirements as the wells in the low-density survey sampling networks, and were all less than 300 ft deep. All wells located in this manner were plotted on a map of the urban area. A grid was placed over the urban area map and wells were selected randomly from each grid cell. A total of 41 wells were sampled for the targeted urban network (fig. 6).

Targeted Naturally Occurring Trace Substances Network

Nine test holes were drilled in the Central Oklahoma aquifer to investigate local occurrences of potentially toxic, naturally occurring trace substances in water. These substances include arsenic, chromium, selenium, residual alpha-particle activity, and uranium. Chemical analysis of water samples from eight test holes and geophysical logs for nine test holes were presented in Schlottmann and Funkhouser (1991). Chemical composition of rocks from the Central Oklahoma aquifer was presented by Mosier and others (1990). An additional report describing the mineralogy and petrology of rock cores was presented by Breit and others (1990). No further discussion of the targeted naturally occurring trace substances network is included in this report.

Sampling Biases

Although efforts were made to obtain a random, unbiased sampling of wells in each network, some biases exist. One known bias is that the sampling was limited to wells that were operational and had pumps installed. In areas of known or obvious water-quality problems, few wells would be in use and therefore such an area would not have been sampled. Other biases might be related to the willingness of the well owners to allow their wells to be sampled, or to the similarity of wells constructed in a particular area, many of which may have been drilled by the same driller.

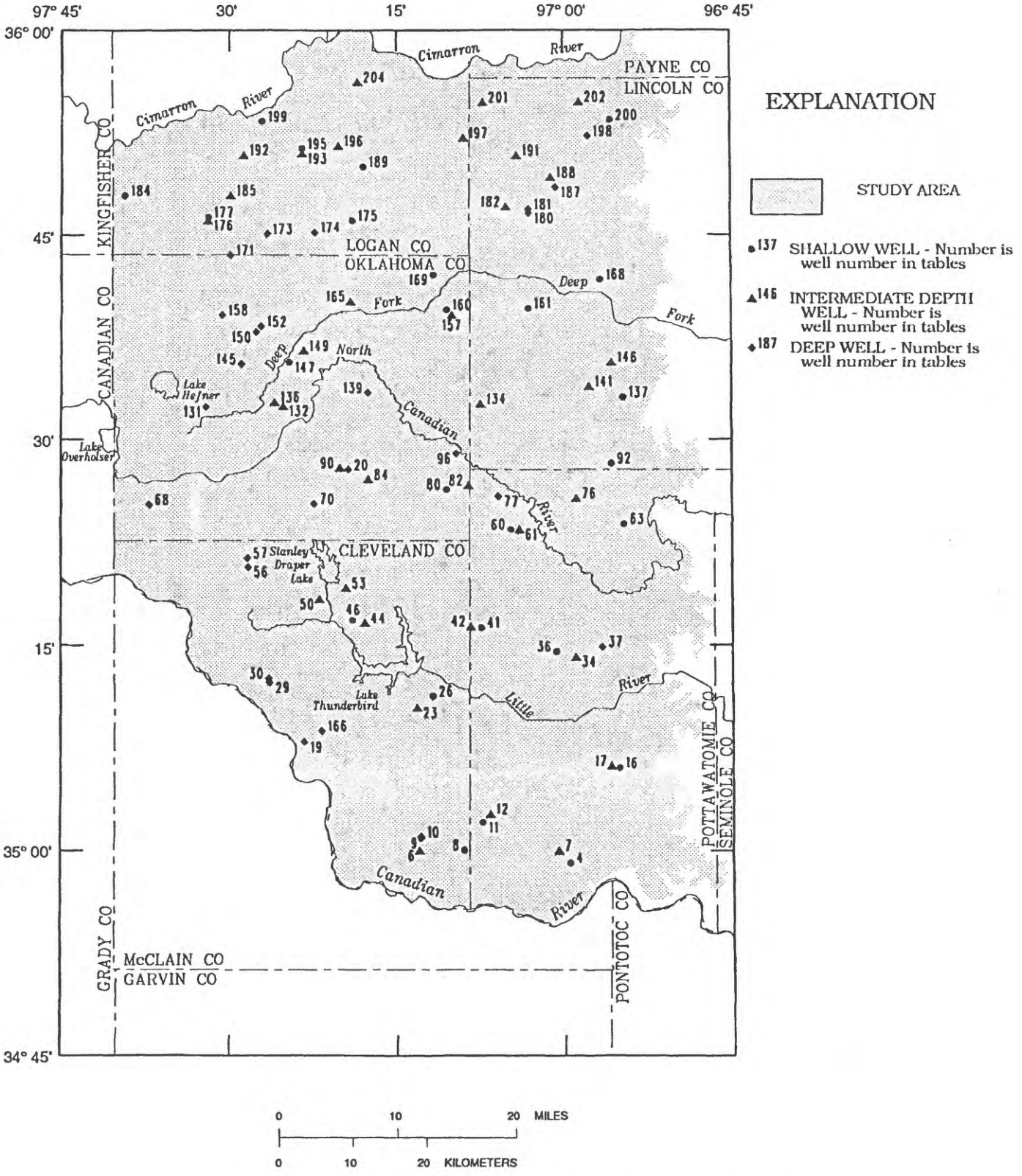

Figure 4.—Locations of wells sampled in the low-density survey bedrock network.

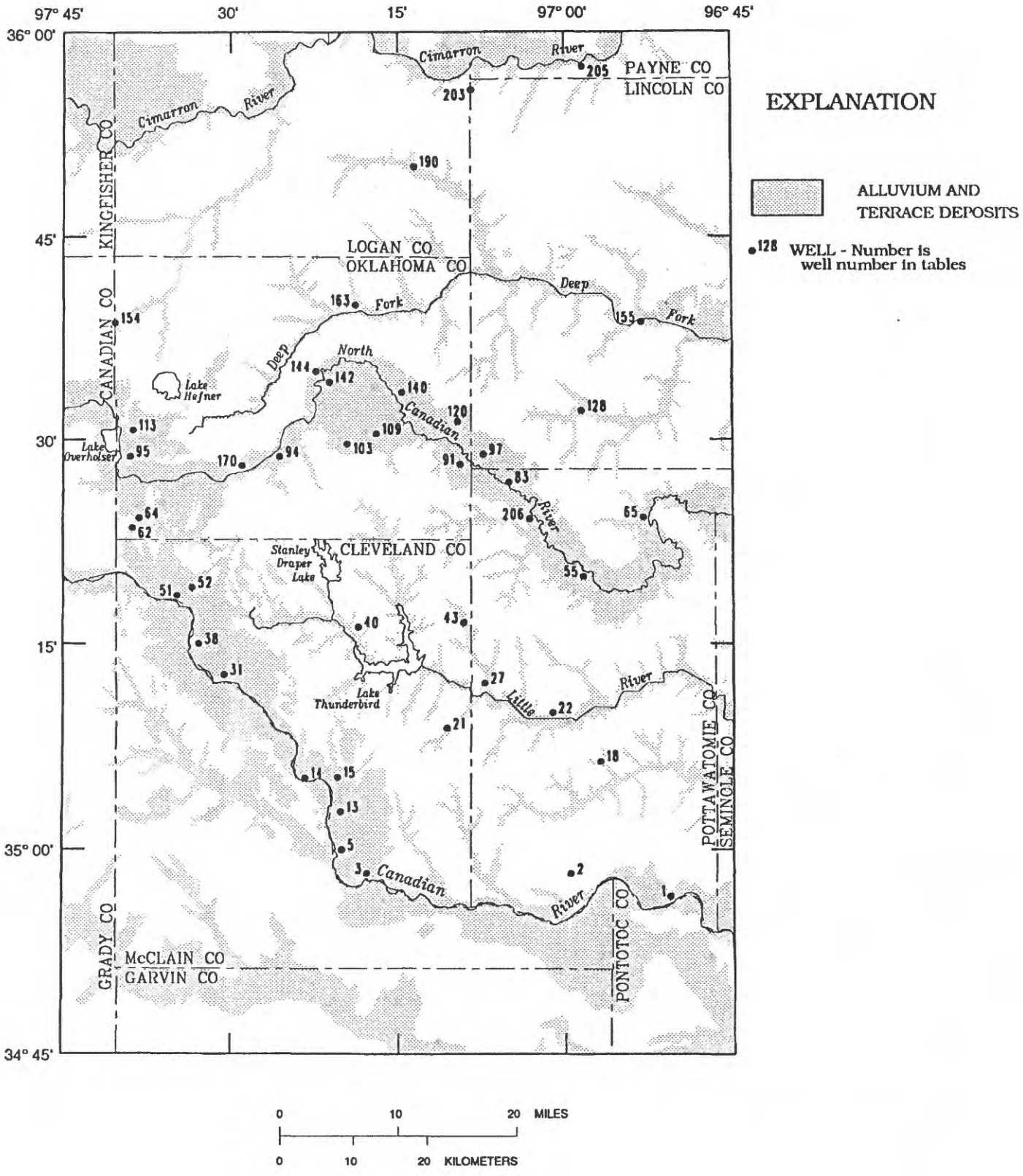

Figure 5.—Locations of wells sampled in the low-density survey alluvium and terrace deposits network.

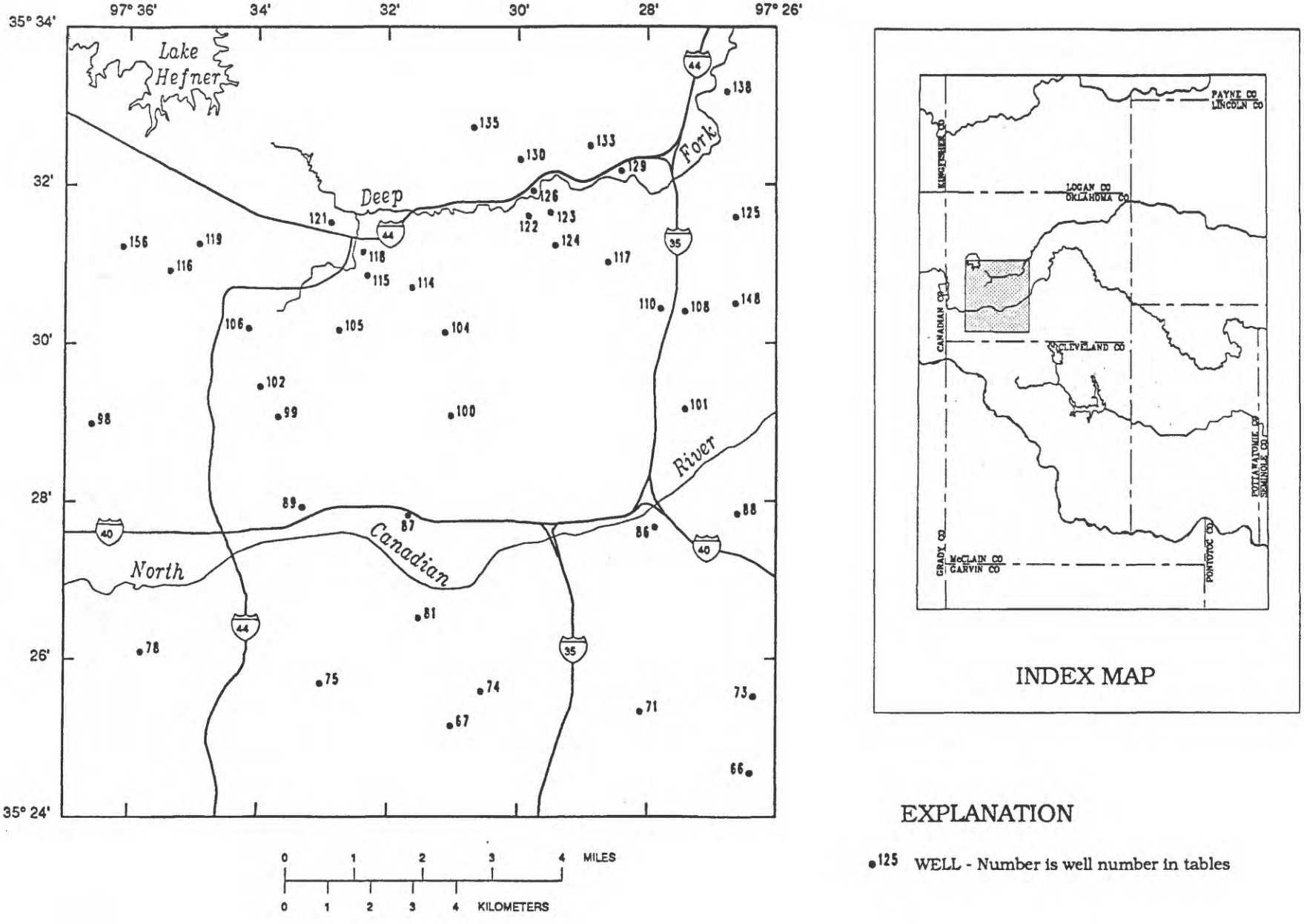

Figure 6.—Locations of well sampled in the targeted urban network.

The manner in which the sampled wells were constructed was thought to bias the observed water quality. Domestic supply wells completed in the Central Oklahoma aquifer generally are drilled by rotary methods, cased to the full depth of the well, screened or perforated at depths opposite the most permeable strata, and gravel packed from the bottom of the well to 10 ft below land surface. The wells are sealed with cement to the land surface. This method of construction increases the yield of a well, particularly wells completed in the Permian geologic units, where individual sandstone layers may produce only small amounts of water. This type of construction increases the probability that a well could be contaminated by substances introduced at or near the land surface. Even if most of the water is withdrawn from deep strata, a contaminant introduced at or near the land surface could migrate down the gravel pack and affect the water quality.

A geologic bias could exist for wells sampled as part of the urban network. Oklahoma City is located at the eastern edge of the outcrop of the Hennessey Group and much of the urban area is situated where a thin layer of the Hennessey Group overlies the Garber Sandstone. Many wells in the urban network are drilled through the Hennessey Group and completed in the Garber Sandstone, but outside the urban area, few wells were sampled where the Garber Sandstone is overlain by the Hennessey Group. However, the concentrations of the inorganic constituents within the urban sampling network did not appear to be spatially correlated with the Hennessey Group.

SAMPLING PROCEDURE

Sampling for the Central Oklahoma aquifer NAWQA project was a three-step process: (1) Purging the well, (2) field analysis, and (3) sampling and sample treatment. These steps were not independent, but interrelated parts of a process.

All well purging, with the exception of five small-diameter test holes in the geochemical network, was accomplished using pumps already in the well, and samples were taken as close to the wellhead as possible. The test holes initially were purged using a portable air compressor by air lifting three casing volumes of water from the well. Following this initial purging, the test holes were purged and sampled with a stainless-steel and Teflon1[1] bladder pump with Teflon sampling lines until field parameters (specific conductance, pH, water temperature, and dissolved oxygen) stabilized. The bladder pump was controlled electrically and driven with dry compressed nitrogen.

The field parameters of the water, for all wells, were measured continuously during the purging process using a flow-through measuring chamber. The pH values in the flow-through chamber were determined after the inflow valve was closed and the pressure in the chamber equilibrated with atmospheric pressure. The well was considered purged when a minimum of three casing volumes of water had been pumped from the well and the field parameters were stable. The field parameters were considered stable when three consecutive measurements, taken at intervals of 5 minutes or more, differed by less than the following amounts: Water temperature, 0.2 degrees Celsius (°C); specific conductance, five percent (or 5 microsiemens per centimeter at 25°C (µS/cm) when less than 100 µS/cm); and pH, 0.1 units. Continuously operated production wells were purged only until the field parameters were stable. Some of the sampled wells were not equipped with submersible pumps, or access to the well was not close to the wellhead; additional purging time was allowed in those cases.

Specific conductance was measured using a portable conductivity meter with automatic temperature compensation. The conductivity meter calibration was checked daily, or whenever field conditions warranted, using standard conductivity solutions that bracketed the expected field values. Water temperature was measured to the nearest 0.1°C using a thermistor circuit within the conductivity meter. All thermistor circuits were checked daily using an American Society for Testing and Materials mercury thermometer. Values of pH were measured using a portable pH meter, with automatic temperature compensation and a Ross combination pH electrode. The pH meters were calibrated at every site before starting measurements and checked after all measurements were completed using standard buffer solutions that bracketed the expected field pH values; then the calibration was corroborated using a third buffer solution. Dissolved oxygen (DO) concentration was measured using a portable DO meter that was calibrated at the beginning of each day, or when field conditions warranted, in water-saturated air using a calibration wand. Alkalinity of the water was determined by the electrometric method, which uses an incremental titration of 0.16-normal standardized sulfuric acid past the carbonate-bicarbonate inflection point (at an approximate pH of 8.3) and the bicarbonate-

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1. The use of firm and trade names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

carbonic acid inflection point (at an approximate pH of 4.5). The titration was done in duplicate or until agreement within two percent was achieved.

Stabilization of field parameters marked the beginning of the field analysis phase of the sampling. The field parameters were measured at 15-minute intervals or less for the remainder of the sampling process. Samples were collected and analysed for alkalinity. Sampling for the various inorganic constituents and, for wells in the geochemical survey, ^{14}carbon sampling was started at this time. The inorganic samples and field measurements were taken from a sampling manifold constructed of polyvinylchloride pipe and valves that connected the various components (flow-through chamber, plate filter, cartridge filter, radon sampling port, and a flow meter on the waste line) to sampling lines made of flexible polyvinylchloride tubing. Samples for total inorganic-constituent analysis were collected first, followed by samples for dissolved radiological, major ions, trace substances, and nutrient analyses.

Samples collected for the analysis of dissolved inorganic samples were filtered through a 142-millimeter diameter, 0.45-micron pore size, cellulose-nitrate membrane filter, using an acrylic in-line filter holder; if the sediment load was significant, the sample was filtered through a disposable, 700-centimeters^2, 0.45-micron pore size, pleated, cartridge filter before any other treatment. Samples for the analysis of radon were the last of the inorganic samples collected. Samples for the analysis of radon were collected, using a syringe and hypodermic needle, through a septa-port in the manifold system, while the water was still under pump pressure. Duplicate 10-milliliter (ml) samples were collected and injected below the surface of the "radon cocktail" (a measured volume of mineral oil) directly into a scintillation vial.

Samples for the analysis of organic constituents were collected using a short piece of Teflon tubing equipped with a stainless-steel tip. The Teflon tubing was connected directly to the well outlet. The metal connectors and stainless-steel tip were washed with laboratory detergent, rinsed with carbon-free water and baked for 1 hour at 180°C prior to use. The Teflon tubing was washed in laboratory detergent, acid rinsed, and then rinsed in carbon-free water. Samples for the analysis of volatile organic constituents were collected first, at a very low flow rate to avoid aeration; followed by samples for the analysis of pesticides; and, finally, a sample for the analysis of dissolved organic carbon was collected.

The suite of analytes (physical properties, major ions, nutrients, trace substances, radionuclides, and organic constituents) monitored in the sampling networks were, with a few exceptions, constant. In addition to the analytes common to all samples, water samples from the geochemical network were analyzed for ^{14}carbon, $^{13/12}$carbon isotope ratios, $^{34/32}$sulfur isotope ratios, ^{226}radium, and ^{228}radium. The geochemical network also included an additional sample for the analysis of chromium using a more sensitive graphite furnace atomic-absorption method of analysis. Samples from the geochemical network and from deep wells in the low-density survey network also were analyzed for $^{2/1}$hydrogen and $^{18/16}$oxygen isotope ratios. The geochemical network did not include any samples for the analysis of antimony, mercury, or organic constituents. An additional sample for analysis of hexavalent chromium was collected from wells in the low-density survey bedrock network. Several organic constituents were added to the list of analytes during the course of the low-density survey sampling, as needs arose or constituent coverages of the laboratory were expanded.

Samples were stabilized as quickly as possible after collection. Sample treatment was specific for each type of sample and is described in table 1. Sample treatment was also carried

Table 1.--*Sample treatment and types of containers*

[ml, milliliter; L, liter; °C, degrees celsius; mg, milligrams; µ, micron]

Sample type	Sample treatment	Type of Container
Physical properties	None	250-ml polyethylene bottles
Anions	Filtered	250-ml polyethylene bottle
Cations and trace substances	Filtered, and pH adjusted to 2.0 with nitric acid	1-L polyethylene bottles (acid rinsed)
Hexavalent-chromium	Filtered, and pH adjusted to 2.5 with hydrochloric acid	250-ml polyethylene bottle (acid rinsed)
Graphite furnace chromium	Filtered, and pH adjusted to 2.0 with ultrex nitric acid	250-ml Teflon bottle (acid rinsed)
Mercury	Filtered, and treated with 5-ml potassium dichromate/nitric acid solution	250-ml glass bottle (acid rinsed)
Nutrients	Filtered, and treated with 1-ml of 10^{-4} molar mercuric chloride, chilled to 4°C	250-ml amber polyethylene bottle
Radiochemical	Filtered, and acidified with 1-ml/L hydrochloric acid	1 to 4-L polyethylene bottles
Tritium	None	1-L glass bottles
Radon	Sample is injected below the surface of the "radon cocktail" in the scintilation vial	40-ml scintilation vial
$^{34/32}$Sulfur isotopes	1-ml 10^{-4} molar mercuric chloride solution is added, and chilled to 4°C	2-L polyethylene bottle
$^{13/12}$Carbon isotopes	Treated with ammonium hydroxide, precipitated with strontium chloride, and a 10-mg mercuric chloride tablet is added	1-L glass bottle (carbon free)
^{14}Carbon	Precipitated with 6 molar sodium hydroxide and 3 molar strontium chloride in an inert atmosphere	2-L glass bottle (carbon free)
$^{2/1}$Hydrogen and $^{18/16}$oxygen isotopes	A 10-mg mercuric chloride tablet is added, and chilled to 4°C	250-ml glass
VOC	1 drop hydrochloric acid is added to vial before sampling, and sample chilled to 4°C	40-ml septa vial
Pesticides	Chilled to 4°C	1-L glass bottle (carbon free)
Dissolved organic carbon	Filtered through a 0.45µ silver filter, and a 10-mg mercuric chloride tablet is added	125-ml glass

out in a specific order. Samples preserved with hydrochloric acid were treated first, followed by samples treated with nitric acid, then samples to which potassium dichromate/nitric acid solution was added, and finally those samples that required mercuric chloride preservative.

All samples, except those for ^{14}carbon, were submitted to the USGS National Water Quality Laboratory in Arvada, Colorado, for analysis. The ^{14}carbon samples were submitted to the Radiocarbon Laboratory of Southern Methodist University in Dallas, Texas, for analysis.

Samples sent to the U.S. Geological Survey's National Water-Quality Laboratory were analyzed using standard analytical methods. Methods for inorganic constituents are described in Brown, Skougstad, and Fishman (1970). Radiochemical analyses were completed using standard methods as described in Thatcher, Janzer, and Edwards (1977). Analytical methods for organic constituents are described in Wershaw and others (1987). ^{14}Carbon was analyzed by quantitative conversion of the carbon to benzene followed by liquid scintillation counting.

SUMMARY OF GROUND-WATER QUALITY

The quality of the sampled ground water varied substantially. The sum of constituents (dissolved solids) concentrations ranged from 71 to 5,610 mg/L, with 38 percent of the wells sampled exceeding the Secondary Maximum Contaminant Level (SMCL) of 500 mg/L established under the Safe Drinking Water Act (U.S. Environmental Protection Agency, 1986a, 1988b). pH ranged from 5.7 to 9.2 standard units with 20 percent of the wells outside the SMCL 6.5 to 8.5 standard units (U.S. Environmental Protection Agency, 1988b). Nitrite plus nitrate concentrations ranged from <0.1 to 85 mg/L with 8 percent of the wells exceeding the proposed MCL of 10 mg/L (U.S. Environmental Protection Agency, 1988c). Concentrations of trace substances were also highly variable, ranging from below the minimum reporting levels (see table 3) to concentrations equal to or greater than the MCL for several constituents (arsenic, barium, cadmium, chromium, lead, and selenium) (U.S. Environmental Protection Agency, 1986a, 1988c, 1989). Gross alpha radioactivity ranged from 0.1 to 210 pCi/L as ^{230}thorium, and twenty percent of the wells sampled exceeded the proposed MCL of 15 pCi/L (U.S. Environmental Protection Agency, 1991). Organic constituents were reported in 39 percent of the 170 wells sampled for organic constituents, usually at or near the minimum reporting levels of the various constituents. Of the wells sampled for organic constituents, 10 had one or more constituents (chlordane, 1,1-dichloroethylene, dieldrin, heptachlor epoxide, 1,1,1-trichloroethane, and trichloroethylene) at concentrations equal to or greater than the MCL or in excess of acceptable concentrations as suggested in the Environmental Protection Agency's Health Advisory Summaries (U.S. Environmental Protection Agency, 1986a, 1990b).

QUALITY-ASSURANCE SAMPLING

Quality-assurance sampling was used to evaluate the precision and accuracy of ground-water sampling. Several types of quality-assurance samples were used:

(1) Blanks: Blanks are solutions that have no detectable concentrations of the constituents of interest. Blanks were used to determine if water samples were being contaminated during the sampling or analytical process. The National Water Quality Laboratory, which analyzed most of the Oklahoma NAWQA samples, uses several different types of blank samples as part of the analytical process, but these laboratory blanks are not discussed in this report. Three different types of blanks were used in the field-sampling program. *Trip blanks* are blank solutions that are put in the same type of bottle as that used for water samples; they are stored with the sample bottles both before and after sample collection. Trip blanks are prepared in the laboratory and are never opened in the field. Trip blanks identify contaminants that might be introduced directly by the sample bottle or by diffusion into the sample bottle while it is being transported. In this study, trip blanks were used only with samples for volatile-organic constituent (VOC) analysis. VOC samples are thought to be the only samples susceptible to contamination during transportation. *Sampler blanks* are blank solutions that are subjected to all aspects of sample collection, including field processing, preservation, transportation, and laboratory handling. Analysis of sampler blanks identifies contaminants introduced by the sampling equipment. Sampler blanks generally are used in conjunction with other types of blank samples to identify the source of contamination, but are not related to specific wells or samples. *Field blanks*, for the Oklahoma NAWQA sampling, were sampler blanks which were prepared in the field exclusively for organic constituent analysis. Field blanks are associated with specific samples. The frequency with which field blanks were prepared ranged from daily at the beginning of the bedrock network sampling to a set of blanks with every water sample collected for VOC analysis during the alluvium and terrace network sampling. Analysis of field blanks identify sampling problems for specific samples.

(2) Spikes: Spikes are samples to which known concentrations of specific constituents have been added. *Field spikes* are used to determine the effects of sampling, preservation, and transportation to the laboratory on the constituents of interest. In this study spikes were prepared in duplicate to determine the precision of the spiking process. Starting in 1989, a third spiked sample was added, a *laboratory spike*. The laboratory spike was prepared in the laboratory immediately before sample analysis. The analysis of laboratory spikes was used in conjunction with field spikes to evaluate the degradation of specific constituents between the time when the sample was collected and the time when the sample was analyzed.

(3) *Blind samples*: Blind samples are solutions of known composition that are submitted for analysis. The sample of known composition is referred to as the *reference material.* Blind samples test the accuracy of the analytical process.

(4) *Duplicate samples*: Duplicate samples consist of two sets of samples collected from the same source during the same sampling event and analyzed in exactly the same manner. In this study, the duplicate sample was collected immediately following the normal sample without using a splitting device.

(5) *Repeated samples*: At some wells where the analytical determinations were equivocal, a second sample was collected and analyzed. This second sample was collected weeks or months after the first sample.

Several sampling problems were identified using quality-assurance samples. Teflon tubing used as part of the sampling equipment during the alluvium and terrace deposits network sampling, from June 5 to 26, 1989, was contaminated with trichlorofluoromethane, and contaminated field blanks isolated the problem. After the problem was identified, the Teflon tubing was given an additional rinse prior to sampling; trichlorofluoromethane was not detected in any blanks after that.

Methylene chloride was reported in the water used for rinsing equipment and for preparing field blanks during the early 1989 organic sampling. The methylene chloride was not reported in subsequent blanks that were prepared with organic-free water from the National Water-Quality Laboratory. Water samples collected during this period could have been contaminated during collection by rinse water containing methylene chloride. Methylene chloride is a common laboratory solvent and some ground-water samples could have been contaminated while in the laboratory for analysis.

Sampler blanks prepared June 30 and July 15, 1988, had elevated concentrations of some organic constituents (chloroform, toluene, and methylene chloride) that were attributed to aerosol lacquer in the ambient air at the time the sampler blanks were prepared. Sampler blanks were collected in non-confined, field sampling environments after it became apparent that the sampling environment could make measurable differences in the concentrations of volatile organic constituents in water samples.

The use of hydrochloric acid as a preservative in volatile organic samples promotes the chemical breakdown of toluenes and xylenes. If these constituents were initially present in samples or blanks they could have been broken down and not present when the samples or blanks were analyzed. Thus, the Oklahoma NAWQA sampling may have understated the occurrence of toluene and xylene in ground water.

The sample contamination problem was not confined to organic constituents. Examination of sampler-blank data indicated a measurable contamination of dissolved zinc and, to a much lesser extent, dissolved copper and lead. The most probable source of this contamination was the filter and assembly used to remove suspended material from the samples. The dissolved trace-substance concentrations are reported herein for water that was collected, processed, and analyzed using other than ultraclean techniques. The concentrations are reported in ug/L and could reflect contamination introduced during some phase of the procedure.

Recovery rates for pesticide-spiked samples ranged from 20 to 160 percent, with an average of 86 percent. Recovery rates for spiked VOC samples ranged from 36 to 102 percent, with an average of 70 percent. The results of one spiked sample were unexplainable. Several of the spiking constituents were unreported and other constituents were present that were not in either the matrix or the spiking solution, and a third group were present in the spiked sample at the

expected concentrations. The results of this spiked sample are not included in the recovery statistics.

The quality-assurance sampling for the Oklahoma NAWQA project showed that the results for inorganic constituents and pesticides analyses were reproducible and reasonably accurate. Blind samples produced data that compared favorably with the most probable values of the reference material. Problems with sampling for VOC's were detected by the use of quality-assurance sampling and corrected.

DESCRIPTION OF DATA TABLES

Most of this report consists of tables that list the results of laboratory analyses of the water samples collected for the Oklahoma NAWQA project. Although the tables generally are self-explanatory, an overview is useful to explain the structure of the tables, especially for organic constituents.

Wells that were sampled are identified in the tables by three different methods:

(1) Wells are uniquely identified in the National Water Information System (NWIS) data base, the primary repository for the Oklahoma NAWQA data, by a 15-digit site-identification number. This number originally is generated by determining the latitude and longitude of the well to the nearest second and adding a 2-digit sequence number for each well located at the same latitude and longitude. However, if the original latitude and longitude are later determined to be in error, the site-identification number is not changed. Thus, the site-identification number should not be used as the latitude and longitude of the well.

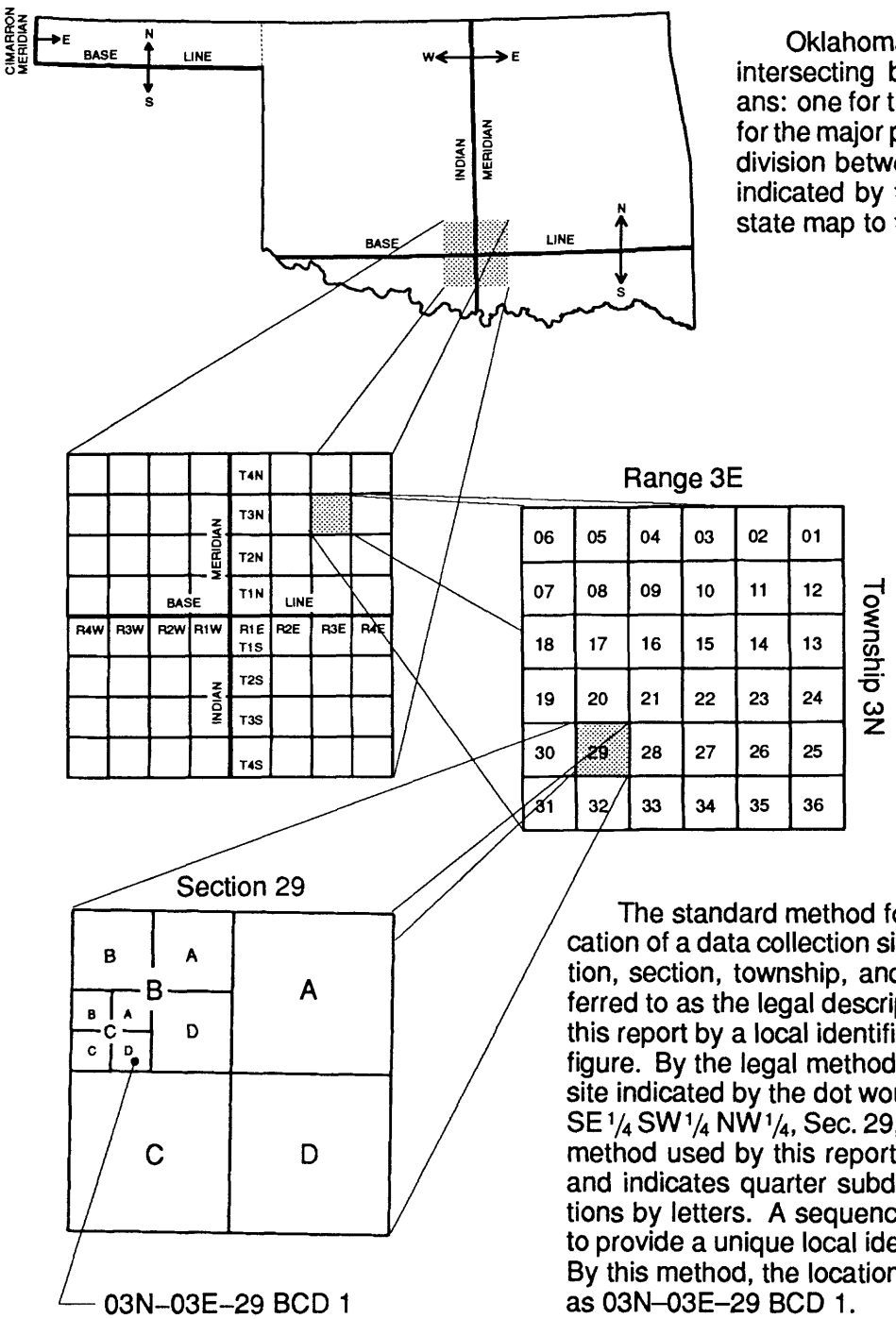
(2) A modified version of the standard legal method for describing the location of land is applied to wells in this report. The standard legal method of giving location by fractional section, section, township, and range is replaced in this report by the method illustrated in figure 7. This method of locating wells is referred to as the "local identifier" in this report.

(3) Because both the site-identification number and the local identifier are lengthy, numbers were assigned to the 202 wells sampled for the Oklahoma NAWQA. These numbers are simply integers 1 through 206 (numbers 111, 127, 172, and 194 are omitted), and are referred to as the "well number" in this report. The well number is used on figures that show locations of wells.

The ground-water data in tables 2, 4, 5, 6, 7, and the blank analyses in table 12 are grouped by county. Within each county the wells are sorted in ascending order by local identifier. Multiple analyses of the same well are listed in chronological order. The constituents for each well appear in groups of similar substances. Within each group, the constituents are arranged alphabetically and all of the constituents are completed before another group of wells is presented. For all properties and constituents, except organic constituents, an entry always exists in the appropriate table, for every sample, regardless of whether or not the constituent was reported above the minimum reporting level.

Selected information about the wells that were sampled for the Oklahoma NAWQA project is listed in table 2. This information includes physical characteristics of the well, such as well location, depth, and water level. The chemical constituents and the respective minimum reporting levels for samples analyzed in each sampling network are listed in table 3. The minimum reporting level is the smallest concentration for a given constituent and sample matrix that can be reliably reported by the laboratory. Physical properties and the concentrations of major ions, nutrients, and trace substances in water samples from wells are listed in table 4.

Concentration of radionuclides and the radioactivity of water samples from wells are listed in table 5. Because of the complexity of the analysis, the data in this table are listed as a value plus or minus two standard precision estimates (2SPE). The 2SPE is an estimate of the precision of the value; the computation is presented in equation 1:



Oklahoma has two systems of intersecting base lines and meridians: one for the Panhandle, and one for the major portion of the state. The division between the two systems is indicated by the dashed line on the state map to the left.

The standard method for describing the location of a data collection site by fractional section, section, township, and range, usually referred to as the legal description, is replaced in this report by a local identifier illustrated by this figure. By the legal method, the location of the site indicated by the dot would be described as SE 1/4 SW 1/4 NW 1/4, Sec. 29, T. 3 N., R. 3 E. The method used by this report changes the order and indicates quarter subdivisions of the sections by letters. A sequence number is added to provide a unique local identifier for each site. By this method, the location of the site is given as 03N–03E–29 BCD 1.

Figure 7.—Explanation of local identifier.

$$2\text{SPE} = 2 \times \left[(C^2 + A^2 + Y^2 + I^2 + S^2 + R^2)^{1/2} \times V \right] \quad (1)$$

where C is the counting error divided by the value of the measurement, A is the aliquot size error, Y is the yield error, I is the instrument calibration error, S is the systematic error, R is the random procedural error, and V is the value of the measurement.

Carbon isotope ratios and the delta values (δ-values) of selected isotopes for water samples from wells are listed in table 6. The ^{14}carbon data are reported as the percentage of the carbon isotopes that are less than 40,000 years old (percent modern). The other isotope ratios are compared with the ratios of the isotopes in standards, for each constituent, and this difference is reported as the δ-value.

Concentrations of organic constituents that were reported in water samples from wells are listed in table 7. Only wells with concentrations of at least one constituent at or above minimum reporting levels and those constituents with a value equal to or greater than the minimum reporting level are included in this table. The samples from wells that are not included in table 7 have concentrations of all of the organic constituents (see table 3) at levels less than the minimum reporting level for each constituent. Samples from the geochemical network were not analyzed for organic constituents.

Organic constituents not detected in any ground-water sample are listed in table 8. These constituents are grouped into classes of similar substances and are sorted alphabetically. A statistical summary of the water-quality data (number of samples, lowest value, median value, and highest value), by constituent is presented in table 9. In addition to these statistics, the maximum contaminant level (MCL) or regulated level of constituents permitted in public water supplies, as well as secondary maximum contaminant levels (SMCL), and suggested health advisory levels of the Environmental Protection Agency (U.S. Environmental Protection Agency 1976, 1986b, 1988a, 1989, 1990a, 1990b, 1991) are included in this table for comparison.

Concentrations of organic constituents reported in quality-assurance spiked samples are listed in table 10. The theoretical concentrations of the spiked constituents, and the concentration of the various organic constituents in the unspiked matrix solution are also included in this table. Physical properties and concentrations of major ions, nutrients, trace substances, radionuclides, and reported organic constituents in quality-assurance sampler blanks are listed in table 11. Concentrations of organic constituents reported in quality-assurance field and trip blanks are listed in table 12. These blank samples have identical sample identifiers (local identifier, date, time, site identification number, and well sequence number) as the ground-water samples with which they were collected. As with the ground-water analyses, these data are grouped by county, sorted by local identifier, and listed chronologically. The most probable values for physical properties, concentrations of major ions, nutrients, and trace substances in reference material and the concentration of those constituents when analyzed as a quality-assurance blind sample are listed in table 13.

In summary, a listing of geographic, hydrologic, and construction information about every well sampled is presented in table 2. Minimum reporting levels, and the associated sampling networks for the chemical constituents analysed in the project are listed in table 3. Table 3 can be used in conjunction with the network sampling maps (figures 3 to 6) to determine which constituents were analyzed for specific wells. The inorganic analytical results for every well

sampled are presented in tables 4 through 6. Concentrations of the organic constituents reported in at least one ground-water sample, for every well that had at least one organic constituent reported, are listed in table 7. The organic constituents that were not reported in any ground-water sample are listed in table 8. Table 9 presents a statistical summary, by constituent, of the water-quality data presented in tables 4-8, as well as suggested or regulated levels for those constituents in public water supplies. Results of the quality-assurance sampling are presented in tables 10-13. Duplicate and repeated samples are not listed in any quality-assurance tables, but are presented with the ground-water data in tables 4 through 7.

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Table 2.—*Selected information about wells sampled*

[Well Number, *unique number assigned to wells;* Latitude and longitude: dms, *degrees-minutes-seconds.* Use of water: A, *air conditioning;* C, *commercial;* H, *domestic;* I, *irrigation;* N, *industrial;* P, *public supply;* R, *recreation;* S, *stock;* T, *institutional;* U, *unused.* Principal aquifer: 110ALVM, *alluvium;* 112TRRCH, *high terrace deposits;* 310WLNG, *Wellington Formation;* 317GBWG, *Garber Sandstone-Wellington Formation, undivided;* 318GRBR, *Garber Sandstone;* 318KNGM, *Kingman Siltstone;* 318OSCR, *Chase, Council Grove, and Admire Groups;* 318SLPL, *Salt Plain Formation.* Depth of well, *feet below land surface;* Source of depth data: A, *other government;* D, *driller;* L, *logs;* O, *owner;* R, *other reported;* S, *reporting agency.* (—), *indicates no data are available;* Casing material: G, *galvanized iron;* P, *PVC or plastic;* S, *steel.* Water level, *Feet below land surface;* Site status at time of measurement: P, *pumping;* R, *recently pumped.* Method of water level measurement: A, *air line;* E, *estimated;* R, *reported;* S, *steel tape.* Pump type: J, *jet;* P, *piston;* S, *submersible;* T, *turbine*]

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
				CANADIAN COUNTY						
14N–05W–25 DDC 1	353915097403901	159	353915	0974039	1125	N	317GBWG	600	R	—
				CLEVELAND COUNTY						
06N–01E–05 DDB 1	350101097125401	10	350101	0971254	1120	P	317GBWG	442	—	S
06N–01E–05 DDC 1	350055097125402	9	350055	0971254	1130	P	317GBWG	435	—	S
06N–01E–12 DCC 1	350003097090101	8	350003	0970901	1070	H	318GRBR	97	O	—
06N–01E–17 ABA 1	350001097130101	6	350001	0971301	1055	H	318GRBR	120	S	—
06N–01W–17 BBB 1	345959097200301	5	345959	0972003	1026	S	112TRRCH	53	S	S
06N–01W–27 BBA 1	345815097174901	3	345815	0971749	1035	H	112TRRCH	45	L	S
07N–01W–07 DCD 1	350516097202601	15	350516	0972026	1119	H	112TRRCH	48	S	S
07N–01W–30 DDD 1	350243097200901	13	350243	0972009	1045	H	110ALVM	38	S	S
07N–02W–15 AAA 1	350514097232301	14	350514	0972323	1058	H	110ALVM	48	S	S
08N–01E–08 DCC 1	351027097131401	23	351027	0971314	1144	H	318GRBR	156	O	—
08N–01E–09 AAB 1	351118097114901	26	351118	0971149	1018	H	317GBWG	100	O	—
08N–01E–22 DDA 1	350851097103901	21	350851	0971039	1045	H	112TRRCH	24	S	—
08N–01W–12 BCB 1	351106097155201	24	351106	0971552	1045	U	318GRBR	280	S	P
08N–01W–12 BCB 2	351106097155202	25	351106	0971552	1045	U	318GRBR	160	L	P
08N–02W–25 BAA 1	350845097214501	166	350845	0972145	1190	P	317GBWG	480	O	S
08N–02W–27 DDD 1	350756097232001	19	350756	0972320	1160	P	317GBWG	440	—	S
09N–01E–01 CDD 1	351632097090901	43	351632	0970909	1045	H	112TRRCH	101	S	S
09N–01W–03 CCC 1	351638097175301	44	351638	0971753	1125	H	318GRBR	132	S	—
09N–01W–04 CBC 1	351651097185901	46	351651	0971859	1092	H	318GRBR	75	O	—
09N–01W–09 BDD 1	351613097183501	40	351613	0971835	1080	H	110ALVM	68	S	S

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
				CANADIAN COUNTY						
14N-05W-25 DDC 1	353915097403901	159	—	—	—	—	S	—	—	—
				CLEVELAND COUNTY						
06N-01E-05 DDB 1	350101097125401	10	—	—	—	—	T	—	355	387
06N-01E-05 DDC 1	350055097125402	9	—	—	—	—	—	—	330	431
06N-01E-12 DCC 1	350003097090101	8	—	—	—	—	S	—	—	—
06N-01E-17 ABA 1	350001097130101	6	50	06-30-88	R	S	J	—	—	—
06N-01W-17 BBB 1	345959097200301	5	1	06-06-89	R	S	S	—	—	—
06N-01W-27 BBA 1	345815097174901	3	19	06-28-89	R	S	S	—	—	—
07N-01W-07 DCD 1	350516097202601	15	19	06-06-89	R	S	S	—	—	—
07N-01W-30 DDD 1	350243097200901	13	6	06-28-89	R	S	S	—	—	—
07N-02W-15 AAA 1	350514097232301	14	5	06-05-89	R	S	S	—	—	—
08N-01E-08 DCC 1	351027097131401	23	45	06-21-88	R	R	S	—	—	—
08N-01E-09 AAB 1	351118097114901	26	40	07-07-88	—	R	S	—	—	—
08N-01E-22 DDA 1	350851097103901	21	18	06-27-89	—	S	S	—	—	—
08N-01W-12 BCB 1	351106097155201	24	24	10-02-87	—	S	—	—	250	265
08N-01W-12 BCB 2	351106097155202	25	7	09-11-87	—	S	—	—	—	—
08N-02W-25 BAA 1	350845097214501	166	198	02-09-88	—	S	T	—	—	—
08N-02W-27 DDD 1	350756097232001	19	—	—	—	—	S	—	—	—
09N-01E-01 CDD 1	351632097090901	43	16	06-22-89	—	S	S	—	—	—
09N-01W-03 CCC 1	351638097175301	44	63	06-22-88	R	S	S	—	—	—
09N-01W-04 CBC 1	351651097185901	46	—	—	—	—	S	—	—	—
09N-01W-09 BDD 1	351613097183501	40	9	06-22-89	—	S	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
09N-02W-22 DDA 1	351409097231801	33	351409	0972318	1161	P	318GRBR	695	L	—
09N-02W-29 DCA 1	351314097254701	32	351314	0972547	1167	P	318GRBR	648	—	S
09N-02W-31 DAA 1	351236097262801	30	351236	0972628	1160	T	317GBWG	654	L	—
09N-02W-32 CCC 1	351219097262301	29	351219	0972623	1155	T	317GBWG	660	L	—
09N-03W-11 AAC 1	351648097285101	45	351627	0972851	1155	P	318GRBR	674	R	S
09N-03W-18 DDA 1	351501097325301	38	351501	0973253	1135	H	110ALVM	42	S	S
09N-03W-23 CBC 1	351414097293901	35	351414	0972939	1162	P	317GBWG	745	L	—
09N-03W-34 BCC 1	351244097303601	31	351244	0973036	1112	H	110ALVM	35	S	S
10N-01W-20 CDD 1	351912097193601	53	351912	0971936	1185	H	318GRBR	158	S	—
10N-01W-36 BBB 1	351817097155201	49	351817	0971552	1055	U	317GBWG	170	R	P
10N-02W-25 CDC 1	351823097215701	50	351823	0972157	1120	H	318GRBR	125	O	—
10N-02W-36 CCC 1	351729097221301	47	351729	0972213	1110	U	317GBWG	178	S	P
10N-02W-36 CCC 2	351729097221302	48	351729	0972213	1110	U	317GBWG	725	L	P
10N-03W-12 BCD 1	352123097282301	57	352123	0972823	1248	P	317GBWG	770	L	—
10N-03W-13 BBD 1	352043097282001	56	352043	0972820	1228	P	317GBWG	818	L	—
10N-03W-22 DAD 1	351926097293001	54	351926	0972940	1210	P	318GRBR	795	A	—
10N-03W-30 BAB 1	351907097333001	52	351907	0973330	1175	S	110ALVM	25	S	S
10N-04W-11 AAA 1	352145097345901	58	352145	0973459	1245	P	318GRBR	776	L	—
10N-04W-25 CBC 1	351832097345101	51	351832	0973451	1145	S	110ALVM	41	S	S
				LINCOLN COUNTY						
12N-02E-06 ADD 1	353236097072801	134	353236	0970728	1118	H	310WLNG	140	O	P
12N-02E-29 CBC 1	352854097072301	97	352854	0970723	1090	H	112TRRCH	103	S	P
12N-03E-10 BAB 1	353207096583301	128	353207	0965833	885	S	110ALVM	54	S	S
12N-03E-17 DAC 1	353040097000901	112	353040	0970009	983	H	318OSCR	135	L	P
12N-03E-36 ADD 1	352816096554701	92	352816	0965547	965	H	318OSCR	96	S	—
13N-03E-13 DDD 1	353539096554501	146	353539	0965545	940	H	318OSCR	131	O	—
13N-03E-35 BBB 1	353351096574601	141	353351	0965746	980	H	318OSCR	162	S	—
13N-04E-31 DDD 1	353303096544501	137	353303	0965445	915	H	318OSCR	68	S	—
14N-02E-26 ADD 1	353938097031101	161	353938	0970311	920	H	318OSCR	91	S	—
14N-03E-13 BBB 1	354143096564301	168	354143	0965643	855	H	318OSCR	89	S	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
09N-02W-22 DDA 1	351409097231801	33	—	—	—	—	S	274	274	678
09N-02W-29 DCA 1	351314097254701	32	420	05- -80	—	R	S	—	—	—
09N-02W-31 DAA 1	351236097262801	30	—	—	—	—	S	—	—	—
09N-02W-32 CCC 1	351219097262301	29	—	—	—	—	S	—	—	—
09N-03W-11 AAC 1	351648097285101	45	—	—	—	—	S	—	220	640
09N-03W-18 DDA 1	351501097325301	38	3	06-05-89	—	S	S	—	—	—
09N-03W-23 CBC 1	351414097293901	35	—	—	—	—	S	254	254	—
09N-03W-34 BCC 1	351244097303601	31	4	06-05-89	P	S	S	—	—	—
10N-01W-20 CDD 1	351912097193601	53	59	05-31-88	—	S	S	—	—	—
10N-01W-36 BBB 1	351817097155201	49	11	10-07-87	—	S	—	—	—	—
10N-02W-25 CDC 1	351823097215701	50	—	—	—	—	S	—	—	—
10N-02W-36 CCC 1	351729097221301	47	61	10-15-87	—	S	—	—	—	—
10N-02W-36 CCC 2	351729097221302	48	142	10-15-87	—	S	—	—	710	725
10N-03W-12 BCD 1	352123097282301	57	305	01-28-83	—	R	S	448	448	755
10N-03W-13 BBD 1	352043097282001	56	380	03-07-81	—	R	S	451	451	784
10N-03W-22 DAD 1	351926097293001	54	400	08-04-87	—	S	S	—	—	—
10N-03W-30 BAB 1	351907097333001	52	5	06-02-89	—	S	S	—	—	—
10N-04W-11 AAA 1	352145097345901	58	482	08-06-87	—	S	T	410	430	764
10N-04W-25 CBC 1	351832097345101	51	2	05-31-89	—	S	S	—	—	—
				LINCOLN COUNTY						
12N-02E-06 ADD 1	353236097072801	134	—	—	—	—	S	—	—	—
12N-02E-29 CBC 1	352854097072301	97	27	06-14-89	—	S	S	—	—	—
12N-03E-10 BAB 1	353207096583301	128	13	07-11-89	—	S	S	—	—	—
12N-03E-17 DAC 1	353040097000901	112	—	—	—	—	S	20	105	135
12N-03E-36 ADD 1	352816096554701	92	22	07-11-88	R	S	S	—	—	—
13N-03E-13 DDD 1	353539096554501	146	42	06-14-88	R	S	J	—	—	—
13N-03E-35 BBB 1	353351096574601	141	42	06-13-88	R	S	S	—	—	—
13N-04E-31 DDD 1	353303096544501	137	28	07-11-88	R	S	S	—	—	—
14N-02E-26 ADD 1	353938097031101	161	—	—	—	—	S	—	—	—
14N-03E-13 BBB 1	354143096564301	168	27	07-08-88	R	S	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
14N–04E–33 CAB 1	353840096531101	155	353840	0965311	810	H	110ALVM	40	S	S
15N–02E–10 CCB 1	354706097051001	182	354706	0970510	980	H	310WLNG	157	S	—
15N–02E–12 BCC 1	354725097030501	183	354725	0970305	1050	H	318OSCR	200	O	—
15N–02E–14 AAA 1	354654097030801	181	354654	0970308	1000	P	318OSCR	412	L	S
15N–02E–14 ADA 1	354637097030801	180	354637	0970308	970	P	318OSCR	411	O	S
15N–02E–14 ADD 1	354633097030801	179	354633	0970308	970	P	318OSCR	398	L	S
15N–03E–05 BAC 1	354844097004501	187	354831	0970043	1090	P	318OSCR	416	S	S
16N–02E–22 DAA 1	355039097041401	191	355049	0970414	990	H	310WLNG	119	S	—
16N–03E–01 DAA 1	355326096554901	200	355326	0965549	955	H	318OSCR	100	O	—
16N–03E–11 CCC 1	355214096574801	198	355214	0965748	1040	P	318OSCR	450	O	—
16N–03E–31 ADA 1	354914097010901	188	354914	0970109	1035	H	318OSCR	114	S	G
17N–02E–19 CCC 1	355544097082301	203	355544	0970823	888	H	110ALVM	42	—	P
17N–02E–32 BBB 1	355444097071301	201	355444	0970713	985	H	310WLNG	141	O	—
17N–03E–34 BBA 1	355446096583601	202	355446	0965836	938	H	318OSCR	227	S	—
				LOGAN COUNTY						
15N–01W–21 BBA 1	354605097185901	175	354605	0971859	1135	H	317GBWG	100	O	—
15N–02W–13 CAB 1	354631097215501	178	354631	0972155	1210	H	317GBWG	127	O	—
15N–02W–26 AAA 1	354514097222101	174	354514	0972221	1220	P	317GBWG	412	L	S
15N–02W–30 AAD 1	354506097263601	173	354506	0972636	1070	P	317GBWG	302	L	S
15N–03W–01 CAA 1	354817097281101	186	354817	0972811	1005	P	317GBWG	206	L	—
15N–03W–03 DDD 1	354758097295201	185	354758	0972952	985	H	318GRBR	280	L	P
15N–03W–16 CCB 1	354620097315201	177	354620	0973152	1030	H	318GRBR	90	S	—
15N–03W–20 AAA 1	354606097315601	176	354606	0973156	1025	H	318GRBR	180	O	—
15N–03W–34 DDC 1	354332097295301	171	354332	0972953	1112	P	317GBWG	465	A	S
15N–04W–05 CCC 1	354755097392001	184	354755	0973920	1108	H	318GRBR	81	O	—
16N–01E–13 BAA 1	355206097090101	197	355206	0970901	1035	H	310WLNG	135	O	—
16N–01E–29 BCD 1	355005097133401	190	355005	0971334	985	H	110ALVM	90	S	P
16N–01W–18 DDA 1	355141097201401	196	355131	0972014	1190	H	318GRBR	227	S	—
16N–01W–27 CBB 1	354959097175901	189	354959	0971759	1072	H	317GBWG	57	S	—
16N–02W–06 DBC 1	355321097270301	199	355321	0972703	975	H	318GRBR	80	S	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
14N-04E-33 CAB 1	353840096531101	155	10	07-11-89	R	S	S	—	—	—
15N-02E-10 CCB 1	354706097051001	182	3	06-27-88	R	S	S	—	—	—
15N-02E-12 BCC 1	354725097030501	183	—	—	—	—	S	—	—	—
15N-02E-14 AAA 1	354654097030801	181	131	11-23-83	—	R	S	175	275	402
15N-02E-14 ADA 1	354637097030801	180	102	11-23-83	—	R	S	175	—	—
15N-02E-14 ADD 1	354633097030801	179	122	11-22-83	—	R	S	175	250	388
15N-03E-05 BAC 1	354844097004501	187	—	—	—	—	S	—	212	409
16N-02E-22 DAA 1	355039097041401	191	39	06-27-88	R	S	S	—	—	—
16N-03E-01 DAA 1	355326096554901	200	38	05-26-88	R	S	S	—	—	—
16N-03E-11 CCC 1	355214096574801	198	—	—	—	—	S	—	—	—
16N-03E-31 ADA 1	354914097010901	188	55	06-02-88	—	S	S	—	—	—
17N-02E-19 CCC 1	355544097082301	203	14	06-16-88	R	S	S	—	—	—
17N-02E-32 BBB 1	355444097071301	201	—	—	—	—	S	—	—	—
17N-03E-34 BBA 1	355446096583601	202	93	06-14-88	P	S	S	—	—	—
				LOGAN COUNTY						
15N-01W-21 BBA 1	354605097185901	175	67	05-17-88	—	S	S	—	—	—
15N-02W-13 CAB 1	354631097215501	178	—	—	—	—	S	—	—	—
15N-02W-26 AAA 1	354514097222101	174	160	05-24-84	—	R	S	168	209	412
15N-02W-30 AAD 1	354506097263601	173	70	06- -82	—	R	S	34	165	297
15N-03W-01 CAA 1	354817097281101	186	30	10-02-82	—	R	S	30	86	200
15N-03W-03 DDD 1	354758097295201	185	40	06-22-83	—	E	S	50	180	275
15N-03W-16 CCB 1	354620097315201	177	36	06-28-88	R	S	S	—	—	—
15N-03W-20 AAA 1	354606097315601	176	37	05-24-88	—	S	S	—	—	—
15N-03W-34 DDC 1	354332097295301	171	55	04-01-89	—	A	T	—	160	437
15N-04W-05 CCC 1	354755097392001	184	—	—	—	—	J	—	—	—
16N-01E-13 BAA 1	355206097090101	197	76	05-20-88	P	S	S	—	—	—
16N-01E-29 BCD 1	355005097133401	190	35	07-06-89	R	S	S	—	—	—
16N-01W-18 DDA 1	355141097201401	196	119	07-06-88	P	S	S	—	—	—
16N-01W-27 CBB 1	354959097175901	189	35	07-12-88	P	S	S	—	—	—
16N-02W-06 DBC 1	355321097270301	199	19	05-24-88	—	S	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
16N–02W–22 AAB 1	355120097233001	195	355120	0972330	1105	H	318GRBR	30	O	—
16N–02W–22 ADD 1	355058097233001	193	355058	0972330	1110	H	317GBWG	237	S	—
16N–03W–23 DAA 1	355052097284301	192	355052	0972843	1085	H	318GRBR	180	O	—
17N–01W–21 ACB 1	355614097183001	204	355614	0971830	1065	H	318GRBR	195	O	—
				OKLAHOMA COUNTY						
11N–01E–11 CBC 1	352622097103401	80	352622	0971034	1165	H	318GRBR	100	O	—
11N–01E–12 ADA 1	352639097083401	82	352639	0970834	1170	H	318GRBR	160	O	—
11N–01W–03 CDD 1	352705097175401	84	352706	0971734	1220	H	318GRBR	220	L	—
11N–01W–05 AAD 1	352738097191001	85	352738	0971910	1248	H	318GRBR	180	O	—
11N–01W–05 ABA 1	352749097192301	20	352749	0971923	1235	P	317GBWG	697	—	—
11N–02W–06 AAA 1	352750097263601	88	352750	0972636	1182	H	318GRBR	98	S	—
11N–02W–14 DDC 1	352519097222501	70	352519	0972225	1264	P	318GRBR	879	—	S
11N–02W–17 CBC 1	352531097262101	73	352531	0972621	1252	H	318GRBR	150	O	—
11N–02W–18 CDD 1	352518097270601	69	352518	0972706	1229	P	318GRBR	750	R	—
11N–02W–20 CCB 1	352433097262401	66	352433	0972624	1260	H	318GRBR	104	S	—
11N–03W–01 ABD 1	352740097275301	86	352740	0972753	1210	H	318GRBR	191	—	—
11N–03W–04 BBB 1	352749097314101	87	352749	0973141	1193	C	112TRRCH	35	S	—
11N–03W–09 CBA 1	352631097313101	81	352631	0973131	1190	I	318GRBR	196	O	—
11N–03W–13 CDD 1	352520097280601	71	352520	0972806	1235	H	318GRBR	185	S	—
11N–03W–15 CBA 1	352535097303301	74	352535	0973033	1207	U	318GRBR	49	S	—
11N–03W–18 ADC 1	352541097330301	75	352541	0973303	1215	I	112TRRCH	49	S	—
11N–03W–21 ABA 1	352509097310101	67	352509	0973101	1215	H	112TRRCH	44	S	—
11N–04W–14 BBA 1	352605097354801	78	352605	0973548	1245	—	112TRRCH	67	S	—
11N–04W–16 BAA 1	352605097375701	79	352604	0973738	1263	P	318GRBR	886	L	S
11N–04W–16 CCB 1	352527097380501	72	352527	0973805	1255	H	112TRRCH	42	O	G
11N–04W–16 DDD 1	352515097370801	68	352515	0973708	1250	P	317GBWG	843	L	S
11N–04W–29 AAA 1	352415097381301	64	352415	0973813	1288	H	112TRRCH	40	S	S
11N–04W–29 CDC 1	352331097384901	62	352331	0973849	1295	H	112TRRCH	71	S	S
12N–01E–11 DDC 1	353119097094101	120	353119	0970941	1107	H	112TRRCH	133	S	S
12N–01E–26 DAC 1	352851097093801	96	352858	0970941	1120	P	317GBWG	400	R	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
16N-02W-22 AAB 1	355120097233001	195	—	—	—	—	J	—	—	—
16N-02W-22 ADD 1	355058097233001	193	123	05-17-88	P	S	S	—	—	—
16N-03W-23 DAA 1	355052097284301	192	—	—	—	—	J	—	—	—
17N-01W-21 ACB 1	355614097183001	204	—	—	—	—	S	—	—	—
				OKLAHOMA COUNTY						
11N-01E-11 CBC 1	352622097103401	80	—	—	—	—	J	—	—	—
11N-01E-12 ADA 1	352639097083401	82	—	—	—	—	S	—	—	—
11N-01W-03 CDD 1	352705097175401	84	120	01-10-86	—	E	S	20	150	220
11N-01W-05 AAD 1	352738097191001	85	—	—	—	—	S	—	—	—
11N-01W-05 ABA 1	352749097192301	20	200	02-07-81	—	A	T	—	288	660
11N-02W-06 AAA 1	352750097263601	88	24	11-15-88	R	S	J	—	—	—
11N-02W-14 DDC 1	352519097222501	70	—	—	—	—	T	—	—	—
11N-02W-17 CBC 1	352531097262101	73	—	—	—	—	J	—	—	—
11N-02W-18 CDD 1	352518097270601	69	—	—	—	—	T	—	—	—
11N-02W-20 CCB 1	352433097262401	66	55	11-15-88	R	S	S	—	—	—
11N-03W-01 ABD 1	352740097275301	86	103	06-04-82	—	S	S	—	—	—
11N-03W-04 BBB 1	352749097314101	87	25	11-04-88	—	S	S	—	—	—
11N-03W-09 CBA 1	352631097313101	81	—	—	—	—	S	—	—	—
11N-03W-13 CDD 1	352520097280601	71	123	11-07-88	R	S	S	—	—	—
11N-03W-15 CBA 1	352535097303301	74	20	11-29-88	—	S	P	—	—	—
11N-03W-18 ADC 1	352541097330301	75	26	11-04-88	—	S	S	—	—	—
11N-03W-21 ABA 1	352509097310101	67	24	11-04-88	—	S	J	—	—	—
11N-04W-14 BBA 1	352605097354801	78	17	11-08-88	—	S	S	—	—	—
11N-04W-16 BAA 1	352605097375701	79	500	08-06-87	—	S	T	532	552	881
11N-04W-16 CCB 1	352527097380501	72	9	09-01-87	—	R	T	—	—	—
11N-04W-16 DDD 1	352515097370801	68	306	04-05-78	—	R	S	559	572	837
11N-04W-29 AAA 1	352415097381301	64	12	07-13-89	R	S	S	—	—	—
11N-04W-29 CDC 1	352331097384901	62	17	06-28-89	—	S	S	—	—	—
12N-01E-11 DDC 1	353119097094101	120	34	06-14-89	—	S	S	—	—	—
12N-01E-26 DAC 1	352851097093801	96	—	—	—	—	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
12N-01E-35 ABC 1	352830097100301	93	352830	0971003	1145	P	317GBWG	325	L	—
12N-01E-36 CBB 1	352810097092901	91	352810	0970929	1095	H	112TRRCH	49	S	S
12N-01W-20 DCC 1	352941097193501	103	352941	0971935	1175	H	112TRRCH	83	S	S
12N-01W-22 AAA 1	353025097165901	109	353025	0971659	1180	H	112TRRCH	100	L	P
12N-01W-31 DDA 1	352757097200801	90	352757	0972008	1250	H	318GRBR	107	S	S
12N-02W-04 CBD 1	353227097251101	132	353227	0972511	1212	H	318GRBR	114	S	—
12N-02W-05 BDD 1	353244097255801	136	353244	0972558	1130	H	318GRBR	160	O	—
12N-02W-07 DAC 1	353145097263801	125	353135	0972638	1140	H	318GRBR	108	S	—
12N-02W-18 DDC 1	353600097264001	148	353030	0972638	1192	H	318GRBR	158	D	—
12N-02W-19 BBB 1	353024097272501	108	353024	0972725	1170	H	318GRBR	160	O	—
12N-02W-29 DDC 1	352844097254001	94	352844	0972540	1161	C	110ALVM	80	S	P
12N-02W-30 BCC 1	352910097272501	101	352910	0972725	1212	H	318GRBR	109	S	—
12N-03W-02 DBD 1	353229097285301	133	353229	0972853	1145	H	318GRBR	143	S	—
12N-03W-03 BCC 1	353243097304101	135	353243	0973041	1152	H	318GRBR	210	S	—
12N-03W-03 DCD 1	353219097295801	130	353219	0972958	1095	H	318GRBR	160	O	—
12N-03W-05 DCA 1	353223097320501	131	353223	0973205	1139	P	318GRBR	760	O	—
12N-03W-07 DDA 1	353131097325401	121	353131	0973254	1165	H	318GRBR	174	O	—
12N-03W-10 ADA 1	353155097294601	126	353155	0972946	1095	H	318GRBR	141	S	—
12N-03W-10 DAC 1	353136097295101	122	353136	0972951	1140	I	318GRBR	140	O	—
12N-03W-11 CBD 1	353139097293001	123	353139	0972930	1102	H	318GRBR	144	D	—
12N-03W-12 BBA 1	353210097282401	129	353210	0972824	1110	H	318GRBR	300	O	—
12N-03W-14 ADD 1	353101097283701	117	353101	0972837	1155	H	318GRBR	100	O	—
12N-03W-14 BBA 1	353141097293001	124	353114	0972926	1160	H	318GRBR	162	S	—
12N-03W-16 CBD 1	353042097313801	114	353042	0973138	1185	I	318GRBR	120	O	—
12N-03W-17 BAD 1	353109097322401	118	353109	0973224	1145	U	318SLPL	125	L	—
12N-03W-17 CAA 1	353051097322001	115	353051	0973220	1155	H	318GRBR	155	O	—
12N-03W-20 BCB 1	353010097324601	105	353010	0973246	1178	H	318GRBR	169	S	—
12N-03W-21 ACC 1	353008097310701	104	353008	0973107	1160	I	318KNGM	67	S	—
12N-03W-24 AAB 1	353026097274801	110	353026	0972748	1170	A	318GRBR	164	S	S
12N-03W-28 DBA 1	352905097310201	100	352905	0973102	1248	I	318GRBR	218	S	—
12N-03W-30 CBA 1	352904097334201	99	352904	0973342	1265	I	318SLPL	80	O	P

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
12N-01E-35 ABC 1	352830097100301	93	105	05-18-84	—	R	S	200	200	310
12N-01E-36 CBB 1	352810097092901	91	23	06-12-89	—	S	S	—	—	—
12N-01W-20 DCC 1	352941097193501	103	3	06-09-89	—	S	S	—	—	—
12N-01W-22 AAA 1	353025097165901	109	40	05-09-86	—	R	S	10	80	100
12N-01W-31 DDA 1	352757097200801	90	35	06-29-88	R	S	S	—	—	—
12N-02W-04 CBD 1	353227097251101	132	—	—	—	—	S	—	—	—
12N-02W-05 BDD 1	353244097255801	136	—	—	—	—	S	—	—	—
12N-02W-07 DAC 1	353145097263801	125	37	11-09-88	—	S	S	—	—	—
12N-02W-18 DDC 1	353600097264001	148	70	02- -88	R	R	S	—	—	—
12N-02W-19 BBB 1	353024097272501	108	—	—	—	—	S	—	—	—
12N-02W-29 DDC 1	352844097254001	94	17	06-09-89	—	S	S	—	—	—
12N-02W-30 BCC 1	352910097272501	101	77	11-01-88	R	S	S	—	—	—
12N-03W-02 DBD 1	353229097285301	133	37	10-26-88	R	R	S	—	—	—
12N-03W-03 BCC 1	353243097304101	135	65	11-28-88	R	S	S	—	—	—
12N-03W-03 DCD 1	353219097295801	130	35	10-31-88	R	S	S	—	—	—
12N-03W-05 DCA 1	353223097320501	131	278	06-01-73	—	S	S	—	468	—
12N-03W-07 DDA 1	353131097325401	121	—	—	—	—	S	—	—	—
12N-03W-10 ADA 1	353155097294601	126	43	10-26-88	P	S	S	—	—	—
12N-03W-10 DAC 1	353136097295101	122	65	11-21-88	—	R	S	—	—	—
12N-03W-11 CBD 1	353139097293001	123	19	10-26-88	—	S	S	—	—	—
12N-03W-12 BBA 1	353210097282401	129	—	—	—	—	J	—	—	—
12N-03W-14 ADD 1	353101097283701	117	—	—	—	—	J	—	—	—
12N-03W-14 BBA 1	353141097293001	124	58	11-02-88	R	S	S	—	—	—
12N-03W-16 CBD 1	353042097313801	114	40	10-31-88	—	S	S	—	—	—
12N-03W-17 BAD 1	353109097322401	118	34	01-26-70	—	R	S	20	—	—
12N-03W-17 CAA 1	353051097322001	115	38	10-27-88	R	S	S	—	—	—
12N-03W-20 BCB 1	353010097324601	105	27	10-28-88	—	S	S	—	—	—
12N-03W-21 ACC 1	353008097310701	104	53	11-28-88	—	S	S	—	—	—
12N-03W-24 AAB 1	353026097274801	110	56	11-03-88	R	S	S	—	—	—
12N-03W-28 DBA 1	352905097310201	100	174	11-09-88	—	S	S	—	—	—
12N-03W-30 CBA 1	352904097334201	99	17	11-03-88	R	S	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
12N-03W-31 DCC 1	352755097332002	89	352755	0973320	1192	H	318GRBR	223	S	P
12N-03W-35 DBC 1	352805097290101	170	352805	0972901	1182	N	110ALVM	60	L	S
12N-04W-13 BBB 1	353115097345501	119	353115	0973455	1275	R	318SLPL	100	O	—
12N-04W-14 ACD 1	353055097352201	116	353055	0973522	1285	H	112TRRCH	60	S	—
12N-04W-15 AAD 1	353841097360501	156	353113	0973606	1295	I	112TRRCH	56	S	—
12N-04W-17 CDA 1	353041097384301	113	353041	0973845	1300	H	112TRRCH	55	O	S
12N-04W-21 ACB 1	353013097373301	107	353013	0973733	1305	P	318GRBR	822	S	S
12N-04W-24 ADB 1	353011097340901	106	353011	0973409	1205	I	318SLPL	98	O	P
12N-04W-25 AAD 1	352927097335801	102	352927	0973358	1260	H	112TRRCH	100	O	S
12N-04W-27 DBC 1	352859097363501	98	352859	0973635	1288	I	112TRRCH	38	S	—
12N-04W-29 CCD 1	352845097390101	95	352845	0973901	1290	H	112TRRCH	65	S	S
13N-01E-31 CBA 1	353328097144101	140	353328	0971441	1105	H	110ALVM	60	O	S
13N-01W-30 CBC 1	353403097210901	142	353414	0972111	1180	H	112TRRCH	120	O	S
13N-01W-34 CAB 1	353324097173701	139	353324	0971737	1175	P	317GBWG	460	O	—
13N-02W-06 BCC 1	353753097273501	150	353753	0972735	1125	P	317GBWG	649	L	—
13N-02W-15 AAA 1	353631097232301	149	353631	0972323	1090	H	318GRBR	160	O	—
13N-02W-21 AAB 1	353539097243901	147	353539	0972439	1070	H	318GRBR	100	O	—
13N-02W-23 DDA 1	353513097222201	144	353500	0972224	1130	H	110ALVM	100	O	—
13N-02W-31 DDC 1	353310097264601	138	353310	0972646	1065	U	110ALVM	60	O	—
13N-03W-23 ABD 1	353532097285601	145	353532	0972856	1100	C	317GBWG	500	L	S
13N-04W-28 CAD 1	353411097374501	143	353411	0973745	1171	P	317GBWG	635	L	—
14N-01E-09 DAD 1	354203097114301	169	354203	0971143	1020	H	310WLNG	39	O	—
14N-01E-26 CBB 1	353931097103301	160	353931	0971033	960	H	310WLNG	92	S	—
14N-01E-26 CDD 1	353909097100101	157	353909	0971005	960	H	310WLNG	101	S	S
14N-01E-27 BDA 1	353947097111501	162	353947	0971115	905	P	310WLNG	178	R	S
14N-01W-20 DDD 1	354008097190901	165	354008	0971909	1035	H	310WLNG	220	L	—
14N-01W-28 BBA 1	353958097185001	163	353958	0971850	955	S	110ALVM	60	S	—
14N-02W-31 CDD 1	353819097270701	152	353819	0972707	1080	P	317GBWG	707	—	—
14N-02W-32 DCD 1	353819097254901	151	353819	0972549	1085	P	317GBWG	519	L	—
14N-03W-18 DCC 1	354105097332401	167	354100	0973324	1090	P	318GRBR	364	O	—
14N-03W-33 DDD 1	353819097305101	153	353819	0973051	1125	P	317GBWG	515	L	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
12N-03W-31 DCC 1	352755097332002	89	214	11-03-88	R	S	S	—	—	—
12N-03W-35 DBC 1	352805097290101	170	14	07-28-89	—	S	S	10	40	60
12N-04W-13 BBB 1	353115097345501	119	—	—	—	—	S	—	—	—
12N-04W-14 ACD 1	353055097352201	116	11	11-22-88	—	S	S	—	—	—
12N-04W-15 AAD 1	353841097360501	156	6	11-17-88	R	S	J	—	—	—
12N-04W-17 CDA 1	353041097384301	113	—	—	—	—	S	—	—	—
12N-04W-21 ACB 1	353013097373301	107	622	08-05-87	—	S	S	508	538	818
12N-04W-24 ADB 1	353011097340901	106	20	10-25-88	—	R	S	—	—	—
12N-04W-25 AAD 1	352927097335801	102	18	10-25-88	—	S	S	—	—	—
12N-04W-27 DBC 1	352859097363501	98	24	11-17-88	—	S	J	—	—	—
12N-04W-29 CCD 1	352845097390101	95	38	05-31-89	—	S	S	—	—	—
13N-01E-31 CBA 1	353328097144101	140	—	—	—	—	S	—	—	—
13N-01W-30 CBC 1	353403097210901	142	34	06-07-82	—	S	S	—	—	—
13N-01W-34 CAB 1	353324097173701	139	—	—	—	—	S	—	—	—
13N-02W-06 BCC 1	353753097273501	150	381	04-04-89	—	A	S	6	174	620
13N-02W-15 AAA 1	353631097232301	149	32	08-01-79	—	R	S	—	—	—
13N-02W-21 AAB 1	353539097243901	147	—	—	—	—	S	—	—	—
13N-02W-23 DDA 1	353513097222201	144	10	06-09-89	—	S	S	—	—	—
13N-02W-31 DDC 1	353310097264601	138	45	11-16-88	—	R	J	—	—	—
13N-03W-23 ABD 1	353532097285601	145	180	06-30-80	—	R	S	30	—	—
13N-04W-28 CAD 1	353411097374501	143	—	—	—	—	S	—	—	—
14N-01E-09 DAD 1	354203097114301	169	—	—	—	—	J	—	—	—
14N-01E-26 CBB 1	353931097103301	160	18	07-07-88	R	S	S	—	—	—
14N-01E-26 CDD 1	353909097100101	157	43	06-20-88	R	S	S	—	—	—
14N-01E-27 BDA 1	353947097111501	162	—	—	—	—	S	—	90	144
14N-01W-20 DDD 1	354008097190901	165	120	05-16-85	—	R	S	10	140	220
14N-01W-28 BBA 1	353958097185001	163	10	06-21-89	—	S	S	—	—	—
14N-02W-31 CDD 1	353819097270701	152	211	04-04-89	—	A	S	—	—	—
14N-02W-32 DCD 1	353819097254901	151	123	02-27-89	—	A	S	198	198	518
14N-03W-18 DCC 1	354105097332401	167	78	09-25-87	P	S	S	—	111	—
14N-03W-33 DDD 1	353819097305101	153	124	04-01-89	—	A	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
14N-03W-34 BBA 1	353909097304501	158	353909	0973038	1105	P	317GBWG	510	O	—
14N-04W-19 CDD 1	354007097395401	164	354007	0973954	1085	H	318SLPL	42	S	—
14N-04W-31 CBC 1	353837097402301	154	353837	0974023	1073	S	110ALVM	38	S	S
				PAYNE COUNTY						
17N-03E-10 CDD 1	355727096582201	205	355727	0965822	855	H	110ALVM	77	S	P
				POTTAWATOMIE COUNTY						
06N-03E-08 DCC 1	350003097003301	7	350003	0970033	1062	H	318OSCR	150	O	—
06N-03E-21 ABB 1	345908096593101	4	345908	0965931	1020	H	318OSCR	84	O	—
06N-03E-28 BAA 1	345814096593301	2	345814	0965933	985	H	112TRRCH	70	O	S
06N-04E-35 DDD 1	345634096503901	1	345634	0965039	892	H	110ALVM	52	S	P
07N-02E-29 DCD 1	350240097064101	12	350240	0970641	1111	H	317GBWG	160	O	—
07N-02E-32 CBC 1	350203097072201	11	350203	0970722	1125	H	317GBWG	75	O	—
07N-03E-01 CBB 1	350629096565401	18	350629	0965654	920	H	112TRRCH	100	O	S
07N-04E-06 CCC 1	350610096555001	17	350610	0965550	925	H	318OSCR	103	S	—
07N-04E-07 ABA 1	350603096550801	16	350603	0965508	920	H	318OSCR	40	O	—
08N-02E-05 BBA 1	351209097071701	27	351209	0970717	1005	H	112TRRCH	75	S	P
08N-03E-18 DAA 1	350959097011301	22	350959	0970113	990	H	112TRRCH	108	S	S
09N-02E-07 ADA 1	351617097072801	41	351617	0970728	1080	H	318GRBR	50	O	—
09N-02E-07 BBB 1	351624097082401	42	351624	0970824	1121	H	317GBWG	210	O	—
09N-02E-10 ADD 1	351611097042001	39	351611	0970420	1155	H	317GBWG	95	S	—
09N-02E-34 CDC 1	351212097045601	28	351212	0970456	1090	H	310WLNG	240	O	—
09N-03E-13 CCA 1	351455096563801	37	351455	0965638	1120	T	318OSCR	315	A	—
09N-03E-20 BDB 1	351433097004401	36	351433	0970044	1050	H	310WLNG	97	O	—
09N-03E-21 DAD 1	351411096590001	34	351411	0965900	1045	H	318OSCR	135	S	—
10N-03E-22 ABB 1	351955096582501	55	351955	0965825	1015	S	110ALVM	54	S	S
11N-02E-10 BBA 1	352652097050501	83	352652	0970505	1060	H	110ALVM	86	S	S
11N-02E-16 BDA 1	352550097055401	77	352550	0970554	1125	P	317GBWG	400	O	—
11N-02E-25 BBC 1	352410097031401	206	352410	0970314	1042	H	110ALVM	71	S	P
11N-02E-34 ABB 1	352326097044801	60	352326	0970448	1090	H	317GBWG	97	O	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
14N-03W-34 BBA 1	353909097304501	158	165	04-04-89	—	A	S	202	202	466
14N-04W-19 CDD 1	354007097395401	164	—	—	—	—	J	—	—	—
14N-04W-31 CBC 1	353837097402301	154	8	07-12-89	—	S	S	—	—	—
				PAYNE COUNTY						
17N-03E-10 CDD 1	355727096582201	205	22	06-22-89	R	S	S	—	—	—
				POTTAWATOMIE COUNTY						
06N-03E-08 DCC 1	350003097003301	7	—	—	—	—	S	—	—	—
06N-03E-21 ABB 1	345908096593101	4	—	—	—	—	S	—	—	—
06N-03E-28 BAA 1	345814096593301	2	23	06-29-89	R	S	S	—	—	—
06N-04E-35 DDD 1	345634096503901	1	6	01-29-87	—	S	S	—	—	—
07N-02E-29 DCD 1	350240097064101	12	—	—	—	—	S	—	—	—
07N-02E-32 CBC 1	350203097072201	11	—	—	—	—	S	—	—	—
07N-03E-01 CBB 1	350629096565401	18	—	—	—	—	S	—	—	—
07N-04E-06 CCC 1	350610096555001	17	29	06-07-88	R	S	S	—	—	—
07N-04E-07 ABA 1	350603096550801	16	—	—	—	—	S	—	—	—
08N-02E-05 BBA 1	351209097071701	27	38	06-23-89	—	S	S	—	—	—
08N-03E-18 DAA 1	350959097011301	22	57	06-23-89	—	S	S	—	—	—
09N-02E-07 ADA 1	351617097072801	41	—	—	—	—	J	—	—	—
09N-02E-07 BBB 1	351624097082401	42	—	—	—	—	S	—	—	—
09N-02E-10 ADD 1	351611097042001	39	55	09-02-87	R	S	S	—	—	—
09N-02E-34 CDC 1	351212097045601	28	—	—	—	—	S	—	190	240
09N-03E-13 CCA 1	351455096563801	37	—	—	—	—	S	—	—	—
09N-03E-20 BDB 1	351433097004401	36	—	—	—	—	S	—	—	—
09N-03E-21 DAD 1	351411096590001	34	—	—	—	—	S	—	—	—
10N-03E-22 ABB 1	351955096582501	55	12	06-19-89	R	S	S	—	—	—
11N-02E-10 BBA 1	352652097050501	83	16	06-14-89	—	S	S	—	—	—
11N-02E-16 BDA 1	352550097055401	77	—	—	—	—	S	—	—	—
11N-02E-25 BBC 1	352410097031401	206	17	06-14-89	—	S	S	—	—	—
11N-02E-34 ABB 1	352326097044801	60	43	05-31-88	—	S	S	—	—	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Latitude (dms)	Longitude (dms)	Altitude of land surface (feet)	Use of water	Principal aquifer	Depth of well (feet)	Source of depth data	Casing material
11N-02E-35 BAB 1	352327097040101	61	352326	0970401	1090	H	310WLNG	124	O	—
11N-03E-15 BCC 1	352543096585601	76	352543	0965856	1142	H	318OSCR	140	O	—
11N-04E-28 ABB 1	352418096530101	65	352418	0965301	945	H	110ALVM	72	S	P
11N-04E-29 CBB 1	352351096544001	63	352351	0965440	975	H	318OSCR	80	S	—
11N-04E-31 DCC 1	352236096551001	59	352236	0965510	1010	P	318OSCR	285	O	—

Table 2.—*Selected information about wells sampled*—Continued

Local identifier	Site-identification number	Well number	Water level (feet)	Date water level measured	Site status (at time of measurement)	Method of water level measurement	Pump type	Depth to bottom of seal (feet)	Depth to top of open interval (feet)	Depth to bottom of open interval (feet)
11N-02E-35 BAB 1	352327097040101	61	38	06-01-88	R	S	S	—	—	—
11N-03E-15 BCC 1	352543096585601	76	35	06-13-88	R	S	J	—	—	—
11N-04E-28 ABB 1	352418096530101	65	9	07-19-89	R	S	S	—	—	—
11N-04E-29 CBB 1	352351096544001	63	21	07-11-88	R	S	S	—	—	—
11N-04E-31 DCC 1	352236096551001	59	—	—	—	—	S	235	235	265

Table 3.—*Constituents analyzed for each sampling network and minimum reporting levels*

[**Network:** **Geochem**, *geochemical network;* **Bedrock**, *low-density survey sampling bedrock network;* **Urban**, *targeted sampling urban network;* **All&ter**, *low-density survey sampling alluvium and terrace network.* **X**, *sampled in every well in this network;* °C, *degrees Celsius;* µS/cm, *microsiemens per centimeter at 25°C;* **Minimum reporting level**, *dual reporting levels(--/--) reflect reporting levels for samples with specific conductance less than 2,000 µS/cm, and greater than 2,000 µS/cm respectively;* **mg/L**, *milligrams per liter;* **µg/L**, *micrograms per liter;* **pCi/L**, *picocuries per liter;* **Percent modern**, *0.7 percent, or less, modern carbon at the 40,000-year age;* **δ-value**, *delta value;* **per mil**, *((isotope ratio in sample minus ratio in standard) divided by ratio in standard) multiplied by 1,000;* **PDB**, *Peedee belemnite;* **SMOW**, *Standard Mean Ocean Water;* **CDT**, *Canyon Diablo Troilite*]

Network				Minimum reporting level	Constituent
Geochem	Bedrock	Urban	All&ter		
					Properties
X	X	X	X	0.1	Specific conductance, (µS/cm)
X	X	X	X	0.1	pH (standard units)
X	X	X	X	0.5	Water temperature, (°C)
X	X	X	X	0.1	Oxygen, dissolved (mg/L)
X	X	X	X	1	Hardness, total (mg/L as calcium carbonate)
X	X	X	X	1	Alkalinity, whole water, incremental titration, field, total, (mg/L as calcium carbonate)
					Dissolved Solids
X	X	X	X	1	Solids, sum of constituents, dissolved (mg/L)
					Major Ions
X	X	X	X	0.02/0.06	Calcium, dissolved (mg/L)
X	X	X	X	0.01/0.03	Magnesium, dissolved (mg/L)
X	X	X	X	0.2/0.6	Sodium, dissolved (mg/L)
X	X	X	X	1	Sodium, percent
X	X	X	X	0.1	Potassium, dissolved (mg/L)
X	X	X	X	1	Bicarbonate, whole water, incremental titration, field (mg/L)
X	X	X	X	1	Carbonate, whole water, incremental titration, field (mg/L)
X	X	X	X	1	Sulfate, dissolved (mg/L)
X	X	X	X	0.1	Chloride, dissolved (mg/L)
X	X	X	X	0.01	Fluoride, dissolved (mg/L)
X	X	X	X	0.01	Bromide, dissolved (mg/L)
X	X	X	X	0.03	Silica, dissolved (mg/L)
					Nutrients
X	X	X	X	0.001	Nitrite, dissolved (mg/L as nitrogen)
X	X	X	X	0.1	Nitrite plus nitrate, dissolved (mg/L as nitrogen)
X	X	X	X	0.002	Ammonia, dissolved (mg/L as N)
X	X	X	X	0.2	Ammonia plus organic nitrogen, dissolved (mg/L as nitrogen)
X	X	X	X	0.001	Phosphorus, orthophosphate, dissolved (mg/L as phosphorus)
					Carbon
X	X		X	0.1	Carbon, organic, dissolved (mg/L)

Table 3.—*Constituents analyzed for each sampling network and minimum reporting levels* —Continued

Network				Minimun Reporting level	Constituent
Geochem	Bedrock	Urban	All & tar		
					Trace Substances
X	X	X	X	10	Aluminum, dissolved (µg/L)
	X	X	X	1	Antimony, dissolved (µg/L)
X	X	X	X	1	Arsenic, dissolved (µg/L)
X	X	X	X	2/6	Barium, dissolved (µg/L)
X	X	X	X	0.5/1.5	Beryllium, dissolved (µg/L)
X	X	X	X	10	Boron, dissolved (µg/L)
X	X	X	X	1/ 3	Cadmium, dissolved (µg/L)
X[1]	X	X	X	5/15	Chromium, dissolved (µg/L)
	X			1	Chromium, hexavalent, dissolved (µg/L)
X	X	X	X	3/9	Cobalt, dissolved (µg/L)
X	X	X	X	10/30	Copper, dissolved (µg/L)
X	X	X	X	3/9	Iron, dissolved (µg/L)
X	X	X	X	10/30	Lead, dissolved (µg/L)
X	X	X	X	4/12	Lithium, dissolved (µg/L)
X	X	X	X	1/3	Manganese, dissolved (µg/L)
	X	X	X	0.1	Mercury, dissolved (µg/L)
X	X	X	X	10/30	Molybdenum, dissolved (µg/L)
X	X	X	X	10/30	Nickel, dissolved (µg/L)
X	X	X	X	1	Selenium, dissolved (µg/L)
X	X	X	X	1/3	Silver, dissolved (µg/L)
X	X	X	X	0.5/1.5	Strontium, dissolved (µg/L)
X	X	X	X	6/18	Vanadium, dissolved (µg/L)
X	X	X	X	3	Zinc, dissolved (µg/L)
					Radionuclides
	X	X	X	0.4	Gross alpha, dissolved (pCi/L as ^{230}thorium)
	X	X	X	0.4	Gross alpha, dissolved (µg/L as U-natural)
	X	X	X	0.4	Gross beta, dissolved (pCi/L as ^{137}cesium)
	X	X	X	0.4	Gross beta, dissolved (pCi/L as ^{90}strontium/ ^{90}yttrium)
X				0.02	^{226}Radium, dissolved (pCi/L)
X				1.0	^{228}Radium, dissolved (pCi/L)
X	X	X	X	80	^{222}Radon, total (pCi/L)
X	X	X	X	0.3	Tritium, total (pCi/L)
X	X	X	X	0.1	^{234}Uranium, dissolved, (pCi/L)
X	X	X	X	0.1	^{235}Uranium, dissolved, (pCi/L)
X	X	X	X	0.1	^{238}Uranium, dissolved, (pCi/L)
X	X	X	X	0.2	Uranium, natural, dissolved (µg/L)

[1] Geochemical network chromium data were produced using an atomic adsorption graphite furnace method which has a minimum reporting level of 1 µg/L.

Table 3.—*Constituents analyzed for each sampling network and minimum reporting levels* —Continued

Network: Geochem	Bedrock	Urban	All & Other	Minimun Reporting level	Constituent
					Isotopic Ratios
X				0.70	^{14}Carbon, percent modern
X				+/- 0.3	$^{13}/^{12}$Carbon, δ-value relative to PDB (per mil)
X	X[2]			+/- 1.5	$^{2}/^{1}$Hydrogen, δ-value relative to SMOW (per mil)
X	X[2]			+/- 0.15	$^{18}/^{16}$Oxygen, δ-value relative to SMOW (per mil)
X				+/- 0.3	$^{34}/^{32}$Sulfur, δ-value relative to CDT (per mil)
					Volatile Organic Compounds
	X	X	X	0.20	Benzene, total (μg/L)
	X	X	X	0.20	Bromobenzene, whole water, total (μg/L)
	X	X	X	0.20	Bromoform, total (μg/L)
	X	X	X	0.20	Chlorobenzene, total (μg/L)
	X	X	X	0.20	1,2-Dichlorobenzene, total (μg/L)
	X	X	X	0.20	1,3-Dichlorobenzene, total (μg/L)
	X	X	X	0.20	1,4-Dichlorobenzene, total (μg/L)
	X	X	X	0.20	Ethyl benzene, total (μg/L)
	X	X	X	0.20	Carbon tetrachloride, total (μg/L)
	X	X	X	0.20	Chloroform, total (μg/L)
	X	X	X	0.20	Chloroethane, total (μg/L)
	X	X	X	0.20	1,2-Dibromoethane, whole water, total (μg/L)
	X	X	X	0.20	1,1-Dichloroethane, total (μg/L)
	X	X	X	0.20	1,2-Dichloroethane, total (μg/L)
	X	X	X	0.20	1,1,1,2-Tetrachloroethane, whole water, total (μg/L)
	X	X	X	0.20	1,1,2,2-Tetrachloroethane, total (μg/L)
	X	X	X	0.20	1,1,1-Trichloroethane, total (μg/L)
	X	X	X	0.20	1,1,2-Trichloroethane, total (μg/L)
	X	X	X	0.2	1,2-Dichloroethene, whole water, recoverable (μg/L)
	X	X	X	0.20	1,1-Dichloroethylene, total (μg/L)
	X	X	X	0.20	Tetrachloroethylene, total (μg/L)
	X	X	X	0.2	Trichloroethylene, total (μg/L)
	X	X	X	0.20	Chlorodibromomethane, total (μg/L)
	X	X	X	0.20	Dibromomethane, whole water, recoverable (μg/L)
	X	X	X	0.20	Dichlorobromomethane, total (μg/L)
	X	X	X	0.20	Dichlorodifluoromethane, total (μg/L)
	X	X	X	0.20	Trichlorofluoromethane, total (μg/L)
	X	X	X	0.20	Methyl bromide, total (μg/L)
	X	X	X	0.20	Methyl chloride, total (μg/L)
	X	X	X	0.20	Methylene chloride, total (μg/L)
	X	X	X	0.20	1,2-Dichloropropane, total (μg/L)
	X	X	X	0.20	1,3-Dichloropropane, whole water, total (μg/L)
	X	X	X	0.20	2,2-Dicloropropane, whole water, total (μg/L)
	X	X	X	0.20	1,2,3-Trichloropropane, whole water, total (μg/L)
	X	X	X	0.2	1,1-Dichloropropene, whole water, total (μg/L)
	X	X	X	0.20	cis-1,3-Dichloropropene, total (μg/L)
	X	X	X	0.20	trans-1,3-Dichloropropene, total (μg/L)
	X	X	X	0.2	Styrene, total (μg/L)

[2] For bedrock network wells, only those greter than 300 ft deep were sampled for $^{2}/^{1}$hydrogen and $^{18}/^{16}$oxygen isotopes.

Table 3.—*Constituents analyzed for each sampling network and minimum reporting levels* —Continued

Network					
Geochem	Bedrock	Urban	All & Other	Minimum Reporting level	Constituent
					Volatile Organic Compounds—Continued
		X	X	0.20	Toluene, total (µg/L)
		X	X	0.20	ortho-Chlorotoluene, whole water, total (µg/L)
		X	X	0.20	para-Chlorotoluene, whole water, total (µg/L)
		X	X	0.20	Vinyl chloride, total (µg/L)
		X	X	0.2	Xylenes, total, whole water, total recoverable (µg/L)
					Carbamate Insecticides
		X	X	0.5	Aldicarb, whole water, total recoverable (µg/L)
		X	X	0.5	Aldicarb sulfone, whole water, total recoverable (µg/L)
		X	X	0.5	Aldicarb sulfoxide, whole water, total recoverable (µg/L)
		X	X	0.5	Carbofuran, whole water, total recoverable (µg/L)
		X	X	0.5	3-Hydroxycarbofuran, whole water, total recoverable (µg/L)
		X	X	0.5	Methiocarb, whole water, total recoverable (µg/L)
		X	X	0.5	Methomyl, total (µg/L)
		X	X	0.5	1-Naphthol, whole water, recoverable (µg/L)
		X	X	0.5	Oxyamyl, whole water, total recoverable (µg/L)
		X	X	0.5	Propham, total (µg/L)
		X	X	0.5	Propoxur, whole water, recoverable (µg/L)
		X	X	0.5	Sevin, total (µg/L)
					Chlorophenoxy Acid Herbicides, with Dicamba and Picloram
	X[3]		X	0.01	Dicamba, total (µg/L)
	X[3]		X	0.01	Picloram, total (µg/L)
		X	X	0.01	Silvex, total (µg/L)
		X	X	0.01	2,4-D, total (µg/L)
		X	X	0.01	2,4-DP, total (µg/L)
		X	X	0.01	2,4,5-T, total (µg/L)
					Organochlorine Compounds
		X	X	0.010	Aldrin, total (µg/L)
		X	X	0.010	Chlordane, total (µg/L)
		X	X	0.010	DDD, total (µg/L)
		X	X	0.010	DDE, total (µg/L)
		X	X	0.010	DDT, total (µg/L)
		X	X	0.010	Dieldrin, total (µg/L)
		X	X	0.010	Endosulfan, total (µg/L)
		X	X	0.010	Endrin, total (µg/L)
		X	X	0.010	Heptachlor, total (µg/L)
		X	X	0.010	Heptachlor epoxide, total (µg/L)
		X	X	0.010	Lindane, total (µg/L)

[3]Only selected wells (Well numbers 61,192,199,203) were sampled for picloram and dicamba in the low density survey sampling bedrock network.

Table 3.—*Constituents analyzed for each sampling network and minimum reporting levels* —Continued

Network					
Geochem	Bedrock	Urban	All & tear	Minimun Reporting level	Constituent
					Organochlorine Compounds—Continued
	X	X	X	0.01	Methoxychlor, total (µg/L)
	X	X	X	0.01	Mirex, total (µg/L)
	X	X	X	0.01	PCB's, total (µg/L)
	X	X	X	0.10	Naphthalenes, polychlorinated (µg/L)
	X	X	X	0.1	Perthane, total (µg/L)
	X	X	X	1	Toxaphene, total (µg/L)
					Organophosphorus Insecticides
	X[4]	X[4]	X[4]	0.01	Def, total (µg/L)
	X	X	X	0.01	Diazinon, total (µg/L)
	X[4]	X[4]	X[4]	0.01	Disyston, total (µg/L)
	X	X	X	0.01	Ethion, total (µg/L)
	X	X	X	0.01	Ethyl trithion, total (µg/L)
	X	X	X	0.01	Malathion, total (µg/L)
	X	X	X	0.01	Methyl parathion, total (µg/L)
	X	X	X	0.01	Methyl trithion, total (µg/L)
	X	X	X	0.01	Parathion, total (µg/L)
	X[4]	X[4]	X[4]	0.01	Phorate, total (µg/L)
					Triazines and Other Nitrogen-Containing Herbicides
	X	X	X	0.10	Alachlor, total recoverable (µg/L)
	X	X	X	0.10	Ametryne, total (µg/L)
	X	X	X	0.10	Atrazine, total (µg/L)
	X	X	X	0.1	Bromacil, whole water, recoverable (µg/L)
	X	X	X	0.1	Butachlor, whole water, recoverable (µg/L)
	X	X	X	0.1	Butylate, whole water, recoverable (µg/L)
	X	X	X	0.1	Carboxin, whole water, recoverable (µg/L)
	X	X	X	0.10	Cyanazine total (µg/L)
	X	X	X	0.1	Cycloate, whole water, recoverable (µg/L)
	X	X	X	0.1	Diphenamid, whole water, recoverable (µg/L)
	X	X	X	0.1	Hexazinone, whole water, recoverable (µg/L)
	X	X	X	0.1	Metolachlor, whole water, total recoverable (µg/L)
	X	X	X	0.1	Metribuzine, whole water, total recoverable (µg/L)
	X	X	X	0.1	Prometone, total (µg/L)
	X	X	X	0.1	Prometryne, total (µg/L)
	X	X	X	0.1	Propachlor, whole water, recoverable (µg/L)
	X	X	X	0.10	Propazine, total (µg/L)
	X	X	X	0.10	Simazine, total (µg/L)
	X	X	X	0.1	Simetryne, total (µg/L)
	X	X	X	0.1	Terbacil, whole water, recoverable (µg/L)
	X	X	X	0.10	Trifluralin, total recoverable (µg/L)
	X	X	X	0.1	Vernolate, whole water, recoverable (µg/L)

[4]Only in samples analyzed for organophosphorus compounds after January, 1990.

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*

[°C, *degrees Celsius;* µS/cm, *microsiemens per centimeter at 25°C;* mg/L, *milligrams per liter;* mg/L as $CaCO_3$, *milligrams per liter as calcium carbonate;* (—), *indicates no data are available;* mg/L as N, *milligrams per liter as nitrogen;* mg/L as P, *milligrams per liter as phosphorus;* µg/L, *micrograms per liter;* E, *estimated value; all samples were analysed by the National Water Quality Laboratory of the U.S. Geological Survey*]

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
				CANADIAN COUNTY					
14N–05W–25 DDC 1	08–26–87	1000	353915097403901	159	6,440	8.4	20.5	0.2	1,500
				CLEVELAND COUNTY					
06N–01E–05 DDB 1	04–20–88	1130	350101097125401	10	570	8.0	19.5	2.0	81
06N–01E–05 DDC 1	04–20–88	930	350055097125402	9	650	8.8	18.0	0.2	82
06N–01E–12 DCC 1	07–05–88	1300	350003097090101	8	215	6.1	16.5	2.2	82
06N–01E–17 ABA 1	07–05–88	1030	350001097130101	6	420	6.2	17.5	8.2	170
06N–01W–17 BBB 1	06–08–89	1400	345959097200301	5	981	7.2	17.0	0.1	420
06N–01W–27 BBA 1	06–29–89	1245	345815097174901	3	535	7.0	17.5	9.0	260
07N–01W–07 DCD 1	06–08–89	1015	350516097202601	15	336	6.7	17.5	6.5	140
07N–01W–30 DDD 1	06–29–89	1000	350243097200901	13	612	7.5	17.0	0.0	290
07N–02W–15 AAA 1	06–12–89	945	350514097232301	14	672	7.4	17.5	0.0	320
08N–01E–08 DCC 1	06–22–88	945	351027097131401	23	513	7.4	17.5	5.0	280
08N–01E–09 AAB 1	07–11–88	1030	351118097114901	26	144	6.4	16.5	3.2	67
08N–01E–22 DDA 1	06–28–89	945	350851097103901	21	140	5.8	17.0	4.8	49
08N–01W–12 BCB 1	10–02–87	1300	351106097155201	24	1,960	8.6	18.0	3.1	180
08N–01W–12 BCB 2	09–11–87	1500	351106097155202	25	417	7.5	19.5	—	140
08N–02W–25 BAA 1	04–27–88	930	350845097214501	166	611	7.6	17.5	5.5	210
08N–02W–27 DDD 1	04–21–88	1000	350756097232001	19	652	8.7	18.0	0.7	13
09N–01E–01 CDD 1	06–23–89	1000	351632097090901	43	372	7.7	18.0	3.7	170
09N–01W–03 CCC 1	06–23–88	915	351638097175301	44	308	6.8	17.0	9.7	160
09N–01W–04 CBC 1	07–11–88	1315	351651097185901	46	411	7.0	16.5	8.4	220
09N–01W–09 BDD 1	06–23–89	1300	351613097183501	40	338	6.8	17.0	5.8	160
09N–02W–22 DDA 1	07–29–87	1120	351409097231801	33	426	8.3	18.5	5.9	43
09N–02W–29 DCA 1	07–31–87	1030	351314097254701	32	919	8.8	18.5	5.7	7
09N–02W–31 DAA 1	04–25–88	1330	351236097262801	30	1,100	8.8	19.0	2.4	16

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
				CANADIAN COUNTY					
14N-05W-25 DDC 1	08-26-87	1000	34	5,610	440	100	1,100	61	4.3
				CLEVELAND COUNTY					
06N-01E-05 DDB 1	04-20-88	1130	282	344	18	8.8	110	74	0.70
06N-01E-05 DDC 1	04-20-88	930	278	368	18	8.8	110	74	0.70
06N-01E-12 DCC 1	07-05-88	1300	72	140	18	8.9	11	23	0.30
06N-01E-17 ABA 1	07-05-88	1030	152	247	38	17	23	23	0.50
06N-01W-17 BBB 1	06-08-89	1400	492	599	95	44	67	26	1.0
06N-01W-27 BBA 1	06-29-89	1245	214	337	83	12	17	13	0.60
07N-01W-07 DCD 1	06-08-89	1015	109	215	36	11	17	21	0.90
07N-01W-30 DDD 1	06-29-89	1000	206	379	91	15	20	13	0.70
07N-02W-15 AAA 1	06-12-89	945	352	410	76	30	27	16	2.6
08N-01E-08 DCC 1	06-22-88	945	266	—	61	31	6.6	—	<0.10
08N-01E-09 AAB 1	07-11-88	1030	64	99	14	7.7	4.1	12	0.80
08N-01E-22 DDA 1	06-28-89	945	34	87	11	5.2	8.1	26	1.3
08N-01W-12 BCB 1	10-02-87	1300	210	1,080	36	22	340	80	4.7
08N-01W-12 BCB 2	09-11-87	1500	223	256	29	16	45	41	3.1
08N-02W-25 BAA 1	04-27-88	930	288	354	37	28	57	37	2.6
08N-02W-27 DDD 1	04-21-88	1000	308	403	3.1	1.2	160	96	0.80
09N-01E-01 CDD 1	06-23-89	1000	188	210	36	20	15	16	2.1
09N-01W-03 CCC 1	06-23-88	915	148	185	33	18	7.6	10	0.70
09N-01W-04 CBC 1	07-11-88	1315	206	231	45	25	5.1	5	0.80
09N-01W-09 BDD 1	06-23-89	1300	152	195	36	18	5.8	7	0.80
09N-02W-22 DDA 1	07-29-87	1120	224	266	7.5	5.9	91	82	1.4
09N-02W-29 DCA 1	07-31-87	1030	418	605	1.7	0.73	240	98	0.70
09N-02W-31 DAA 1	04-25-88	1330	340	691	3.9	1.5	250	97	1.4

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
				CANADIAN COUNTY					
14N-05W-25 DDC 1	08-26-87	1000	41	0	3,700	230	0.80	0.34	8.8
				CLEVELAND COUNTY					
06N-01E-05 DDB 1	04-20-88	1130	344	0	9.2	16	0.40	0.097	10
06N-01E-05 DDC 1	04-20-88	930	310	14	16	33	0.30	0.092	13
06N-01E-12 DCC 1	07-05-88	1300	88	0	14	13	0.30	0.14	30
06N-01E-17 ABA 1	07-05-88	1030	185	0	22	21	0.30	0.35	24
06N-01W-17 BBB 1	06-08-89	1400	600	0	45	26	0.40	0.88	20
06N-01W-27 BBA 1	06-29-89	1245	261	0	34	12	0.20	0.060	21
07N-01W-07 DCD 1	06-08-89	1015	133	0	16	9.1	0.20	0.19	24
07N-01W-30 DDD 1	06-29-89	1000	251	0	90	20	0.20	0.16	17
07N-02W-15 AAA 1	06-12-89	945	429	0	23	7.9	0.20	0.10	27
08N-01E-08 DCC 1	06-22-88	945	324	0	6.5	9.5	0.20	0.10	17
08N-01E-09 AAB 1	07-11-88	1030	78	0	5.8	2.8	0.20	0.036	21
08N-01E-22 DDA 1	06-28-89	945	40	0	5.0	14	0.10	0.070	16
08N-01W-12 BCB 1	10-02-87	1300	232	12	72	450	0.30	0.98	21
08N-01W-12 BCB 2	09-11-87	1500	272	0	11	4.9	0.30	0.074	11
08N-02W-25 BAA 1	04-27-88	930	351	0	10	25	0.30	0.035	17
08N-02W-27 DDD 1	04-21-88	1000	361	7	31	8.4	0.20	0.037	9.5
09N-01E-01 CDD 1	06-23-89	1000	229	0	5.0	8.7	0.20	0.050	9.5
09N-01W-03 CCC 1	06-23-88	915	180	0	6.0	6.9	0.30	0.099	17
09N-01W-04 CBC 1	07-11-88	1315	251	0	6.5	7.0	0.20	0.068	14
09N-01W-09 BDD 1	06-23-89	1300	185	0	6.0	9.5	0.10	0.090	17
09N-02W-22 DDA 1	07-29-87	1120	267	3	10	3.0	0.40	0.18	11
09N-02W-29 DCA 1	07-31-87	1030	422	43	83	12	1.3	0.084	8.7
09N-02W-31 DAA 1	04-25-88	1330	410	2	190	24	1.2	0.060	9.7

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
				CANADIAN COUNTY					
14N-05W-25 DDC 1	08-26-87	1000	<0.010	<0.100	0.180	—	0.020	0.4	—
				CLEVELAND COUNTY					
06N-01E-05 DDB 1	04-20-88	1130	<0.010	0.240	<0.010	<0.20	0.020	0.5	<10
06N-01E-05 DDC 1	04-20-88	930	<0.010	<0.100	0.020	<0.20	<0.010	0.5	<10
06N-01E-12 DCC 1	07-05-88	1300	<0.010	0.130	0.020	0.30	<0.010	0.8	<10
06N-01E-17 ABA 1	07-05-88	1030	<0.010	2.10	0.020	0.60	0.030	1.3	<10
06N-01W-17 BBB 1	06-08-89	1400	<0.010	<0.100	0.340	0.70	0.030	1.3	10
06N-01W-27 BBA 1	06-29-89	1245	<0.010	6.30	0.010	0.40	0.060	0.6	10
07N-01W-07 DCD 1	06-08-89	1015	<0.010	7.80	0.010	0.80	0.070	0.5	<10
07N-01W-30 DDD 1	06-29-89	1000	<0.010	<0.100	0.040	<0.20	0.030	1.0	<10
07N-02W-15 AAA 1	06-12-89	945	<0.010	<0.100	0.930	1.0	0.020	2.0	<10
08N-01E-08 DCC 1	06-22-88	945	<0.010	<0.100	0.040	<0.20	0.070	0.7	<10
08N-01E-09 AAB 1	07-11-88	1030	<0.010	0.750	<0.010	<0.20	<0.010	0.9	<10
08N-01E-22 DDA 1	06-28-89	945	<0.010	1.40	<0.010	0.20	0.020	0.7	<10
08N-01W-12 BCB 1	10-02-87	1300	<0.010	0.290	0.020	—	<0.010	0.4	E20
08N-01W-12 BCB 2	09-11-87	1500	<0.010	<0.100	<0.010	—	<0.010	8.0	<10
08N-02W-25 BAA 1	04-27-88	930	<0.010	0.500	<0.010	<0.20	<0.010	0.5	<10
08N-02W-27 DDD 1	04-21-88	1000	0.010	<0.050	<0.010	0.40	0.030	0.4	<10
09N-01E-01 CDD 1	06-23-89	1000	<0.010	0.140	<0.010	0.50	<0.010	0.3	<10
09N-01W-03 CCC 1	06-23-88	915	<0.010	1.40	0.020	0.20	0.050	0.8	<10
09N-01W-04 CBC 1	07-11-88	1315	<0.010	0.640	<0.010	<0.20	0.020	0.9	<10
09N-01W-09 BDD 1	06-23-89	1300	<0.010	2.20	<0.010	<0.20	0.030	0.7	<10
09N-02W-22 DDA 1	07-29-87	1120	—	0.160	—	—	—	1.8	10
09N-02W-29 DCA 1	07-31-87	1030	<0.010	0.250	<0.010	—	0.030	2.5	50
09N-02W-31 DAA 1	04-25-88	1330	<0.010	0.400	<0.010	<0.20	0.030	0.4	<10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
				CANADIAN COUNTY					
14N-05W-25 DDC 1	08-26-87	1000	—	4	6	2	—	<3.0	<1
				CLEVELAND COUNTY					
06N-01E-05 DDB 1	04-20-88	1130	<1	4	110	<0.5	600	<1.0	20
06N-01E-05 DDC 1	04-20-88	930	<1	1	160	<0.5	630	<1.0	30
06N-01E-12 DCC 1	07-05-88	1300	<1	<1	200	<0.5	70	<1.0	<5
06N-01E-17 ABA 1	07-05-88	1030	<1	<1	210	<0.5	80	<1.0	<5
06N-01W-17 BBB 1	06-08-89	1400	<1	<1	310	<0.5	250	<1.0	<5
06N-01W-27 BBA 1	06-29-89	1245	<1	<1	160	<0.5	70	<1.0	<5
07N-01W-07 DCD 1	06-08-89	1015	<1	<1	240	<0.5	90	<1.0	<5
07N-01W-30 DDD 1	06-29-89	1000	<1	2	370	<0.5	70	<1.0	<5
07N-02W-15 AAA 1	06-12-89	945	<1	1	590	<0.5	140	<1.0	<5
08N-01E-08 DCC 1	06-22-88	945	<1	1	500	<0.5	60	<1.0	<5
08N-01E-09 AAB 1	07-11-88	1030	<1	<1	330	<0.5	60	<1.0	<5
08N-01E-22 DDA 1	06-28-89	945	<1	<1	240	<0.5	310	<1.0	<5
08N-01W-12 BCB 1	10-02-87	1300	—	1	140	<0.5	650	<1.0	50
08N-01W-12 BCB 2	09-11-87	1500	—	1	280	<0.5	530	<1.0	20
08N-02W-25 BAA 1	04-27-88	930	<1	5	270	<0.5	760	<1.0	20
08N-02W-27 DDD 1	04-21-88	1000	4	51	64	<0.5	3,900	<1.0	<5
09N-01E-01 CDD 1	06-23-89	1000	<1	<1	350	<0.5	100	<1.0	<5
09N-01W-03 CCC 1	06-23-88	915	<1	1	630	<0.5	30	<1.0	<5
09N-01W-04 CBC 1	07-11-88	1315	<1	1	670	<0.5	30	<1.0	<5
09N-01W-09 BDD 1	06-23-89	1300	<1	<1	550	<0.5	50	<1.0	<5
09N-02W-22 DDA 1	07-29-87	1120	—	2	210	<0.5	460	<1.0	80
09N-02W-29 DCA 1	07-31-87	1030	—	52	29	<0.5	4,400	<1.0	<5
09N-02W-31 DAA 1	04-25-88	1330	5	42	41	2	3,100	<1.0	100

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
				CANADIAN COUNTY					
14N-05W-25 DDC 1	08-26-87	1000	—	<9	<30	970	<30	180	43
				CLEVELAND COUNTY					
06N-01E-05 DDB 1	04-20-88	1130	27	<3	<10	5	<10	14	<1
06N-01E-05 DDC 1	04-20-88	930	14	<3	<10	<3	<10	12	<1
06N-01E-12 DCC 1	07-05-88	1300	1	<3	10	22	<10	14	62
06N-01E-17 ABA 1	07-05-88	1030	1	<3	<10	7	<10	18	<1
06N-01W-17 BBB 1	06-08-89	1400	—	<3	<10	2,700	<10	21	240
06N-01W-27 BBA 1	06-29-89	1245	—	<3	<10	18	<10	11	1
07N-01W-07 DCD 1	06-08-89	1015	—	<3	<10	9	<10	8	<1
07N-01W-30 DDD 1	06-29-89	1000	—	<3	<10	690	<10	15	240
07N-02W-15 AAA 1	06-12-89	945	—	<3	<10	2,000	20	25	350
08N-01E-08 DCC 1	06-22-88	945	1	<3	<10	6	<10	19	<1
08N-01E-09 AAB 1	07-11-88	1030	<1	<3	10	6	<10	12	<1
08N-01E-22 DDA 1	06-28-89	945	—	<3	10	14	<10	10	1
08N-01W-12 BCB 1	10-02-87	1300	—	<3	<10	3	<10	26	<1
08N-01W-12 BCB 2	09-11-87	1500	—	<3	<10	5	<10	8	55
08N-02W-25 BAA 1	04-27-88	930	11	<3	<10	<3	<10	30	<1
08N-02W-27 DDD 1	04-21-88	1000	<1	<3	<10	4	<10	8	<1
09N-01E-01 CDD 1	06-23-89	1000	—	<3	<10	<3	<10	14	<1
09N-01W-03 CCC 1	06-23-88	915	<1	<3	<10	<3	<10	14	<1
09N-01W-04 CBC 1	07-11-88	1315	<1	<3	<10	3	<10	13	<1
09N-01W-09 BDD 1	06-23-89	1300	—	<3	<10	4	<10	13	3
09N-02W-22 DDA 1	07-29-87	1120	—	<3	<10	23	<10	9	1
09N-02W-29 DCA 1	07-31-87	1030	—	<3	<10	<3	<10	<4	2
09N-02W-31 DAA 1	04-25-88	1330	93	<3	<10	<3	<10	8	<1

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
					CANADIAN COUNTY					
14N-05W-25 DDC 1	08-26-87	1000	—	80	<10	<1	3.0	8,100	<18	15
					CLEVELAND COUNTY					
06N-01E-05 DDB 1	04-20-88	1130	<0.1	<10	<10	6	<1.0	61	22	<3
06N-01E-05 DDC 1	04-20-88	930	<0.1	<10	<10	3	<1.0	330	40	3
06N-01E-12 DCC 1	07-05-88	1300	<0.1	<10	<10	1	<1.0	150	<6	21
06N-01E-17 ABA 1	07-05-88	1030	<0.1	<10	<10	<1	<1.0	460	7	9
06N-01W-17 BBB 1	06-08-89	1400	<0.1	<10	<10	<1	<1.0	840	<6	24
06N-01W-27 BBA 1	06-29-89	1245	<0.1	<10	<10	1	<1.0	360	<6	14
07N-01W-07 DCD 1	06-08-89	1015	<0.1	<10	<10	<1	<1.0	230	<6	24
07N-01W-30 DDD 1	06-29-89	1000	<0.1	<10	<10	<1	<1.0	340	<6	4
07N-02W-15 AAA 1	06-12-89	945	<0.1	10	<10	<1	<1.0	1,200	<6	13
08N-01E-08 DCC 1	06-22-88	945	0.9	<10	<10	<1	<1.0	190	8	4
08N-01E-09 AAB 1	07-11-88	1030	<0.1	<10	<10	1	<1.0	38	<6	11
08N-01E-22 DDA 1	06-28-89	945	<0.1	<10	10	<1	<1.0	42	<6	15
08N-01W-12 BCB 1	10-02-87	1300	—	<10	<10	2	<1.0	1,600	22	7
08N-01W-12 BCB 2	09-11-87	1500	—	<10	<10	<1	<1.0	750	8	<3
08N-02W-25 BAA 1	04-27-88	930	<0.1	<10	<10	2	<1.0	1,300	25	<3
08N-02W-27 DDD 1	04-21-88	1000	<0.1	20	<10	2	<1.0	83	110	5
09N-01E-01 CDD 1	06-23-89	1000	<0.1	<10	<10	<1	<1.0	240	<6	<3
09N-01W-03 CCC 1	06-23-88	915	<0.1	<10	<10	1	<1.0	66	<6	22
09N-01W-04 CBC 1	07-11-88	1315	<0.1	<10	<10	<1	<1.0	69	<6	29
09N-01W-09 BDD 1	06-23-89	1300	<0.1	<10	<10	<1	<1.0	61	<6	3
09N-02W-22 DDA 1	07-29-87	1120	—	<10	<10	<1	<1.0	210	20	14
09N-02W-29 DCA 1	07-31-87	1030	—	10	<10	71	<1.0	36	55	<3
09N-02W-31 DAA 1	04-25-88	1330	<0.1	30	<10	73	<1.0	79	490	<3

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
09N-02W-32 CCC 1	04-25-88	1100	351219097262301	29	1,350	8.6	19.0	0.4	24
09N-03W-11 AAC 1	07-31-87	1530	351648097285101	45	674	9.0	18.5	E3.5	5
09N-03W-18 DDA 1	06-09-89	1330	351501097325301	38	1,910	7.3	17.0	0.1	500
09N-03W-23 CBC 1	08-03-87	1100	351414097293901	35	1,310	8.6	18.5	0.2	16
09N-03W-23 CBC 1	08-03-87	1200	351414097293901	35	1,310	8.6	18.5	0.2	15
09N-03W-34 BCC 1	06-12-89	1330	351244097303601	31	945	7.3	17.0	0.0	380
10N-01W-20 CDD 1	06-01-88	1245	351912097193601	53	606	7.3	17.5	8.6	330
10N-01W-36 BBB 1	10-07-87	1200	351817097155201	49	437	7.5	16.5	1.8	220
10N-02W-25 CDC 1	07-12-88	845	351823097215701	50	634	7.2	17.0	2.4	330
10N-02W-36 CCC 1	10-15-87	1300	351729097221301	47	571	7.3	17.0	6.5	300
10N-02W-36 CCC 2	10-22-87	1600	351729097221302	48	1,250	9.0	17.0	13.2	26
10N-03W-12 BCD 1	04-19-88	1130	352123097282301	57	456	8.8	18.5	7.5	67
10N-03W-13 BBD 1	04-19-88	900	352043097282001	56	563	9.0	18.5	6.4	85
10N-03W-22 DAD 1	08-04-87	1030	351926097293001	54	563	8.9	19.5	5.0	89
10N-03W-30 BAB 1	06-09-89	1000	351907097333001	52	952	7.1	15.5	2.6	470
10N-04W-11 AAA 1	08-06-87	1400	352145097345901	58	566	8.9	19.5	3.5	8
10N-04W-25 CBC 1	06-06-89	945	351832097345101	51	1,660	7.3	17.0	0.1	580
LINCOLN COUNTY									
12N-02E-06 ADD 1	05-24-88	1030	353236097072801	134	349	6.5	17.0	8.3	130
12N-02E-29 CBC 1	06-19-89	1000	352854097072301	97	459	6.6	17.0	6.0	170
12N-03E-10 BAB 1	07-25-89	945	353207096583301	128	6,010	8.6	17.5	4.7	220
12N-03E-17 DAC 1	09-15-87	1200	353040097000901	112	438	6.5	17.0	6.5	140
12N-03E-36 ADD 1	07-14-88	1130	352816096554701	92	854	8.9	18.5	0.2	11
13N-03E-13 DDD 1	06-16-88	945	353539096554501	146	830	7.1	17.5	2.4	350
13N-03E-35 BBB 1	06-15-88	1200	353351096574601	141	1,270	7.2	18.0	3.6	260
13N-04E-31 DDD 1	07-14-88	915	353303096544501	137	709	7.3	17.5	6.2	310
14N-02E-26 ADD 1	07-13-88	1330	353938097031101	161	1,800	8.3	17.0	4.9	25
14N-03E-13 BBB 1	07-12-88	1115	354143096564301	168	661	8.0	17.0	1.3	69

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
09N-02W-32 CCC 1	04-25-88	1100	306	866	5.9	2.3	300	96	1.4
09N-03W-11 AAC 1	07-31-87	1530	312	421	1.2	0.48	170	99	0.50
09N-03W-18 DDA 1	06-09-89	1330	452	1,080	130	41	210	48	2.6
09N-03W-23 CBC 1	08-03-87	1100	396	852	3.7	1.5	300	98	0.90
09N-03W-23 CBC 1	08-03-87	1200	396	851	3.7	1.4	300	98	0.90
09N-03W-34 BCC 1	06-12-89	1330	478	569	94	34	68	28	2.2
10N-01W-20 CDD 1	06-01-88	1245	318	362	72	36	10	6	1.0
10N-01W-36 BBB 1	10-07-87	1200	212	239	43	26	12	11	0.30
10N-02W-25 CDC 1	07-12-88	845	326	365	71	38	12	7	1.0
10N-02W-36 CCC 1	10-15-87	1300	286	325	60	37	15	10	2.3
10N-02W-36 CCC 2	10-22-87	1600	272	674	5.6	2.9	250	94	4.5
10N-03W-12 BCD 1	04-19-88	1130	238	279	11	9.5	84	73	1.4
10N-03W-13 BBD 1	04-19-88	900	294	350	14	12	110	74	1.1
10N-03W-22 DAD 1	08-04-87	1030	295	344	14	13	100	71	1.3
10N-03W-30 BAB 1	06-09-89	1000	336	635	130	36	26	11	0.80
10N-04W-11 AAA 1	08-06-87	1400	282	348	1.7	0.86	140	97	0.40
10N-04W-25 CBC 1	06-06-89	945	492	1,100	150	49	170	39	3.3
LINCOLN COUNTY									
12N-02E-06 ADD 1	05-24-88	1030	74	199	29	14	17	22	0.80
12N-02E-29 CBC 1	06-19-89	1000	172	277	43	15	31	28	1.5
12N-03E-10 BAB 1	07-25-89	945	368	4,540	48	23	1,400	93	5.0
12N-03E-17 DAC 1	09-15-87	1200	159	271	31	16	45	40	1.2
12N-03E-36 ADD 1	07-14-88	1130	412	523	2.4	1.3	210	97	0.70
13N-03E-13 DDD 1	06-16-88	945	346	489	66	44	49	23	8.4
13N-03E-35 BBB 1	06-15-88	1200	646	776	46	36	210	63	2.7
13N-04E-31 DDD 1	07-14-88	915	370	416	58	41	43	23	1.1
14N-02E-26 ADD 1	07-13-88	1330	412	1,040	5.9	2.5	390	97	1.5
14N-03E-13 BBB 1	07-12-88	1115	310	403	14	8.1	130	80	1.4

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
09N-02W-32 CCC 1	04-25-88	1100	349	12	310	47	1.3	0.098	9.9
09N-03W-11 AAC 1	07-31-87	1530	315	32	37	11	0.30	0.11	9.9
09N-03W-18 DDA 1	06-09-89	1330	551	0	63	330	0.50	0.070	23
09N-03W-23 CBC 1	08-03-87	1100	469	7	270	21	2.4	0.16	10
09N-03W-23 CBC 1	08-03-87	1200	469	7	270	19	2.4	0.16	10
09N-03W-34 BCC 1	06-12-89	1330	583	0	38	11	0.50	0.070	28
10N-01W-20 CDD 1	06-01-88	1245	388	0	19	12	0.30	0.12	16
10N-01W-36 BBB 1	10-07-87	1200	259	0	4.8	14	0.20	0.079	9.2
10N-02W-25 CDC 1	07-12-88	845	398	0	7.7	20	0.10	0.14	17
10N-02W-36 CCC 1	10-15-87	1300	349	0	9.2	14	0.30	0.053	12
10N-02W-36 CCC 2	10-22-87	1600	298	17	31	200	0.60	0.35	11
10N-03W-12 BCD 1	04-19-88	1130	261	14	8.7	5.8	0.40	0.023	13
10N-03W-13 BBD 1	04-19-88	900	309	26	9.9	8.3	0.50	0.025	12
10N-03W-22 DAD 1	08-04-87	1030	328	16	13	7.3	0.70	0.15	13
10N-03W-30 BAB 1	06-09-89	1000	410	0	31	39	0.30	0.23	18
10N-04W-11 AAA 1	08-06-87	1400	300	22	14	6.3	0.30	0.055	11
10N-04W-25 CBC 1	06-06-89	945	600	0	280	120	0.50	0.25	27
				LINCOLN COUNTY					
12N-02E-06 ADD 1	05-24-88	1030	90	0	25	50	0.30	0.40	15
12N-02E-29 CBC 1	06-19-89	1000	210	0	14	35	0.20	0.34	29
12N-03E-10 BAB 1	07-25-89	945	420	14	2,600	220	3.0	0.70	9.1
12N-03E-17 DAC 1	09-15-87	1200	194	0	29	29	0.30	0.19	17
12N-03E-36 ADD 1	07-14-88	1130	454	24	15	31	0.30	0.072	12
13N-03E-13 DDD 1	06-16-88	945	422	0	34	43	0.90	0.15	13
13N-03E-35 BBB 1	06-15-88	1200	788	0	35	37	0.30	0.28	15
13N-04E-31 DDD 1	07-14-88	915	451	0	17	14	0.50	0.080	17
14N-02E-26 ADD 1	07-13-88	1330	483	10	94	280	2.9	0.70	8.9
14N-03E-13 BBB 1	07-12-88	1115	378	0	20	24	0.50	0.095	14

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
09N-02W-32 CCC 1	04-25-88	1100	<0.010	0.140	<0.010	<0.20	0.020	0.5	<10
09N-03W-11 AAC 1	07-31-87	1530	<0.010	0.490	<0.010	—	0.020	2.1	<10
09N-03W-18 DDA 1	06-09-89	1330	<0.010	<0.100	1.90	1.7	0.130	2.8	<10
09N-03W-23 CBC 1	08-03-87	1100	<0.010	<0.100	<0.010	—	<0.010	2.0	20
09N-03W-23 CBC 1	08-03-87	1200	<0.010	<0.100	<0.010	—	0.010	2.2	<10
09N-03W-34 BCC 1	06-12-89	1330	<0.010	<0.100	1.20	1.1	0.140	3.0	<10
10N-01W-20 CDD 1	06-01-88	1245	<0.010	1.00	<0.010	0.40	<0.010	1.0	<10
10N-01W-36 BBB 1	10-07-87	1200	<0.010	0.220	<0.010	—	<0.010	0.7	<10
10N-02W-25 CDC 1	07-12-88	845	<0.010	0.320	0.040	0.40	<0.010	0.7	<10
10N-02W-36 CCC 1	10-15-87	1300	<0.010	0.590	0.010	—	<0.010	0.5	<10
10N-02W-36 CCC 2	10-22-87	1600	<0.010	0.480	0.010	—	0.160	2.1	40
10N-03W-12 BCD 1	04-19-88	1130	<0.010	0.480	<0.010	0.90	0.020	0.7	<10
10N-03W-13 BBD 1	04-19-88	900	<0.010	0.430	<0.010	0.30	0.040	1.1	<10
10N-03W-22 DAD 1	08-04-87	1030	<0.010	0.530	<0.010	—	0.030	2.1	<10
10N-03W-30 BAB 1	06-09-89	1000	<0.010	34.0	0.030	0.50	0.020	0.8	10
10N-04W-11 AAA 1	08-06-87	1400	<0.010	0.480	<0.010	—	0.030	0.4	<10
10N-04W-25 CBC 1	06-06-89	945	<0.010	<0.100	2.10	2.0	0.030	5.5	<10
LINCOLN COUNTY									
12N-02E-06 ADD 1	05-24-88	1030	<0.010	0.530	0.020	<0.20	0.050	0.7	<10
12N-02E-29 CBC 1	06-19-89	1000	<0.010	0.840	<0.010	<0.20	0.050	0.7	10
12N-03E-10 BAB 1	07-25-89	945	<0.010	<0.100	0.110	<0.20	<0.010	0.4	<10
12N-03E-17 DAC 1	09-15-87	1200	<0.010	1.30	<0.010	—	0.060	1.2	<10
12N-03E-36 ADD 1	07-14-88	1130	<0.010	0.560	0.020	0.20	0.020	0.8	<10
13N-03E-13 DDD 1	06-16-88	945	0.020	5.10	0.030	0.70	0.040	2.5	<10
13N-03E-35 BBB 1	06-15-88	1200	<0.010	0.880	<0.010	0.30	<0.010	1.7	20
13N-04E-31 DDD 1	07-14-88	915	<0.050	0.330	<0.010	0.20	0.010	0.9	<10
14N-02E-26 ADD 1	07-13-88	1330	<0.010	<0.100	0.040	0.20	0.010	0.9	10
14N-03E-13 BBB 1	07-12-88	1115	<0.010	0.770	<0.010	0.20	0.010	0.8	<10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
09N-02W-32 CCC 1	04-25-88	1100	1	14	42	<0.5	3,500	<1.0	10
09N-03W-11 AAC 1	07-31-87	1530	—	44	87	0.5	1,000	<1.0	30
09N-03W-18 DDA 1	06-09-89	1330	<1	<1	450	<0.5	240	1.0	<5
09N-03W-23 CBC 1	08-03-87	1100	—	14	16	<0.5	4,900	<1.0	<1
09N-03W-23 CBC 1	08-03-87	1200	—	13	15	<0.5	4,900	<1.0	<1
09N-03W-34 BCC 1	06-12-89	1330	<1	<1	650	<0.5	230	<1.0	<5
10N-01W-20 CDD 1	06-01-88	1245	<1	2	560	<0.5	30	<1.0	<5
10N-01W-36 BBB 1	10-07-87	1200	—	<1	510	<0.5	140	<1.0	2
10N-02W-25 CDC 1	07-12-88	845	<1	<1	770	<0.5	70	<1.0	<5
10N-02W-36 CCC 1	10-15-87	1300	—	<1	310	<0.5	170	<1.0	4
10N-02W-36 CCC 2	10-22-87	1600	—	28	52	<0.5	1,100	<1.0	80
10N-03W-12 BCD 1	04-19-88	1130	<1	8	140	<0.5	510	<1.0	40
10N-03W-13 BBD 1	04-19-88	900	<1	32	180	1	1,000	<1.0	60
10N-03W-22 DAD 1	08-04-87	1030	—	19	220	1	1,100	<1.0	70
10N-03W-30 BAB 1	06-09-89	1000	<1	<1	350	<0.5	120	<1.0	<5
10N-04W-11 AAA 1	08-06-87	1400	—	43	62	0.7	830	<1.0	20
10N-04W-25 CBC 1	06-06-89	945	<1	<1	160	<0.5	630	<1.0	<5
LINCOLN COUNTY									
12N-02E-06 ADD 1	05-24-88	1030	<1	<1	210	<0.5	40	<1.0	<5
12N-02E-29 CBC 1	06-19-89	1000	<1	<1	270	<0.5	30	<1.0	<5
12N-03E-10 BAB 1	07-25-89	945	<1	1	<5	<3	9,600	<5.0	<30
12N-03E-17 DAC 1	09-15-87	1200	—	<1	44	<0.5	210	<1.0	2
12N-03E-36 ADD 1	07-14-88	1130	<1	1	120	<0.5	690	<1.0	<5
13N-03E-13 DDD 1	06-16-88	945	3	<1	130	<0.5	200	<1.0	<5
13N-03E-35 BBB 1	06-15-88	1200	<1	1	210	<0.5	1,000	<1.0	<5
13N-04E-31 DDD 1	07-14-88	915	<1	<1	550	<0.5	270	<1.0	<5
14N-02E-26 ADD 1	07-13-88	1330	<1	1	30	<0.5	7,200	<1.0	<5
14N-03E-13 BBB 1	07-12-88	1115	<1	3	180	<0.5	1,400	<1.0	<5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
09N-02W-32 CCC 1	04-25-88	1100	13	<3	<10	4	<10	13	1
09N-03W-11 AAC 1	07-31-87	1530	—	<3	<10	<3	10	<4	<1
09N-03W-18 DDA 1	06-09-89	1330	—	<3	<10	1,500	<10	33	360
09N-03W-23 CBC 1	08-03-87	1100	—	<3	<10	36	20	28	<1
09N-03W-23 CBC 1	08-03-87	1200	—	<3	<10	36	<10	25	1
09N-03W-34 BCC 1	06-12-89	1330	—	<3	<10	1,600	<10	27	440
10N-01W-20 CDD 1	06-01-88	1245	2	<3	20	4	<10	19	<1
10N-01W-36 BBB 1	10-07-87	1200	—	<3	<10	6	<10	15	7
10N-02W-25 CDC 1	07-12-88	845	<1	<3	<10	<3	<10	22	<1
10N-02W-36 CCC 1	10-15-87	1300	—	<3	<10	<3	20	23	<1
10N-02W-36 CCC 2	10-22-87	1600	—	<3	30	10	20	10	9
10N-03W-12 BCD 1	04-19-88	1130	47	<3	<10	<3	<10	7	<1
10N-03W-13 BBD 1	04-19-88	900	65	<3	<10	<3	<10	8	<1
10N-03W-22 DAD 1	08-04-87	1030	—	<3	<10	<3	<10	17	<1
10N-03W-30 BAB 1	06-09-89	1000	—	<3	<10	9	<10	22	<1
10N-04W-11 AAA 1	08-06-87	1400	—	<3	<10	<3	<10	6	<1
10N-04W-25 CBC 1	06-06-89	945	—	<3	<10	2,000	<10	38	460
LINCOLN COUNTY									
12N-02E-06 ADD 1	05-24-88	1030	1	<3	<10	<3	<10	14	<1
12N-02E-29 CBC 1	06-19-89	1000	—	<3	<10	<3	<10	14	<1
12N-03E-10 BAB 1	07-25-89	945	—	<20	<50	27	<50	48	19
12N-03E-17 DAC 1	09-15-87	1200	—	<3	10	6	<10	9	<1
12N-03E-36 ADD 1	07-14-88	1130	<1	<3	<10	5	<10	5	<1
13N-03E-13 DDD 1	06-16-88	945	<1	<3	<10	79	<10	11	2
13N-03E-35 BBB 1	06-15-88	1200	1	<3	<10	<3	<10	34	10
13N-04E-31 DDD 1	07-14-88	915	2	<3	<10	32	<10	14	2
14N-02E-26 ADD 1	07-13-88	1330	<1	<3	<10	16	<10	12	2
14N-03E-13 BBB 1	07-12-88	1115	<1	<3	<10	<3	<10	11	2

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
09N-02W-32 CCC 1	04-25-88	1100	<0.1	40	<10	150	<1.0	110	250	3
09N-03W-11 AAC 1	07-31-87	1530	—	<10	<10	18	<1.0	38	180	<3
09N-03W-18 DDA 1	06-09-89	1330	<0.1	10	<10	<1	<1.0	1,600	<6	7
09N-03W-23 CBC 1	08-03-87	1100	—	40	<10	<1	<1.0	97	7	<3
09N-03W-23 CBC 1	08-03-87	1200	—	40	<10	<1	<1.0	97	<6	<3
09N-03W-34 BCC 1	06-12-89	1330	<0.1	<10	<10	<1	<1.0	1,500	<6	6
10N-01W-20 CDD 1	06-01-88	1245	<0.1	<10	<10	<1	<1.0	110	15	19
10N-01W-36 BBB 1	10-07-87	1200	—	<10	<10	10	<1.0	530	7	7
10N-02W-25 CDC 1	07-12-88	845	<0.1	<10	<10	<1	<1.0	190	<6	<3
10N-02W-36 CCC 1	10-15-87	1300	—	<10	<10	2	<1.0	500	<6	4
10N-02W-36 CCC 2	10-22-87	1600	—	<10	<10	31	<1.0	210	270	<3
10N-03W-12 BCD 1	04-19-88	1130	<0.1	<10	<10	4	<1.0	290	94	<3
10N-03W-13 BBD 1	04-19-88	900	<0.1	<10	<10	29	<1.0	360	400	<3
10N-03W-22 DAD 1	08-04-87	1030	—	<10	<10	63	<1.0	460	220	<3
10N-03W-30 BAB 1	06-09-89	1000	<0.1	<10	<10	2	<1.0	1,300	<6	7
10N-04W-11 AAA 1	08-06-87	1400	—	<10	<10	7	<1.0	41	210	<3
10N-04W-25 CBC 1	06-06-89	945	<0.1	<10	<10	<1	<1.0	2,200	<6	8
LINCOLN COUNTY										
12N-02E-06 ADD 1	05-24-88	1030	<0.1	<10	<10	<1	<1.0	95	<6	<3
12N-02E-29 CBC 1	06-19-89	1000	<0.1	<10	<10	<1	<1.0	180	<6	<3
12N-03E-10 BAB 1	07-25-89	945	<0.1	<50	<50	<1	5.0	2,100	<30	22
12N-03E-17 DAC 1	09-15-87	1200	—	<10	<10	<1	<1.0	250	7	<3
12N-03E-36 ADD 1	07-14-88	1130	<0.1	<10	<10	<1	<1.0	21	21	7
13N-03E-13 DDD 1	06-16-88	945	<0.1	<10	<10	2	1.0	360	<6	28
13N-03E-35 BBB 1	06-15-88	1200	<0.1	<10	<10	1	<1.0	850	39	130
13N-04E-31 DDD 1	07-14-88	915	<0.1	<10	<10	2	<1.0	320	<6	23
14N-02E-26 ADD 1	07-13-88	1330	0.2	30	<10	<1	<1.0	150	<6	9
14N-03E-13 BBB 1	07-12-88	1115	<0.1	<10	40	22	<1.0	220	130	6

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
14N-04E-33 CAB 1	07-24-89	1000	353840096531101	155	91	5.8	16.5	0.5	31
14N-04E-33 CAB 1	07-24-89	1100	353840096531101	155	91	5.8	16.5	0.5	29
15N-02E-10 CCB 1	06-29-88	930	354706097051001	182	1,090	9.0	19.0	6.8	7
15N-02E-12 BCC 1	09-23-87	1130	354725097030501	183	413	6.8	17.5	7.4	120
15N-02E-14 AAA 1	04-05-88	1300	354654097030801	181	678	9.0	17.5	0	5
15N-02E-14 ADA 1	07-06-88	1000	354637097030801	180	752	9.2	17.5	0.4	4
15N-02E-14 ADA 1	07-06-88	1100	354637097030801	180	752	9.2	17.5	0.4	4
15N-02E-14 ADD 1	08-21-87	1200	354633097030801	179	756	9.1	17.5	0.6	5
15N-03E-05 BAC 1	04-12-88	930	354844097004501	187	608	7.6	18.0	3.5	210
16N-02E-22 DAA 1	06-28-88	1000	355039097041401	191	2,350	7.5	17.0	0.2	530
16N-03E-01 DAA 1	05-31-88	1030	355326096554901	200	591	7.5	16.5	8.7	260
16N-03E-11 CCC 1	04-05-88	1100	355214096574801	198	460	7.9	18.0	2.0	94
16N-03E-31 ADA 1	06-28-88	1200	354914097010901	188	773	7.4	17.5	5.5	370
17N-02E-19 CCC 1	06-20-88	1215	355544097082301	203	676	7.3	16.0	0.7	350
17N-02E-32 BBB 1	06-20-88	1015	355444097071301	201	696	7.6	17.0	7.5	260
17N-03E-34 BBA 1	06-16-88	1200	355446096583601	202	281	7.9	17.0	8.5	110
LOGAN COUNTY									
15N-01W-21 BBA 1	05-18-88	1000	354605097185901	175	1,300	7.2	17.0	11.0	530
15N-02W-13 CAB 1	09-21-87	1400	354631097215501	178	428	7.0	16.5	8.9	190
15N-02W-26 AAA 1	04-13-88	930	354514097222101	174	525	7.4	17.0	4.3	270
15N-02W-30 AAD 1	04-13-88	1130	354506097263601	173	519	7.4	17.0	10.0	260
15N-03W-01 CAA 1	08-19-87	1130	354817097281101	186	552	7.4	17.0	9.4	230
15N-03W-03 DDD 1	05-12-88	1100	354758097295201	185	1,050	8.3	17.5	6.8	88
15N-03W-16 CCB 1	06-29-88	1300	354620097315201	177	1,040	7.3	18.0	9.2	480
15N-03W-20 AAA 1	05-26-88	1030	354606097315601	176	580	7.3	17.5	6.9	280
15N-03W-20 AAA 1	05-26-88	1130	354606097315601	176	580	7.3	17.5	6.9	290
15N-03W-34 DDC 1	04-06-88	1100	354332097295301	171	494	7.4	17.5	6.7	220
15N-04W-05 CCC 1	06-29-88	1500	354755097392001	184	2,210	7.0	18.0	3.6	810

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
14N-04E-33 CAB 1	07-24-89	1000	22	73	6.4	3.5	5.4	27	1.3
14N-04E-33 CAB 1	07-24-89	1100	22	71	6.1	3.4	5.4	27	1.4
15N-02E-10 CCB 1	06-29-88	930	478	675	1.7	0.74	270	99	0.70
15N-02E-12 BCC 1	09-23-87	1130	102	254	25	15	34	37	0.80
15N-02E-14 AAA 1	04-05-88	1300	400	473	1.1	0.42	190	99	0.50
15N-02E-14 ADA 1	07-06-88	1000	385	463	1.0	0.33	190	99	0.40
15N-02E-14 ADA 1	07-06-88	1100	385	445	1.0	0.38	180	99	0.40
15N-02E-14 ADD 1	08-21-87	1200	384	460	1.1	0.48	190	99	0.40
15N-03E-05 BAC 1	04-12-88	930	296	358	37	28	57	37	3.3
16N-02E-22 DAA 1	06-28-88	1000	380	1,510	89	73	290	55	2.7
16N-03E-01 DAA 1	05-31-88	1030	259	339	49	33	31	21	2.3
16N-03E-11 CCC 1	04-05-88	1100	266	325	17	12	90	67	2.1
16N-03E-31 ADA 1	06-28-88	1200	370	445	67	48	39	19	2.4
17N-02E-19 CCC 1	06-20-88	1215	294	435	62	48	22	12	0.80
17N-02E-32 BBB 1	06-20-88	1015	317	422	54	31	62	34	1.0
17N-03E-34 BBA 1	06-16-88	1200	132	169	22	14	16	23	1.3
LOGAN COUNTY									
15N-01W-21 BBA 1	05-18-88	1000	366	723	100	69	66	21	1.1
15N-02W-13 CAB 1	09-21-87	1400	170	263	42	20	25	22	0.40
15N-02W-26 AAA 1	04-13-88	930	270	309	64	27	13	9	1.0
15N-02W-30 AAD 1	04-13-88	1130	262	299	58	28	15	11	0.90
15N-03W-01 CAA 1	08-19-87	1130	244	317	61	19	30	22	0.70
15N-03W-03 DDD 1	05-12-88	1100	222	630	19	9.8	200	83	1.1
15N-03W-16 CCB 1	06-29-88	1300	270	733	120	43	60	21	0.50
15N-03W-20 AAA 1	05-26-88	1030	286	349	74	24	19	13	0.40
15N-03W-20 AAA 1	05-26-88	1130	286	350	75	24	19	13	0.50
15N-03W-34 DDC 1	04-06-88	1100	258	299	52	22	25	20	1.0
15N-04W-05 CCC 1	06-29-88	1500	365	1,520	240	51	180	33	2.2

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
14N-04E-33 CAB 1	07-24-89	1000	27	0	9.0	6.2	0.10	0.060	22
14N-04E-33 CAB 1	07-24-89	1100	27	0	9.0	6.3	0.10	0.050	22
15N-02E-10 CCB 1	06-29-88	930	509	36	71	21	3.9	0.098	9.8
15N-02E-12 BCC 1	09-23-87	1130	124	0	49	30	0.30	0.24	16
15N-02E-14 AAA 1	04-05-88	1300	419	34	18	9.4	0.60	0.037	9.7
15N-02E-14 ADA 1	07-06-88	1000	403	33	18	8.7	0.80	0.039	9.5
15N-02E-14 ADA 1	07-06-88	1100	403	33	17	1.7	0.50	0.047	9.6
15N-02E-14 ADD 1	08-21-87	1200	405	31	13	11	0.50	0.038	9.7
15N-03E-05 BAC 1	04-12-88	930	361	0	12	14	0.30	0.047	20
16N-02E-22 DAA 1	06-28-88	1000	464	0	240	190	0.90	1.3	14
16N-03E-01 DAA 1	05-31-88	1030	315	0	12	32	0.40	0.15	20
16N-03E-11 CCC 1	04-05-88	1100	329	0	11	12	0.30	0.041	14
16N-03E-31 ADA 1	06-28-88	1200	451	0	13	30	0.30	0.10	21
17N-02E-19 CCC 1	06-20-88	1215	359	0	43	9.5	0.80	0.15	31
17N-02E-32 BBB 1	06-20-88	1015	387	0	27	32	0.50	0.28	19
17N-03E-34 BBA 1	06-16-88	1200	161	0	7.8	7.9	0.30	0.070	14
LOGAN COUNTY									
15N-01W-21 BBA 1	05-18-88	1000	446	0	28	170	0.40	0.26	19
15N-02W-13 CAB 1	09-21-87	1400	207	0	23	26	0.30	0.36	21
15N-02W-26 AAA 1	04-13-88	930	329	0	7.4	9.2	0.40	0.089	23
15N-02W-30 AAD 1	04-13-88	1130	320	0	7.2	9.9	0.40	0.074	21
15N-03W-01 CAA 1	08-19-87	1130	298	0	27	12	0.70	0.37	19
15N-03W-03 DDD 1	05-12-88	1100	271	0	130	120	0.40	0.17	12
15N-03W-16 CCB 1	06-29-88	1300	329	0	65	85	0.60	0.48	19
15N-03W-20 AAA 1	05-26-88	1030	349	0	9.5	10	0.50	0.18	21
15N-03W-20 AAA 1	05-26-88	1130	349	0	9.5	12	0.40	0.18	21
15N-03W-34 DDC 1	04-06-88	1100	315	0	8.1	11	0.20	0.032	22
15N-04W-05 CCC 1	06-29-88	1500	445	0	350	280	0.30	0.44	36

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
14N-04E-33 CAB 1	07-24-89	1000	<0.010	1.10	<0.010	<0.20	0.010	0.4	30
14N-04E-33 CAB 1	07-24-89	1100	<0.010	0.910	<0.010	2.4	<0.010	0.4	10
15N-02E-10 CCB 1	06-29-88	930	<0.010	0.240	0.030	<0.20	0.040	2.2	70
15N-02E-12 BCC 1	09-23-87	1130	<0.010	5.10	<0.010	—	0.020	0.8	<10
15N-02E-14 AAA 1	04-05-88	1300	0.010	0.240	0.020	<0.20	0.030	0.4	<10
15N-02E-14 ADA 1	07-06-88	1000	0.020	0.160	0.030	<0.20	0.040	0.8	10
15N-02E-14 ADA 1	07-06-88	1100	0.020	0.150	0.010	<0.20	0.030	0.9	<10
15N-02E-14 ADD 1	08-21-87	1200	<0.010	0.270	<0.010	—	0.020	1.0	<10
15N-03E-05 BAC 1	04-12-88	930	<0.010	0.970	<0.010	0.20	<0.010	1.1	<10
16N-02E-22 DAA 1	06-28-88	1000	0.010	85.0	0.080	0.40	<0.010	2.8	<10
16N-03E-01 DAA 1	05-31-88	1030	<0.010	0.660	<0.010	<0.20	0.030	1.1	<10
16N-03E-11 CCC 1	04-05-88	1100	<0.010	0.400	<0.010	<0.20	<0.010	0.8	<10
16N-03E-31 ADA 1	06-28-88	1200	<0.010	<0.100	<0.010	0.60	<0.010	1.1	<10
17N-02E-19 CCC 1	06-20-88	1215	<0.010	9.00	0.030	0.80	0.160	1.1	<10
17N-02E-32 BBB 1	06-20-88	1015	<0.010	0.870	0.030	0.60	0.010	0.9	30
17N-03E-34 BBA 1	06-16-88	1200	<0.010	1.10	<0.010	<0.20	0.010	0.8	<10
LOGAN COUNTY									
15N-01W-21 BBA 1	05-18-88	1000	<0.010	11.0	0.040	0.40	0.070	1.5	<10
15N-02W-13 CAB 1	09-21-87	1400	<0.010	0.610	<0.010	—	0.030	1.3	<10
15N-02W-26 AAA 1	04-13-88	930	<0.010	0.270	<0.010	<0.20	<0.010	0.5	<10
15N-02W-30 AAD 1	04-13-88	1130	<0.010	0.160	<0.010	0.20	<0.010	0.5	<10
15N-03W-01 CAA 1	08-19-87	1130	<0.010	<0.100	<0.010	—	<0.010	1.8	<10
15N-03W-03 DDD 1	05-12-88	1100	<0.010	0.490	<0.010	—	<0.010	0.4	<10
15N-03W-16 CCB 1	06-29-88	1300	<0.010	40.0	0.040	0.50	0.010	—	<10
15N-03W-20 AAA 1	05-26-88	1030	<0.010	4.00	0.010	<0.20	0.010	1.1	<10
15N-03W-20 AAA 1	05-26-88	1130	<0.010	3.50	<0.010	0.40	0.010	—	<10
15N-03W-34 DDC 1	04-06-88	1100	<0.010	0.370	<0.010	<0.20	<0.010	0.5	<10
15N-04W-05 CCC 1	06-29-88	1500	<0.010	36.0	0.090	0.60	0.040	1.9	<10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
14N-04E-33 CAB 1	07-24-89	1000	<1	<1	220	<0.5	40	<1.0	<5
14N-04E-33 CAB 1	07-24-89	1100	<1	<1	210	<0.5	40	<1.0	<5
15N-02E-10 CCB 1	06-29-88	930	1	4	15	<0.5	8,000	<1.0	7
15N-02E-12 BCC 1	09-23-87	1130	—	<1	54	<0.5	80	<1.0	<1
15N-02E-14 AAA 1	04-05-88	1300	1	15	61	0.7	1,900	<1.0	10
15N-02E-14 ADA 1	07-06-88	1000	1	22	90	2	1,600	<1.0	7
15N-02E-14 ADA 1	07-06-88	1100	2	23	92	3	1,600	1.0	10
15N-02E-14 ADD 1	08-21-87	1200	—	18	150	2	1,400	<1.0	20
15N-03E-05 BAC 1	04-12-88	930	<1	<1	390	<0.5	430	<1.0	6
16N-02E-22 DAA 1	06-28-88	1000	<1	1	31	2	3,100	<1.0	<5
16N-03E-01 DAA 1	05-31-88	1030	<1	<1	240	<0.5	150	<1.0	<5
16N-03E-11 CCC 1	04-05-88	1100	<1	1	280	<0.5	640	<1.0	10
16N-03E-31 ADA 1	06-28-88	1200	<1	<1	370	<0.5	370	<1.0	<5
17N-02E-19 CCC 1	06-20-88	1215	1	1	210	<0.5	190	<1.0	<5
17N-02E-32 BBB 1	06-20-88	1015	<1	1	270	<0.5	140	<1.0	<5
17N-03E-34 BBA 1	06-16-88	1200	<1	<1	240	<0.5	70	<1.0	<5
LOGAN COUNTY									
15N-01W-21 BBA 1	05-18-88	1000	1	<1	350	<0.5	120	<1.0	<5
15N-02W-13 CAB 1	09-21-87	1400	—	<1	84	<0.5	50	<1.0	<1
15N-02W-26 AAA 1	04-13-88	930	<1	2	770	<0.5	50	<1.0	<5
15N-02W-30 AAD 1	04-13-88	1130	<1	<1	510	<0.5	50	<1.0	<5
15N-03W-01 CAA 1	08-19-87	1130	—	1	190	<0.5	60	<1.0	<1
15N-03W-03 DDD 1	05-12-88	1100	<1	9	70	<0.5	1,000	<1.0	40
15N-03W-16 CCB 1	06-29-88	1300	<1	1	150	<0.5	70	<1.0	<5
15N-03W-20 AAA 1	05-26-88	1030	<1	2	590	<0.5	60	<1.0	<5
15N-03W-20 AAA 1	05-26-88	1130	<1	2	610	<0.5	60	<1.0	<5
15N-03W-34 DDC 1	04-06-88	1100	<1	1	350	<0.5	80	<1.0	<5
15N-04W-05 CCC 1	06-29-88	1500	<1	3	97	<0.5	400	<1.0	<5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
14N-04E-33 CAB 1	07-24-89	1000	—	<3	<10	19	<10	<4	28
14N-04E-33 CAB 1	07-24-89	1100	—	<3	<10	8	<10	5	28
15N-02E-10 CCB 1	06-29-88	930	7	<3	80	11	<10	5	2
15N-02E-12 BCC 1	09-23-87	1130	—	<3	<10	9	<10	<4	1
15N-02E-14 AAA 1	04-05-88	1300	16	<3	<10	4	<10	<4	<1
15N-02E-14 ADA 1	07-06-88	1000	9	<3	<10	3	<10	4	<1
15N-02E-14 ADA 1	07-06-88	1100	8	<3	<10	4	<10	<4	1
15N-02E-14 ADD 1	08-21-87	1200	—	<3	<10	<3	<10	<4	<1
15N-03E-05 BAC 1	04-12-88	930	<1	<3	<10	18	<10	20	2
16N-02E-22 DAA 1	06-28-88	1000	1	<3	<10	22	<10	33	6
16N-03E-01 DAA 1	05-31-88	1030	2	<3	<10	<3	<10	12	<1
16N-03E-11 CCC 1	04-05-88	1100	13	<3	<10	4	<10	8	<1
16N-03E-31 ADA 1	06-28-88	1200	1	<3	<10	10	<10	25	1
17N-02E-19 CCC 1	06-20-88	1215	<1	<3	<10	12	<10	11	68
17N-02E-32 BBB 1	06-20-88	1015	<1	<3	<10	6	<10	12	<1
17N-03E-34 BBA 1	06-16-88	1200	<1	<3	<10	<3	<10	7	<1
LOGAN COUNTY									
15N-01W-21 BBA 1	05-18-88	1000	<1	<3	<10	49	<10	17	2
15N-02W-13 CAB 1	09-21-87	1400	—	<3	<10	4	<10	6	<1
15N-02W-26 AAA 1	04-13-88	930	<1	<3	<10	3	<10	10	<1
15N-02W-30 AAD 1	04-13-88	1130	<1	<3	<10	13	<10	9	6
15N-03W-01 CAA 1	08-19-87	1130	—	<3	<10	6	<10	6	1
15N-03W-03 DDD 1	05-12-88	1100	37	<3	<10	4	<10	12	<1
15N-03W-16 CCB 1	06-29-88	1300	1	<3	<10	4	<10	17	<1
15N-03W-20 AAA 1	05-26-88	1030	1	<3	<10	<3	<10	10	<1
15N-03W-20 AAA 1	05-26-88	1130	<1	<3	<10	<3	<10	9	<1
15N-03W-34 DDC 1	04-06-88	1100	3	<3	<10	<3	<10	24	<1
15N-04W-05 CCC 1	06-29-88	1500	1	<3	<10	<3	<10	39	<1

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
14N-04E-33 CAB 1	07-24-89	1000	<0.1	<10	<10	<1	<1.0	57	<6	9
14N-04E-33 CAB 1	07-24-89	1100	<0.1	<10	<10	<1	<1.0	55	<6	<3
15N-02E-10 CCB 1	06-29-88	930	<0.1	20	<10	18	<1.0	78	49	<3
15N-02E-12 BCC 1	09-23-87	1130	—	<10	<10	1	<1.0	170	<6	8
15N-02E-14 AAA 1	04-05-88	1300	<0.1	<10	<10	20	<1.0	100	260	3
15N-02E-14 ADA 1	07-06-88	1000	<0.1	<10	<10	11	<1.0	130	490	4
15N-02E-14 ADA 1	07-06-88	1100	<0.1	<10	<10	11	<1.0	130	490	3
15N-02E-14 ADD 1	08-21-87	1200	—	<10	<10	26	2.0	210	210	6
15N-03E-05 BAC 1	04-12-88	930	<0.1	<10	<10	5	<1.0	3,600	27	23
16N-02E-22 DAA 1	06-28-88	1000	0.2	<10	<10	2	<1.0	3,800	230	360
16N-03E-01 DAA 1	05-31-88	1030	<0.1	<10	<10	<1	<1.0	720	8	<3
16N-03E-11 CCC 1	04-05-88	1100	<0.1	<10	<10	20	<1.0	1,500	85	3
16N-03E-31 ADA 1	06-28-88	1200	<0.1	<10	<10	3	<1.0	1,400	21	39
17N-02E-19 CCC 1	06-20-88	1215	<0.1	<10	<10	4	<1.0	350	9	7
17N-02E-32 BBB 1	06-20-88	1015	<0.1	<10	<10	2	1.0	310	14	130
17N-03E-34 BBA 1	06-16-88	1200	<0.1	<10	<10	2	1.0	840	7	20
LOGAN COUNTY										
15N-01W-21 BBA 1	05-18-88	1000	<0.1	<10	<10	<1	<1.0	510	<6	7
15N-02W-13 CAB 1	09-21-87	1400	—	<10	<10	<1	2.0	110	<6	16
15N-02W-26 AAA 1	04-13-88	930	<0.1	<10	<10	<1	<1.0	190	12	40
15N-02W-30 AAD 1	04-13-88	1130	0.4	<10	<10	<1	<1.0	260	7	<3
15N-03W-01 CAA 1	08-19-87	1130	—	<10	<10	<1	<1.0	130	9	12
15N-03W-03 DDD 1	05-12-88	1100	0.1	<10	<10	13	1.0	510	95	3
15N-03W-16 CCB 1	06-29-88	1300	<0.1	<10	<10	2	2.0	340	<6	13
15N-03W-20 AAA 1	05-26-88	1030	<0.1	<10	<10	<1	<1.0	330	7	8
15N-03W-20 AAA 1	05-26-88	1130	<0.1	<10	<10	<1	<1.0	340	7	13
15N-03W-34 DDC 1	04-06-88	1100	<0.1	<10	<10	<1	<1.0	340	13	<3
15N-04W-05 CCC 1	06-29-88	1500	<0.1	<10	<10	5	1.0	2,600	10	8

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
16N–01E–13 BAA 1	05–23–88	1100	355206097090101	197	528	7.0	15.5	8.2	260
16N–01E–29 BCD 1	07–07–89	915	355005097133401	190	670	7.3	17.0	3.2	320
16N–01W–18 DDA 1	07–07–88	930	355141097201401	196	723	7.4	17.5	7.4	280
16N–01W–27 CBB 1	07–13–88	1130	354959097175901	189	805	7.1	17.0	1.7	420
16N–02W–06 DBC 1	05–25–88	1330	355321097270301	199	472	7.3	17.5	3.8	230
16N–02W–22 AAB 1	07–13–88	915	355120097233001	195	206	6.5	17.0	8.3	90
16N–02W–22 ADD 1	05–17–88	1100	355058097233001	193	469	7.8	18.5	7.0	120
16N–03W–23 DAA 1	05–25–88	1030	355052097284301	192	725	7.3	18.0	8.4	330
17N–01W–21 ACB 1	07–07–88	1145	355614097183001	204	1,390	7.2	19.5	8.4	460
OKLAHOMA COUNTY									
11N–01E–11 CBC 1	07–08–88	1145	352622097103401	80	335	6.2	17.5	6.8	120
11N–01E–12 ADA 1	06–22–88	1300	352639097083401	82	273	6.7	17.0	6.6	140
11N–01W–03 CDD 1	05–16–88	1130	352705097175401	84	252	6.6	17.0	7.1	120
11N–01W–05 AAD 1	09–17–87	1200	352738097191001	85	387	6.1	17.0	8.0	160
11N–01W–05 ABA 1	08–11–87	1000	352749097192301	20	380	7.6	17.0	5.4	200
11N–01W–05 ABA 1	04–26–88	1400	352749097192301	20	381	7.6	17.0	5.9	200
11N–02W–06 AAA 1	11–18–88	1500	352750097263601	88	860	7.2	17.0	4.5	400
11N–02W–14 DDC 1	04–26–88	1000	352519097222501	70	493	7.8	18.0	8.6	170
11N–02W–17 CBC 1	11–18–88	1145	352531097262101	73	6,160	6.8	17.5	7.4	1,800
11N–02W–18 CDD 1	08–10–87	1200	352518097270601	69	529	7.6	18.0	6.5	250
11N–02W–20 CCB 1	11–18–88	945	352433097262401	66	1,190	7.0	17.0	8.4	510
11N–03W–01 ABD 1	11–16–88	1000	352740097275301	86	429	7.6	17.5	7.7	210
11N–03W–04 BBB 1	11–10–88	945	352749097314101	87	1,950	7.1	19.0	0	820
11N–03W–09 CBA 1	11–14–88	1330	352631097313101	81	1,080	7.2	17.0	4.0	450
11N–03W–13 CDD 1	11–10–88	1245	352520097280601	71	409	7.6	17.0	8.2	220
11N–03W–15 CBA 1	11–30–88	1130	352535097303301	74	5,180	6.9	17.0	2.5	1,600
11N–03W–18 ADC 1	11–14–88	1500	352541097330301	75	1,890	7.0	18.0	2.9	750
11N–03W–21 ABA 1	11–09–88	1415	352509097310101	67	1,050	7.1	17.0	E5.6	420
11N–04W–14 BBA 1	11–15–88	1530	352605097354801	78	1,730	7.4	16.5	6.6	390

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
16N-01E-13 BAA 1	05-23-88	1100	218	320	54	30	16	12	0.40
16N-01E-29 BCD 1	07-07-89	915	374	401	62	40	32	18	1.8
16N-01W-18 DDA 1	07-07-88	930	281	426	62	30	50	28	1.4
16N-01W-27 CBB 1	07-13-88	1130	446	483	85	49	30	14	1.1
16N-02W-06 DBC 1	05-25-88	1330	218	283	59	21	12	10	0.40
16N-02W-22 AAB 1	07-13-88	915	79	126	20	9.6	7.4	15	0.70
16N-02W-22 ADD 1	05-17-88	1100	200	290	27	13	62	53	0.70
16N-03W-23 DAA 1	05-25-88	1030	214	450	94	22	20	12	0.50
17N-01W-21 ACB 1	07-07-88	1145	376	827	85	59	130	38	1.1
				OKLAHOMA COUNTY					
11N-01E-11 CBC 1	07-08-88	1145	56	195	29	12	16	22	1.6
11N-01E-12 ADA 1	06-22-88	1300	130	167	31	14	8.8	12	1.2
11N-01W-03 CDD 1	05-16-88	1130	120	151	29	12	6.8	11	0.70
11N-01W-05 AAD 1	09-17-87	1200	86	237	36	17	15	17	0.90
11N-01W-05 ABA 1	08-11-87	1000	188	213	44	21	6.0	6	1.4
11N-01W-05 ABA 1	04-26-88	1400	188	215	44	22	5.8	6	1.4
11N-02W-06 AAA 1	11-18-88	1500	398	532	95	39	49	21	1.4
11N-02W-14 DDC 1	04-26-88	1000	226	282	39	18	45	36	1.1
11N-02W-17 CBC 1	11-18-88	1145	268	3,140	380	210	500	37	1.6
11N-02W-18 CDD 1	08-10-87	1200	214	292	48	31	16	12	2.4
11N-02W-20 CCB 1	11-18-88	945	318	661	110	57	52	18	0.70
11N-03W-01 ABD 1	11-16-88	1000	210	250	44	23	17	15	1.3
11N-03W-04 BBB 1	11-10-88	945	482	1,270	200	78	130	26	4.3
11N-03W-09 CBA 1	11-14-88	1330	316	623	110	43	55	21	1.4
11N-03W-13 CDD 1	11-10-88	1245	212	241	45	26	12	11	1.4
11N-03W-15 CBA 1	11-30-88	1130	310	2,700	350	160	400	36	2.0
11N-03W-18 ADC 1	11-14-88	1500	540	1,280	170	76	170	33	0.90
11N-03W-21 ABA 1	11-09-88	1415	372	659	99	42	78	29	0.70
11N-04W-14 BBA 1	11-15-88	1530	376	1,060	98	35	230	56	2.5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
16N-01E-13 BAA 1	05-23-88	1100	266	0	25	17	0.30	0.18	19
16N-01E-29 BCD 1	07-07-89	915	456	0	5.0	8.5	0.20	0.040	24
16N-01W-18 DDA 1	07-07-88	930	343	0	40	46	2.6	0.11	21
16N-01W-27 CBB 1	07-13-88	1130	544	0	18	8.5	0.20	0.15	20
16N-02W-06 DBC 1	05-25-88	1330	266	0	18	8.9	0.60	0.057	22
16N-02W-22 AAB 1	07-13-88	915	96	0	18	5.3	0.10	0.035	15
16N-02W-22 ADD 1	05-17-88	1100	244	0	22	17	0.40	0.069	17
16N-03W-23 DAA 1	05-25-88	1030	261	0	27	30	0.30	0.31	20
17N-01W-21 ACB 1	07-07-88	1145	459	0	130	160	0.50	0.44	23
OKLAHOMA COUNTY									
11N-01E-11 CBC 1	07-08-88	1145	68	0	31	29	<0.10	0.15	16
11N-01E-12 ADA 1	06-22-88	1300	159	0	5.5	8.5	0.20	0.12	15
11N-01W-03 CDD 1	05-16-88	1130	146	0	3.3	8.0	0.30	0.079	16
11N-01W-05 AAD 1	09-17-87	1200	105	0	22	29	0.10	0.15	22
11N-01W-05 ABA 1	08-11-87	1000	229	0	5.2	9.7	0.20	0.081	11
11N-01W-05 ABA 1	04-26-88	1400	229	0	5.9	9.6	0.20	0.051	11
11N-02W-06 AAA 1	11-18-88	1500	486	0	17	23	0.20	0.12	23
11N-02W-14 DDC 1	04-26-88	1000	276	0	11	18	0.40	0.069	12
11N-02W-17 CBC 1	11-18-88	1145	327	0	12	1,800	0.20	7.3	18
11N-02W-18 CDD 1	08-10-87	1200	261	0	6.5	40	0.30	0.24	15
11N-02W-20 CCB 1	11-18-88	945	388	0	6.9	170	0.20	0.64	18
11N-03W-01 ABD 1	11-16-88	1000	256	0	7.3	11	0.20	0.054	18
11N-03W-04 BBB 1	11-10-88	945	588	0	300	230	0.70	1.2	29
11N-03W-09 CBA 1	11-14-88	1330	386	0	17	140	0.10	0.49	25
11N-03W-13 CDD 1	11-10-88	1245	259	0	6.5	5.7	0.10	0.27	15
11N-03W-15 CBA 1	11-30-88	1130	378	0	14	1,500	0.20	7.7	23
11N-03W-18 ADC 1	11-14-88	1500	659	0	380	110	0.20	0.56	21
11N-03W-21 ABA 1	11-09-88	1415	454	0	89	66	0.30	0.27	21
11N-04W-14 BBA 1	11-15-88	1530	459	0	160	230	0.40	0.96	16

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
16N-01E-13 BAA 1	05-23-88	1100	<0.010	5.90	<0.010	0.40	0.050	1.0	<10
16N-01E-29 BCD 1	07-07-89	915	<0.010	0.160	<0.010	<0.20	<0.010	0.3	<10
16N-01W-18 DDA 1	07-07-88	930	<0.010	0.850	0.050	0.60	<0.010	0.9	<10
16N-01W-27 CBB 1	07-13-88	1130	<0.010	0.350	<0.010	<0.20	0.030	1.3	<10
16N-02W-06 DBC 1	05-25-88	1330	<0.010	1.90	<0.010	<0.20	0.080	1.1	<10
16N-02W-22 AAB 1	07-13-88	915	<0.010	0.520	<0.010	0.30	0.020	1.4	<10
16N-02W-22 ADD 1	05-17-88	1100	<0.010	2.30	<0.010	0.30	0.020	0.8	<10
16N-03W-23 DAA 1	05-25-88	1030	<0.010	24.0	0.020	0.40	<0.010	1.1	<10
17N-01W-21 ACB 1	07-07-88	1145	<0.010	2.50	0.060	0.20	<0.010	1.3	<10
OKLAHOMA COUNTY									
11N-01E-11 CBC 1	07-08-88	1145	<0.010	6.00	0.030	0.40	0.030	0.9	<10
11N-01E-12 ADA 1	06-22-88	1300	<0.010	0.930	0.030	0.20	0.050	0.8	10
11N-01W-03 CDD 1	05-16-88	1130	<0.010	0.440	0.050	0.50	0.070	0.5	<10
11N-01W-05 AAD 1	09-17-87	1200	<0.010	9.60	<0.010	—	0.040	0.9	<10
11N-01W-05 ABA 1	08-11-87	1000	—	0.240	—	—	—	0.4	<10
11N-01W-05 ABA 1	04-26-88	1400	<0.010	0.290	<0.010	<0.20	<0.010	0.8	<10
11N-02W-06 AAA 1	11-18-88	1500	<0.010	10.0	0.010	1.0	0.010	—	<10
11N-02W-14 DDC 1	04-26-88	1000	<0.010	0.180	<0.010	<0.20	<0.010	0.6	<10
11N-02W-17 CBC 1	11-18-88	1145	<0.010	6.00	0.120	0.60	0.010	—	<10
11N-02W-18 CDD 1	08-10-87	1200	<0.010	0.670	<0.010	—	0.010	0.5	<10
11N-02W-20 CCB 1	11-18-88	945	<0.010	12.0	0.020	1.1	<0.010	—	<10
11N-03W-01 ABD 1	11-16-88	1000	<0.010	0.360	<0.010	0.40	<0.010	—	<10
11N-03W-04 BBB 1	11-10-88	945	0.010	0.610	0.610	0.80	0.120	—	<10
11N-03W-09 CBA 1	11-14-88	1330	<0.010	8.90	0.020	0.50	0.010	—	<10
11N-03W-13 CDD 1	11-10-88	1245	<0.010	0.150	<0.010	<0.20	<0.010	—	<10
11N-03W-15 CBA 1	11-30-88	1130	0.010	9.30	0.080	0.90	0.010	—	<10
11N-03W-18 ADC 1	11-14-88	1500	<0.010	5.00	0.040	<0.20	0.080	—	<10
11N-03W-21 ABA 1	11-09-88	1415	0.010	8.70	0.010	0.50	0.050	—	<10
11N-04W-14 BBA 1	11-15-88	1530	<0.010	12.0	0.020	1.0	0.050	—	20

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
16N-01E-13 BAA 1	05-23-88	1100	1	<1	450	<0.5	40	<1.0	<5
16N-01E-29 BCD 1	07-07-89	915	<1	<1	530	<0.5	360	<1.0	<5
16N-01W-18 DDA 1	07-07-88	930	<1	1	95	<0.5	100	<1.0	<5
16N-01W-27 CBB 1	07-13-88	1130	<1	<1	530	<0.5	160	<1.0	<5
16N-02W-06 DBC 1	05-25-88	1330	<1	<1	700	<0.5	60	<1.0	<5
16N-02W-22 AAB 1	07-13-88	915	<1	<1	77	<0.5	30	<1.0	<5
16N-02W-22 ADD 1	05-17-88	1100	<1	2	220	<0.5	290	<1.0	6
16N-03W-23 DAA 1	05-25-88	1030	<1	1	440	<0.5	50	<1.0	<5
17N-01W-21 ACB 1	07-07-88	1145	<1	1	54	<0.5	410	<1.0	<5
OKLAHOMA COUNTY									
11N-01E-11 CBC 1	07-08-88	1145	<1	<1	180	<0.5	30	<1.0	<5
11N-01E-12 ADA 1	06-22-88	1300	<1	<1	110	<0.5	70	<1.0	<5
11N-01W-03 CDD 1	05-16-88	1130	<1	2	280	<0.5	20	<1.0	<5
11N-01W-05 AAD 1	09-17-87	1200	—	2	280	<0.5	30	<1.0	<1
11N-01W-05 ABA 1	08-11-87	1000	—	<1	430	<0.5	50	<1.0	6
11N-01W-05 ABA 1	04-26-88	1400	<1	<1	430	<0.5	50	<1.0	8
11N-02W-06 AAA 1	11-18-88	1500	<1	1	540	<0.5	110	<1.0	<5
11N-02W-14 DDC 1	04-26-88	1000	<1	8	410	<0.5	430	<1.0	20
11N-02W-17 CBC 1	11-18-88	1145	<1	2	6,400	<0.5	110	<1.0	<5
11N-02W-18 CDD 1	08-10-87	1200	—	<1	440	<0.5	90	<1.0	<1
11N-02W-20 CCB 1	11-18-88	945	<1	1	870	<0.5	80	<1.0	<5
11N-03W-01 ABD 1	11-16-88	1000	<1	<1	400	<0.5	60	1.0	8
11N-03W-04 BBB 1	11-10-88	945	<1	4	160	<0.5	330	2.0	<5
11N-03W-09 CBA 1	11-14-88	1330	<1	2	370	<0.5	120	<1.0	<5
11N-03W-13 CDD 1	11-10-88	1245	<1	<1	380	<0.5	70	2.0	1
11N-03W-15 CBA 1	11-30-88	1130	<1	<1	1,700	<0.5	90	<1.0	<5
11N-03W-18 ADC 1	11-14-88	1500	<1	1	61	<0.5	640	<1.0	<5
11N-03W-21 ABA 1	11-09-88	1415	<1	1	150	<0.5	160	3.0	<5
11N-04W-14 BBA 1	11-15-88	1530	<1	2	90	<0.5	540	<1.0	<5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
16N-01E-13 BAA 1	05-23-88	1100	2	<3	<10	<3	<10	11	<1
16N-01E-29 BCD 1	07-07-89	915	—	<3	<10	<3	<10	16	<1
16N-01W-18 DDA 1	07-07-88	930	3	<3	<10	<3	<10	21	<1
16N-01W-27 CBB 1	07-13-88	1130	<1	<3	<10	13	<10	19	2
16N-02W-06 DBC 1	05-25-88	1330	1	<3	10	<3	<10	13	<1
16N-02W-22 AAB 1	07-13-88	915	<1	<3	10	78	<10	5	6
16N-02W-22 ADD 1	05-17-88	1100	4	<3	<10	<3	<10	6	<1
16N-03W-23 DAA 1	05-25-88	1030	1	<3	<10	7	<10	12	1
17N-01W-21 ACB 1	07-07-88	1145	3	<3	<10	<3	<10	21	2
OKLAHOMA COUNTY									
11N-01E-11 CBC 1	07-08-88	1145	<1	<3	<10	<3	<10	13	2
11N-01E-12 ADA 1	06-22-88	1300	<1	<3	<10	<3	<10	14	<1
11N-01W-03 CDD 1	05-16-88	1130	<1	<3	<10	<3	<10	10	<1
11N-01W-05 AAD 1	09-17-87	1200	—	<3	<10	6	<10	6	<1
11N-01W-05 ABA 1	08-11-87	1000	—	<3	<10	<3	<10	8	<1
11N-01W-05 ABA 1	04-26-88	1400	5	<3	<10	<3	<10	13	<1
11N-02W-06 AAA 1	11-18-88	1500	—	<3	<10	8	<10	25	<1
11N-02W-14 DDC 1	04-26-88	1000	24	<3	<10	<3	<10	9	<1
11N-02W-17 CBC 1	11-18-88	1145	—	<3	<10	14	<10	46	<1
11N-02W-18 CDD 1	08-10-87	1200	—	<3	<10	4	<10	10	2
11N-02W-20 CCB 1	11-18-88	945	—	<3	<10	8	<10	17	<1
11N-03W-01 ABD 1	11-16-88	1000	—	<3	<10	14	<10	18	2
11N-03W-04 BBB 1	11-10-88	945	—	<3	<10	1,900	<10	110	1,300
11N-03W-09 CBA 1	11-14-88	1330	—	<3	<10	6	<10	30	1
11N-03W-13 CDD 1	11-10-88	1245	—	<3	<10	8	<10	17	1
11N-03W-15 CBA 1	11-30-88	1130	—	<3	<10	47	<10	51	23
11N-03W-18 ADC 1	11-14-88	1500	—	<3	<10	23	<10	35	2
11N-03W-21 ABA 1	11-09-88	1415	—	<3	<10	7	<10	25	<1
11N-04W-14 BBA 1	11-15-88	1530	—	<3	<10	15	<10	35	<1

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
16N-01E-13 BAA 1	05-23-88	1100	<0.1	<10	<10	<1	<1.0	110	<6	<3
16N-01E-29 BCD 1	07-07-89	915	<0.1	<10	<10	2	44	1,100	7	18
16N-01W-18 DDA 1	07-07-88	930	<0.1	<10	<10	2	<1.0	350	11	<3
16N-01W-27 CBB 1	07-13-88	1130	<0.1	<10	<10	<1	<1.0	690	6	19
16N-02W-06 DBC 1	05-25-88	1330	<0.1	<10	<10	<1	<1.0	400	<6	7
16N-02W-22 AAB 1	07-13-88	915	<0.1	<10	<10	<1	<1.0	91	<6	47
16N-02W-22 ADD 1	05-17-88	1100	<0.1	<10	<10	1	<1.0	480	20	6
16N-03W-23 DAA 1	05-25-88	1030	<0.1	<10	<10	<1	<1.0	610	8	93
17N-01W-21 ACB 1	07-07-88	1145	<0.1	<10	<10	7	1.0	1,100	20	6
OKLAHOMA COUNTY										
11N-01E-11 CBC 1	07-08-88	1145	<0.1	<10	<10	<1	<1.0	120	<6	<3
11N-01E-12 ADA 1	06-22-88	1300	<0.1	<10	<10	<1	<1.0	160	<6	<3
11N-01W-03 CDD 1	05-16-88	1130	<0.1	<10	<10	<1	<1.0	52	<6	8
11N-01W-05 AAD 1	09-17-87	1200	—	<10	<10	<1	<1.0	92	<6	<3
11N-01W-05 ABA 1	08-11-87	1000	—	<10	<10	<1	2.0	190	8	<3
11N-01W-05 ABA 1	04-26-88	1400	<0.1	<10	<10	<1	<1.0	200	8	4
11N-02W-06 AAA 1	11-18-88	1500	<0.1	<10	<10	<1	<1.0	370	10	39
11N-02W-14 DDC 1	04-26-88	1000	<0.1	<10	<10	53	<1.0	150	120	4
11N-02W-17 CBC 1	11-18-88	1145	0.4	<10	<10	1	<1.0	1,200	<6	54
11N-02W-18 CDD 1	08-10-87	1200	—	<10	<10	1	1.0	670	<6	4
11N-02W-20 CCB 1	11-18-88	945	<0.1	<10	<10	<1	<1.0	270	9	7
11N-03W-01 ABD 1	11-16-88	1000	<0.1	<10	<10	<1	<1.0	300	8	70
11N-03W-04 BBB 1	11-10-88	945	<0.1	<10	<10	<1	<1.0	2,000	<6	9
11N-03W-09 CBA 1	11-14-88	1330	0.2	<10	<10	1	<1.0	930	6	26
11N-03W-13 CDD 1	11-10-88	1245	<0.1	<10	<10	<1	<1.0	350	<6	20
11N-03W-15 CBA 1	11-30-88	1130	0.3	<10	<10	<1	2.0	1,400	<6	700
11N-03W-18 ADC 1	11-14-88	1500	<0.1	<10	<10	7	<1.0	7,700	10	40
11N-03W-21 ABA 1	11-09-88	1415	0.8	<10	<10	2	<1.0	860	<6	24
11N-04W-14 BBA 1	11-15-88	1530	0.4	<10	<10	7	<1.0	3,800	9	40

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
11N-04W-16 BAA 1	08-06-87	1000	352605097375701	79	747	8.8	20.5	3.0	19
11N-04W-16 CCB 1	09-01-87	1100	352527097380501	72	2,360	7.1	17.0	5.5	600
11N-04W-16 DDD 1	04-11-88	930	352515097370801	68	619	9.1	20.0	3.7	8
11N-04W-29 AAA 1	07-20-89	1300	352415097381301	64	667	7.3	16.5	4.3	320
11N-04W-29 CDC 1	06-30-89	930	352331097384901	62	937	7.1	16.0	3.0	440
12N-01E-11 DDC 1	06-15-89	1300	353119097094101	120	490	7.4	16.0	2.9	230
12N-01E-26 DAC 1	04-18-88	1000	352851097093801	96	466	7.9	17.0	4.0	130
12N-01E-35 ABC 1	08-24-87	1300	352830097100301	93	425	7.8	17.5	5.2	150
12N-01E-36 CBB 1	06-21-89	945	352810097092901	91	469	7.3	19.5	4.8	190
12N-01W-20 DCC 1	06-13-89	1345	352941097193501	103	390	6.5	16.0	0.1	160
12N-01W-22 AAA 1	06-15-89	930	353025097165901	109	104	5.7	16.5	4.2	37
12N-01W-31 DDA 1	06-30-88	1300	352757097200801	90	410	7.0	17.5	8.2	190
12N-02W-04 CBD 1	06-27-88	1345	353227097251101	132	706	6.9	17.0	9.9	370
12N-02W-05 BDD 1	06-27-88	1030	353244097255801	136	666	7.0	16.5	9.5	300
12N-02W-07 DAC 1	11-17-88	1000	353145097263801	125	567	7.4	16.0	8.6	290
12N-02W-18 DDC 1	11-21-88	945	353600097264001	148	595	7.3	17.0	7.4	260
12N-02W-19 BBB 1	11-08-88	945	353024097272501	108	991	7.1	17.0	3.0	390
12N-02W-29 DDC 1	06-13-89	1045	352844097254001	94	1,800	7.1	17.0	0.4	780
12N-02W-30 BCC 1	11-04-88	1300	352910097272501	101	1,560	7.1	17.5	1.1	650
12N-03W-02 DBD 1	11-02-88	1015	353229097285301	133	992	7.4	17.5	8.6	400
12N-03W-03 BCC 1	12-02-88	1300	353243097304101	135	708	7.2	19.0	3.2	340
12N-03W-03 DCD 1	11-01-88	1400	353219097295801	130	945	7.2	17.0	2.6	460
12N-03W-05 DCA 1	07-27-87	1130	353223097320501	131	963	8.6	19.0	2.1	73
12N-03W-05 DCA 1	04-12-88	1300	353223097320501	131	1,040	8.0	18.0	2.9	190
12N-03W-07 DDA 1	11-02-88	1245	353131097325401	121	904	7.8	18.5	8.6	160
12N-03W-10 ADA 1	11-01-88	930	353155097294601	126	766	7.3	16.5	5.1	360
12N-03W-10 DAC 1	11-23-88	945	353136097295101	122	1,190	7.3	17.0	8.8	410
12N-03W-11 CBD 1	11-02-88	1445	353139097293001	123	845	7.2	16.0	7.3	420
12N-03W-12 BBA 1	11-01-88	1200	353210097282401	129	1,140	7.3	17.5	7.4	390

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
11N-04W-16 BAA 1	08-06-87	1000	312	467	4.6	1.7	170	95	0.50
11N-04W-16 CCB 1	09-01-87	1100	326	1,460	140	60	250	48	1.5
11N-04W-16 DDD 1	04-11-88	930	296	377	2.0	0.78	150	97	0.50
11N-04W-29 AAA 1	07-20-89	1300	314	400	76	31	24	14	1.0
11N-04W-29 CDC 1	06-30-89	930	366	584	98	46	44	18	0.40
12N-01E-11 DDC 1	06-15-89	1300	258	290	52	24	22	17	1.1
12N-01E-26 DAC 1	04-18-88	1000	198	264	26	15	54	48	2.0
12N-01E-35 ABC 1	08-24-87	1300	204	243	30	17	39	36	2.2
12N-01E-36 CBB 1	06-21-89	945	198	274	42	20	29	25	2.4
12N-01W-20 DCC 1	06-13-89	1345	114	249	35	17	19	21	0.60
12N-01W-22 AAA 1	06-15-89	930	26	75	8.5	3.7	5.4	24	1.1
12N-01W-31 DDA 1	06-30-88	1300	172	239	44	20	14	14	0.70
12N-02W-04 CBD 1	06-27-88	1345	352	408	73	46	14	8	0.60
12N-02W-05 BDD 1	06-27-88	1030	294	383	67	32	32	19	0.80
12N-02W-07 DAC 1	11-17-88	1000	266	333	63	31	18	12	0.70
12N-02W-18 DDC 1	11-21-88	945	294	357	60	26	37	24	0.90
12N-02W-19 BBB 1	11-08-88	945	414	594	87	41	76	30	2.0
12N-02W-29 DDC 1	06-13-89	1045	352	941	180	79	51	12	2.5
12N-02W-30 BCC 1	11-04-88	1300	496	944	150	67	110	27	3.3
12N-03W-02 DBD 1	11-02-88	1015	276	574	90	42	59	24	1.7
12N-03W-03 BCC 1	12-02-88	1300	354	415	70	40	29	16	2.7
12N-03W-03 DCD 1	11-01-88	1400	364	533	91	56	28	12	3.6
12N-03W-05 DCA 1	07-27-87	1130	262	561	13	9.7	190	85	1.2
12N-03W-05 DCA 1	04-12-88	1300	161	547	33	25	130	60	2.1
12N-03W-07 DDA 1	11-02-88	1245	394	562	32	20	160	68	2.0
12N-03W-10 ADA 1	11-01-88	930	320	442	71	44	32	16	3.1
12N-03W-10 DAC 1	11-23-88	945	306	635	84	48	81	30	0.70
12N-03W-11 CBD 1	11-02-88	1445	346	491	85	50	29	13	0.70
12N-03W-12 BBA 1	11-01-88	1200	310	675	79	46	100	36	3.0

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
11N-04W-16 BAA 1	08-06-87	1000	342	19	74	13	0.60	0.14	12
11N-04W-16 CCB 1	09-01-87	1100	398	0	200	290	<0.10	1.6	21
11N-04W-16 DDD 1	04-11-88	930	312	24	26	5.9	0.40	0.027	11
11N-04W-29 AAA 1	07-20-89	1300	383	0	27	11	0.40	0.18	20
11N-04W-29 CDC 1	06-30-89	930	446	0	110	31	0.70	0.15	17
12N-01E-11 DDC 1	06-15-89	1300	315	0	5.0	7.0	0.20	0.070	18
12N-01E-26 DAC 1	04-18-88	1000	242	0	15	20	0.20	0.057	9.5
12N-01E-35 ABC 1	08-24-87	1300	249	0	8.7	11	0.30	0.046	9.5
12N-01E-36 CBB 1	06-21-89	945	241	0	11	22	0.10	0.23	14
12N-01W-20 DCC 1	06-13-89	1345	139	0	37	26	0.20	0.15	28
12N-01W-22 AAA 1	06-15-89	930	32	0	13	2.4	0.10	0.060	19
12N-01W-31 DDA 1	06-30-88	1300	210	0	11	15	0.30	0.16	16
12N-02W-04 CBD 1	06-27-88	1345	429	0	16	16	0.50	0.12	15
12N-02W-05 BDD 1	06-27-88	1030	359	0	21	31	0.40	0.18	16
12N-02W-07 DAC 1	11-17-88	1000	324	0	11	15	0.20	0.11	17
12N-02W-18 DDC 1	11-21-88	945	359	0	13	17	0.30	0.070	21
12N-02W-19 BBB 1	11-08-88	945	505	0	29	60	0.30	0.15	18
12N-02W-29 DDC 1	06-13-89	1045	429	0	13	380	0.30	1.5	20
12N-02W-30 BCC 1	11-04-88	1300	605	0	120	160	0.60	0.54	28
12N-03W-02 DBD 1	11-02-88	1015	337	0	47	130	0.40	0.25	21
12N-03W-03 BCC 1	12-02-88	1300	432	0	15	20	0.30	0.042	22
12N-03W-03 DCD 1	11-01-88	1400	444	0	7.8	100	0.20	0.36	24
12N-03W-05 DCA 1	07-27-87	1130	283	18	41	130	1.2	1.0	13
12N-03W-05 DCA 1	04-12-88	1300	196	0	42	200	0.30	0.15	15
12N-03W-07 DDA 1	11-02-88	1245	480	0	67	25	0.20	0.066	16
12N-03W-10 ADA 1	11-01-88	930	390	0	22	52	0.20	0.16	21
12N-03W-10 DAC 1	11-23-88	945	373	0	9.0	200	0.30	0.90	18
12N-03W-11 CBD 1	11-02-88	1445	422	0	31	50	0.10	0.28	16
12N-03W-12 BBA 1	11-01-88	1200	378	0	110	130	0.20	0.18	16

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
11N-04W-16 BAA 1	08-06-87	1000	<0.010	0.260	<0.010	—	0.040	0.4	<10
11N-04W-16 CCB 1	09-01-87	1100	<0.010	68.0	0.020	—	<0.010	1.9	—
11N-04W-16 DDD 1	04-11-88	930	<0.010	0.260	<0.010	<0.20	0.060	0.6	<10
11N-04W-29 AAA 1	07-20-89	1300	<0.010	4.50	<0.010	1.4	<0.010	0.8	<10
11N-04W-29 CDC 1	06-30-89	930	0.020	3.70	0.020	0.50	<0.010	1.2	20
12N-01E-11 DDC 1	06-15-89	1300	<0.010	1.10	<0.010	0.30	0.030	0.3	10
12N-01E-26 DAC 1	04-18-88	1000	0.010	0.480	0.020	<0.20	0.010	0.4	<10
12N-01E-35 ABC 1	08-24-87	1300	<0.010	0.470	<0.010	—	<0.010	0.6	<10
12N-01E-36 CBB 1	06-21-89	945	<0.010	3.20	<0.010	0.30	0.030	0.6	<10
12N-01W-20 DCC 1	06-13-89	1345	<0.010	3.70	<0.010	0.70	<0.010	0.7	<10
12N-01W-22 AAA 1	06-15-89	930	<0.010	1.30	<0.010	0.30	<0.010	0.7	<10
12N-01W-31 DDA 1	06-30-88	1300	<0.010	3.10	0.050	0.40	0.050	3.0	<10
12N-02W-04 CBD 1	06-27-88	1345	<0.010	3.40	<0.050	0.40	<0.010	1.3	<10
12N-02W-05 BDD 1	06-27-88	1030	<0.010	1.20	0.040	0.20	0.010	1.5	<10
12N-02W-07 DAC 1	11-17-88	1000	<0.010	3.80	0.020	0.50	0.010	—	<10
12N-02W-18 DDC 1	11-21-88	945	<0.010	0.930	0.010	<0.20	0.020	—	<10
12N-02W-19 BBB 1	11-08-88	945	<0.010	6.90	<0.010	0.70	<0.010	—	<10
12N-02W-29 DDC 1	06-13-89	1045	<0.010	0.100	0.030	0.30	<0.010	0.5	<10
12N-02W-30 BCC 1	11-04-88	1300	<0.010	0.840	0.290	0.60	<0.010	—	<10
12N-03W-02 DBD 1	11-02-88	1015	<0.010	3.50	<0.010	<0.20	<0.010	—	<10
12N-03W-03 BCC 1	12-02-88	1300	<0.010	0.330	<0.010	0.20	<0.010	—	<10
12N-03W-03 DCD 1	11-01-88	1400	<0.010	0.180	<0.010	<0.20	<0.010	—	<10
12N-03W-05 DCA 1	07-27-87	1130	<0.010	0.180	<0.010	—	0.020	1.8	<10
12N-03W-05 DCA 1	04-12-88	1300	<0.010	0.190	<0.010	<0.20	<0.010	0.6	<10
12N-03W-07 DDA 1	11-02-88	1245	<0.010	0.110	<0.010	<0.20	<0.010	—	<10
12N-03W-10 ADA 1	11-01-88	930	<0.010	0.680	<0.010	<0.20	<0.010	—	<10
12N-03W-10 DAC 1	11-23-88	945	0.020	1.80	0.020	0.40	0.010	—	<10
12N-03W-11 CBD 1	11-02-88	1445	<0.010	4.60	<0.010	<0.20	<0.010	—	<10
12N-03W-12 BBA 1	11-01-88	1200	<0.010	0.750	<0.010	<0.20	<0.010	—	<10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
11N-04W-16 BAA 1	08-06-87	1000	—	75	43	2	1,700	2.0	50
11N-04W-16 CCB 1	09-01-87	1100	—	2	52	<0.5	—	<1.0	<1
11N-04W-16 DDD 1	04-11-88	930	4	110	82	2	1,200	<1.0	30
11N-04W-29 AAA 1	07-20-89	1300	1	2	380	<0.5	150	<1.0	<5
11N-04W-29 CDC 1	06-30-89	930	<1	1	37	<0.5	240	<1.0	<5
12N-01E-11 DDC 1	06-15-89	1300	<1	<1	230	<0.5	70	1.0	<5
12N-01E-26 DAC 1	04-18-88	1000	<1	<1	260	<0.5	380	<1.0	<5
12N-01E-35 ABC 1	08-24-87	1300	—	<1	250	<0.5	330	<1.0	10
12N-01E-36 CBB 1	06-21-89	945	<1	<1	290	<0.5	80	<1.0	<5
12N-01W-20 DCC 1	06-13-89	1345	<1	<1	140	<0.5	30	<1.0	<5
12N-01W-22 AAA 1	06-15-89	930	<1	<1	100	<0.5	10	<1.0	<5
12N-01W-31 DDA 1	06-30-88	1300	<1	2	350	<0.5	30	<1.0	<5
12N-02W-04 CBD 1	06-27-88	1345	1	2	710	<0.5	60	<1.0	<5
12N-02W-05 BDD 1	06-27-88	1030	1	3	400	<0.5	40	<1.0	<5
12N-02W-07 DAC 1	11-17-88	1000	<1	2	520	<0.5	60	<1.0	<5
12N-02W-18 DDC 1	11-21-88	945	<1	3	220	<0.5	70	<1.0	<5
12N-02W-19 BBB 1	11-08-88	945	<1	<1	200	<0.5	120	<1.0	<5
12N-02W-29 DDC 1	06-13-89	1045	<1	<1	590	<0.5	90	<1.0	<5
12N-02W-30 BCC 1	11-04-88	1300	<1	17	180	<0.5	190	<1.0	<5
12N-03W-02 DBD 1	11-02-88	1015	<1	1	180	<0.5	120	<1.0	<5
12N-03W-03 BCC 1	12-02-88	1300	<1	<1	150	<0.5	340	1.0	10
12N-03W-03 DCD 1	11-01-88	1400	<1	<1	560	<0.5	210	<1.0	<5
12N-03W-05 DCA 1	07-27-87	1130	—	30	77	2	1,800	<1.0	10
12N-03W-05 DCA 1	04-12-88	1300	<1	2	100	<0.5	360	<1.0	7
12N-03W-07 DDA 1	11-02-88	1245	<1	1	43	<0.5	2,400	<1.0	<5
12N-03W-10 ADA 1	11-01-88	930	<1	1	98	<0.5	180	<1.0	7
12N-03W-10 DAC 1	11-23-88	945	<1	2	1,100	<0.5	60	<1.0	<5
12N-03W-11 CBD 1	11-02-88	1445	<1	1	910	<0.5	70	<1.0	<5
12N-03W-12 BBA 1	11-01-88	1200	<1	<1	71	<0.5	140	<1.0	<5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
11N-04W-16 BAA 1	08-06-87	1000	—	<3	<10	<3	<10	11	<1
11N-04W-16 CCB 1	09-01-87	1100	—	<3	<10	30	<10	54	3
11N-04W-16 DDD 1	04-11-88	930	31	<3	<10	4	<10	7	<1
11N-04W-29 AAA 1	07-20-89	1300	—	<3	<10	8	10	24	<1
11N-04W-29 CDC 1	06-30-89	930	—	<3	<10	8	<10	22	2
12N-01E-11 DDC 1	06-15-89	1300	—	<3	<10	<3	<10	16	<1
12N-01E-26 DAC 1	04-18-88	1000	13	<3	<10	3	<10	9	<1
12N-01E-35 ABC 1	08-24-87	1300	—	<3	<10	6	<10	10	<1
12N-01E-36 CBB 1	06-21-89	945	—	<3	20	3	<10	14	<1
12N-01W-20 DCC 1	06-13-89	1345	—	<3	<10	6	10	11	540
12N-01W-22 AAA 1	06-15-89	930	—	<3	<10	7	<10	7	6
12N-01W-31 DDA 1	06-30-88	1300	1	<3	<10	<3	<10	12	2
12N-02W-04 CBD 1	06-27-88	1345	1	<3	<10	10	<10	13	<1
12N-02W-05 BDD 1	06-27-88	1030	1	<3	<10	<3	<10	12	<1
12N-02W-07 DAC 1	11-17-88	1000	—	<3	<10	6	<10	12	<1
12N-02W-18 DDC 1	11-21-88	945	—	<3	<10	11	<10	16	<1
12N-02W-19 BBB 1	11-08-88	945	—	<3	<10	<3	<10	29	<1
12N-02W-29 DDC 1	06-13-89	1045	—	<3	<10	110	<10	39	<1
12N-02W-30 BCC 1	11-04-88	1300	—	<3	<10	200	20	48	640
12N-03W-02 DBD 1	11-02-88	1015	—	<3	<10	78	<10	19	7
12N-03W-03 BCC 1	12-02-88	1300	—	<3	<10	10	10	28	2
12N-03W-03 DCD 1	11-01-88	1400	—	<3	<10	37	<10	31	17
12N-03W-05 DCA 1	07-27-87	1130	—	<3	<10	<3	<10	10	2
12N-03W-05 DCA 1	04-12-88	1300	1	<3	<10	30	<10	20	3
12N-03W-07 DDA 1	11-02-88	1245	—	<3	<10	10	<10	23	<1
12N-03W-10 ADA 1	11-01-88	930	—	<3	<10	66	<10	24	100
12N-03W-10 DAC 1	11-23-88	945	—	<3	<10	18	<10	12	<1
12N-03W-11 CBD 1	11-02-88	1445	—	<3	<10	4	<10	12	<1
12N-03W-12 BBA 1	11-01-88	1200	—	<3	<10	13	<10	29	4

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
11N-04W-16 BAA 1	08-06-87	1000	—	<10	<10	33	<1.0	110	460	<3
11N-04W-16 CCB 1	09-01-87	1100	—	<10	<10	<1	<1.0	1,200	10	36
11N-04W-16 DDD 1	04-11-88	930	<0.1	<10	<10	20	<1.0	44	560	<3
11N-04W-29 AAA 1	07-20-89	1300	<0.1	<10	<10	<1	<1.0	540	10	12
11N-04W-29 CDC 1	06-30-89	930	<0.1	<10	<10	<1	1.0	1,000	<6	7
12N-01E-11 DDC 1	06-15-89	1300	<0.1	<10	<10	<1	<1.0	200	<6	3
12N-01E-26 DAC 1	04-18-88	1000	<0.1	<10	<10	3	<1.0	410	12	<3
12N-01E-35 ABC 1	08-24-87	1300	—	<10	<10	1	<1.0	430	11	<3
12N-01E-36 CBB 1	06-21-89	945	<0.1	<10	<10	<1	<1.0	330	<6	4
12N-01W-20 DCC 1	06-13-89	1345	<0.1	<10	<10	<1	<1.0	120	<6	10
12N-01W-22 AAA 1	06-15-89	930	<0.1	<10	10	<1	<1.0	50	<6	85
12N-01W-31 DDA 1	06-30-88	1300	<0.1	<10	<10	<1	<1.0	77	<6	71
12N-02W-04 CBD 1	06-27-88	1345	<0.1	<10	<10	<1	<1.0	160	<6	37
12N-02W-05 BDD 1	06-27-88	1030	<0.1	<10	<10	<1	<1.0	140	<6	6
12N-02W-07 DAC 1	11-17-88	1000	<0.1	<10	<10	<1	<1.0	200	<6	120
12N-02W-18 DDC 1	11-21-88	945	<0.1	<10	<10	<1	<1.0	250	<6	15
12N-02W-19 BBB 1	11-08-88	945	0.1	<10	<10	<1	<1.0	820	7	23
12N-02W-29 DDC 1	06-13-89	1045	0.1	<10	<10	<1	1.0	1,200	<6	24
12N-02W-30 BCC 1	11-04-88	1300	<0.1	<10	<10	<1	2.0	1,500	12	280
12N-03W-02 DBD 1	11-02-88	1015	<0.1	<10	<10	2	<1.0	960	<6	100
12N-03W-03 BCC 1	12-02-88	1300	<0.1	<10	<10	1	2.0	1,400	11	<3
12N-03W-03 DCD 1	11-01-88	1400	<0.1	<10	<10	<1	1.0	2,300	7	17
12N-03W-05 DCA 1	07-27-87	1130	—	20	<10	130	<1.0	620	500	<3
12N-03W-05 DCA 1	04-12-88	1300	<0.1	<10	<10	3	<1.0	1,500	28	<3
12N-03W-07 DDA 1	11-02-88	1245	<0.1	<10	<10	9	<1.0	1,100	7	13
12N-03W-10 ADA 1	11-01-88	930	<0.1	<10	<10	1	3.0	1,600	9	29
12N-03W-10 DAC 1	11-23-88	945	<0.1	<10	<10	<1	2.0	440	<6	8
12N-03W-11 CBD 1	11-02-88	1445	<0.1	<10	<10	<1	<1.0	250	<6	11
12N-03W-12 BBA 1	11-01-88	1200	<0.1	<10	<10	<1	<1.0	1,100	7	19

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
12N-03W-14 ADD 1	11-17-88	1145	353101097283701	117	1,810	7.1	18.0	4.8	700
12N-03W-14 BBA 1	11-08-88	1330	353141097293001	124	1,040	7.2	17.5	2.2	450
12N-03W-16 CBD 1	11-03-88	1130	353042097313801	114	954	7.2	18.5	7.6	390
12N-03W-17 BAD 1	11-03-88	1400	353109097322401	118	757	7.4	18.0	7.3	230
12N-03W-17 CAA 1	11-03-88	930	353051097322001	115	988	7.6	18.0	5.2	220
12N-03W-20 BCB 1	11-04-88	945	353010097324601	105	871	7.4	17.5	2.2	260
12N-03W-20 BCB 1	11-04-88	1045	353010097324601	105	871	7.4	17.5	2.2	260
12N-03W-21 ACC 1	12-02-88	1015	353008097310701	104	650	7.3	17.5	5.9	250
12N-03W-24 AAB 1	11-08-88	1130	353026097274801	110	1,160	7.2	17.5	1.5	420
12N-03W-28 DBA 1	11-15-88	1145	352905097310201	100	668	7.6	19.5	8.8	300
12N-03W-30 CBA 1	11-07-88	1415	352904097334201	99	1,060	6.8	19.0	5.0	410
12N-03W-31 DCC 1	11-09-88	1115	352755097332002	89	1,890	7.2	18.0	9.8	580
12N-03W-35 DBC 1	07-28-89	1000	352805097290101	170	2,630	7.0	18.0	0.1	820
12N-04W-13 BBB 1	11-07-88	1230	353115097345501	119	3,540	7.5	18.0	0.6	1,800
12N-04W-14 ACD 1	11-23-88	1230	353055097352201	116	931	6.3	18.5	4.2	330
12N-04W-15 AAD 1	11-22-88	945	353841097360501	156	641	7.1	19.5	5.7	320
12N-04W-15 AAD 1	11-22-88	1045	353841097360501	156	641	7.1	19.5	5.7	310
12N-04W-17 CDA 1	06-06-89	1400	353041097384301	113	475	6.5	17.0	4.4	140
12N-04W-21 ACB 1	08-05-87	1415	353013097373301	107	624	8.7	20.0	4.8	32
12N-04W-24 ADB 1	10-31-88	1030	353011097340901	106	3,740	7.0	18.0	3.9	1,600
12N-04W-25 AAD 1	11-07-88	930	352927097335801	102	2,550	6.9	18.5	3.6	1,200
12N-04W-27 DBC 1	11-22-88	1230	352859097363501	98	861	6.3	17.0	3.1	310
12N-04W-29 CCD 1	06-05-89	1000	352845097390101	95	538	6.4	18.0	7.0	180
13N-01E-31 CBA 1	06-16-89	1030	353328097144101	140	769	7.2	17.0	3.0	340
13N-01W-30 CBC 1	06-14-89	915	353403097210901	142	269	6.4	16.0	6.4	120
13N-01W-34 CAB 1	08-20-87	1100	353324097173701	139	399	7.6	17.5	4.0	190
13N-01W-34 CAB 1	05-09-88	930	353324097173701	139	409	7.4	17.5	4.1	200
13N-01W-34 CAB 1	05-09-88	1030	353324097173701	139	409	7.4	17.5	4.1	200
13N-02W-06 BCC 1	04-06-88	1430	353753097273501	150	473	7.5	17.0	4.4	240

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
12N-03W-14 ADD 1	11-17-88	1145	354	1,140	150	79	150	32	1.6
12N-03W-14 BBA 1	11-08-88	1330	346	634	88	56	72	26	0.80
12N-03W-16 CBD 1	11-03-88	1130	396	561	69	51	70	28	3.3
12N-03W-17 BAD 1	11-03-88	1400	306	430	49	27	77	41	2.6
12N-03W-17 CAA 1	11-03-88	930	300	588	45	26	140	58	2.6
12N-03W-20 BCB 1	11-04-88	945	336	523	56	28	100	46	2.7
12N-03W-20 BCB 1	11-04-88	1045	336	524	56	29	100	45	2.5
12N-03W-21 ACC 1	12-02-88	1015	278	384	55	26	51	31	2.3
12N-03W-24 AAB 1	11-08-88	1130	445	711	97	42	110	36	2.7
12N-03W-28 DBA 1	11-15-88	1145	284	401	69	30	40	23	1.3
12N-03W-30 CBA 1	11-07-88	1415	205	687	110	32	69	27	1.3
12N-03W-31 DCC 1	11-09-88	1115	419	1,210	130	60	220	45	3.4
12N-03W-35 DBC 1	07-28-89	1000	580	1,620	170	94	270	42	4.6
12N-04W-13 BBB 1	11-07-88	1230	80	3,320	500	120	300	27	2.4
12N-04W-14 ACD 1	11-23-88	1230	112	556	88	27	52	25	1.6
12N-04W-15 AAD 1	11-22-88	945	192	427	90	24	19	11	1.1
12N-04W-15 AAD 1	11-22-88	1045	192	413	86	23	19	12	1.2
12N-04W-17 CDA 1	06-06-89	1400	132	307	38	11	47	42	1.0
12N-04W-21 ACB 1	08-05-87	1415	270	393	8.4	2.6	140	90	0.50
12N-04W-24 ADB 1	10-31-88	1030	230	3,300	480	94	370	34	2.7
12N-04W-25 AAD 1	11-07-88	930	162	1,910	330	84	130	19	1.9
12N-04W-27 DBC 1	11-22-88	1230	142	544	84	24	55	28	2.2
12N-04W-29 CCD 1	06-05-89	1000	143	336	47	15	39	32	1.4
13N-01E-31 CBA 1	06-16-89	1030	374	477	87	30	41	21	2.2
13N-01W-30 CBC 1	06-14-89	915	68	167	28	13	5.8	9	0.70
13N-01W-34 CAB 1	08-20-87	1100	190	225	42	20	12	12	1.7
13N-01W-34 CAB 1	05-09-88	930	196	235	44	22	13	12	1.7
13N-01W-34 CAB 1	05-09-88	1030	196	234	43	22	13	12	1.4
13N-02W-06 BCC 1	04-06-88	1430	255	282	50	27	15	12	1.4

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
12N-03W-14 ADD 1	11-17-88	1145	432	0	200	280	0.40	0.92	19
12N-03W-14 BBA 1	11-08-88	1330	422	0	19	170	0.20	0.58	16
12N-03W-16 CBD 1	11-03-88	1130	483	0	22	76	0.20	0.12	24
12N-03W-17 BAD 1	11-03-88	1400	373	0	21	44	0.20	0.068	22
12N-03W-17 CAA 1	11-03-88	930	366	0	37	130	0.40	0.15	18
12N-03W-20 BCB 1	11-04-88	945	410	0	57	53	0.20	0.068	22
12N-03W-20 BCB 1	11-04-88	1045	410	0	56	53	0.20	0.065	23
12N-03W-21 ACC 1	12-02-88	1015	339	0	26	32	0.20	0.082	21
12N-03W-24 AAB 1	11-08-88	1130	543	0	81	79	0.40	0.22	21
12N-03W-28 DBA 1	11-15-88	1145	346	0	20	38	0.30	0.13	24
12N-03W-30 CBA 1	11-07-88	1415	250	0	260	67	0.20	0.30	12
12N-03W-31 DCC 1	11-09-88	1115	511	0	260	260	0.30	0.27	21
12N-03W-35 DBC 1	07-28-89	1000	708	0	240	450	1.1	1.4	28
12N-04W-13 BBB 1	11-07-88	1230	98	0	2,200	65	0.20	0.19	17
12N-04W-14 ACD 1	11-23-88	1230	137	0	120	140	0.20	0.56	21
12N-04W-15 AAD 1	11-22-88	945	234	0	110	11	0.20	0.098	22
12N-04W-15 AAD 1	11-22-88	1045	234	0	98	14	0.20	0.043	22
12N-04W-17 CDA 1	06-06-89	1400	161	0	40	27	0.20	0.22	29
12N-04W-21 ACB 1	08-05-87	1415	305	12	55	8.9	0.10	0.050	12
12N-04W-24 ADB 1	10-31-88	1030	281	0	2,100	73	0.30	0.29	16
12N-04W-25 AAD 1	11-07-88	930	198	0	1,000	130	0.10	0.18	20
12N-04W-27 DBC 1	11-22-88	1230	173	0	100	96	0.20	0.45	34
12N-04W-29 CCD 1	06-05-89	1000	175	0	30	44	0.10	0.28	36
13N-01E-31 CBA 1	06-16-89	1030	456	0	37	17	0.80	0.17	33
13N-01W-30 CBC 1	06-14-89	915	83	0	43	7.4	0.10	0.030	16
13N-01W-34 CAB 1	08-20-87	1100	232	0	7.3	11	0.20	0.11	14
13N-01W-34 CAB 1	05-09-88	930	239	0	8.1	12	0.20	0.057	14
13N-01W-34 CAB 1	05-09-88	1030	239	0	8.1	12	0.20	0.070	14
13N-02W-06 BCC 1	04-06-88	1430	311	0	5.5	5.0	0.40	0.025	23

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
12N-03W-14 ADD 1	11-17-88	1145	<0.010	11.0	0.030	1.1	<0.010	—	<10
12N-03W-14 BBA 1	11-08-88	1330	<0.010	0.370	<0.010	0.20	<0.010	—	<10
12N-03W-16 CBD 1	11-03-88	1130	<0.010	0.730	<0.010	<0.20	<0.010	—	<10
12N-03W-17 BAD 1	11-03-88	1400	<0.010	0.380	<0.010	<0.20	<0.010	—	<10
12N-03W-17 CAA 1	11-03-88	930	<0.010	1.00	<0.010	<0.20	<0.010	—	<10
12N-03W-20 BCB 1	11-04-88	945	<0.010	0.270	<0.010	<0.20	<0.010	—	<10
12N-03W-20 BCB 1	11-04-88	1045	<0.010	0.310	<0.010	<0.20	<0.010	—	<10
12N-03W-21 ACC 1	12-02-88	1015	<0.010	0.680	<0.010	<0.20	<0.010	—	<10
12N-03W-24 AAB 1	11-08-88	1130	<0.010	2.00	0.030	0.20	<0.010	—	<10
12N-03W-28 DBA 1	11-15-88	1145	<0.010	1.50	<0.010	0.50	0.020	—	<10
12N-03W-30 CBA 1	11-07-88	1415	0.020	1.80	0.040	0.20	0.010	—	<10
12N-03W-31 DCC 1	11-09-88	1115	0.010	0.140	0.140	0.20	<0.010	—	<10
12N-03W-35 DBC 1	07-28-89	1000	<0.010	<0.100	0.650	0.70	0.020	2.6	<10
12N-04W-13 BBB 1	11-07-88	1230	<0.010	11.0	0.130	0.70	<0.010	—	10
12N-04W-14 ACD 1	11-23-88	1230	0.020	8.40	0.020	1.0	0.200	—	<10
12N-04W-15 AAD 1	11-22-88	945	<0.010	7.50	0.020	0.80	0.020	—	<10
12N-04W-15 AAD 1	11-22-88	1045	<0.010	7.60	<0.010	0.70	0.030	—	<10
12N-04W-17 CDA 1	06-06-89	1400	<0.010	7.60	<0.010	0.80	0.050	0.8	<10
12N-04W-21 ACB 1	08-05-87	1415	<0.010	0.260	<0.010	—	0.030	2.1	30
12N-04W-24 ADB 1	10-31-88	1030	0.010	2.30	0.200	<0.20	0.040	1.6	10
12N-04W-25 AAD 1	11-07-88	930	<0.010	25.0	0.070	0.70	<0.010	—	10
12N-04W-27 DBC 1	11-22-88	1230	<0.010	14.0	0.020	2.1	0.040	—	<10
12N-04W-29 CCD 1	06-05-89	1000	<0.010	8.30	<0.010	1.5	0.070	—	<10
13N-01E-31 CBA 1	06-16-89	1030	<0.010	<0.100	0.680	0.60	0.110	1.3	<10
13N-01W-30 CBC 1	06-14-89	915	<0.010	2.60	<0.010	<0.20	0.050	0.5	<10
13N-01W-34 CAB 1	08-20-87	1100	<0.010	0.450	<0.010	—	<0.010	1.1	<10
13N-01W-34 CAB 1	05-09-88	930	<0.010	0.490	<0.010	0.70	<0.010	0.8	<10
13N-01W-34 CAB 1	05-09-88	1030	<0.010	0.490	0.020	—	<0.010	0.8	<10
13N-02W-06 BCC 1	04-06-88	1430	<0.010	0.160	<0.010	<0.20	<0.010	0.4	<10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
12N-03W-14 ADD 1	11-17-88	1145	<1	<1	89	<0.5	120	2.0	<5
12N-03W-14 BBA 1	11-08-88	1330	<1	1	1,700	<0.5	60	<1.0	<5
12N-03W-16 CBD 1	11-03-88	1130	<1	1	250	<0.5	1,300	<1.0	<5
12N-03W-17 BAD 1	11-03-88	1400	<1	<1	150	<0.5	540	<1.0	10
12N-03W-17 CAA 1	11-03-88	930	<1	<1	120	<0.5	2,700	<1.0	7
12N-03W-20 BCB 1	11-04-88	945	<1	<1	47	<0.5	340	<1.0	6
12N-03W-20 BCB 1	11-04-88	1045	<1	<1	47	<0.5	320	<1.0	6
12N-03W-21 ACC 1	12-02-88	1015	<1	<1	120	<0.5	100	<1.0	9
12N-03W-24 AAB 1	11-08-88	1130	<1	4	110	<0.5	190	<1.0	<5
12N-03W-28 DBA 1	11-15-88	1145	<1	2	260	<0.5	120	<1.0	<5
12N-03W-30 CBA 1	11-07-88	1415	<1	<1	62	<0.5	440	<1.0	<5
12N-03W-31 DCC 1	11-09-88	1115	<1	<1	18	<0.5	530	2.0	<5
12N-03W-35 DBC 1	07-28-89	1000	1	4	140	<1	610	5.0	<10
12N-04W-13 BBB 1	11-07-88	1230	<1	7	12	<0.5	6,400	5.0	<5
12N-04W-14 ACD 1	11-23-88	1230	<1	<1	69	<0.5	60	<1.0	<5
12N-04W-15 AAD 1	11-22-88	945	<1	3	140	<0.5	130	<1.0	<5
12N-04W-15 AAD 1	11-22-88	1045	<1	2	130	<0.5	120	<1.0	<5
12N-04W-17 CDA 1	06-06-89	1400	<1	<1	260	<0.5	30	2.0	<5
12N-04W-21 ACB 1	08-05-87	1415	—	110	57	2	1,100	<1.0	40
12N-04W-24 ADB 1	10-31-88	1030	<1	7	27	<0.5	4,300	10	<5
12N-04W-25 AAD 1	11-07-88	930	<1	1	55	<0.5	540	6.0	<5
12N-04W-27 DBC 1	11-22-88	1230	<1	<1	260	<0.5	70	<1.0	<5
12N-04W-29 CCD 1	06-05-89	1000	<1	<1	300	<0.5	20	<1.0	<5
13N-01E-31 CBA 1	06-16-89	1030	<1	2	190	<0.5	150	<1.0	<5
13N-01W-30 CBC 1	06-14-89	915	<1	1	40	<0.5	110	<1.0	<5
13N-01W-34 CAB 1	08-20-87	1100	—	1	330	0.8	60	<1.0	5
13N-01W-34 CAB 1	05-09-88	930	<1	1	330	<0.5	60	<1.0	5
13N-01W-34 CAB 1	05-09-88	1030	<1	<1	320	<0.5	60	<1.0	6
13N-02W-06 BCC 1	04-06-88	1430	<1	1	470	<0.5	90	<1.0	<5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
12N-03W-14 ADD 1	11-17-88	1145	—	<3	40	100	<10	27	4
12N-03W-14 BBA 1	11-08-88	1330	—	<3	<10	3	<10	13	24
12N-03W-16 CBD 1	11-03-88	1130	—	<3	<10	90	<10	36	5
12N-03W-17 BAD 1	11-03-88	1400	—	<3	<10	4	<10	27	<1
12N-03W-17 CAA 1	11-03-88	930	—	<3	<10	22	<10	27	<1
12N-03W-20 BCB 1	11-04-88	945	—	<3	<10	22	<10	31	<1
12N-03W-20 BCB 1	11-04-88	1045	—	<3	<10	14	<10	33	<1
12N-03W-21 ACC 1	12-02-88	1015	—	<3	<10	6	<10	28	<1
12N-03W-24 AAB 1	11-08-88	1130	—	<3	<10	5	<10	36	150
12N-03W-28 DBA 1	11-15-88	1145	—	<3	<10	16	<10	22	<1
12N-03W-30 CBA 1	11-07-88	1415	—	<3	<10	340	<10	14	11
12N-03W-31 DCC 1	11-09-88	1115	—	<3	<10	70	<10	49	170
12N-03W-35 DBC 1	07-28-89	1000	—	<6	<20	3,400	<20	110	1,100
12N-04W-13 BBB 1	11-07-88	1230	—	<3	<10	20	30	73	<1
12N-04W-14 ACD 1	11-23-88	1230	—	<3	10	9	10	15	2
12N-04W-15 AAD 1	11-22-88	945	—	<3	<10	21	<10	15	1
12N-04W-15 AAD 1	11-22-88	1045	—	<3	<10	20	<10	15	2
12N-04W-17 CDA 1	06-06-89	1400	—	<3	40	3	<10	10	<1
12N-04W-21 ACB 1	08-05-87	1415	—	<3	<10	5	20	<4	<1
12N-04W-24 ADB 1	10-31-88	1030	—	4	<10	2,300	50	91	140
12N-04W-25 AAD 1	11-07-88	930	—	<3	<10	60	40	31	13
12N-04W-27 DBC 1	11-22-88	1230	—	<3	<10	16	<10	19	1
12N-04W-29 CCD 1	06-05-89	1000	—	<3	<10	11	<10	10	<1
13N-01E-31 CBA 1	06-16-89	1030	—	<3	<10	2,000	<10	43	680
13N-01W-30 CBC 1	06-14-89	915	—	<3	<10	4	<10	6	<1
13N-01W-34 CAB 1	08-20-87	1100	—	<3	<10	<3	<10	<4	<1
13N-01W-34 CAB 1	05-09-88	930	1	<3	<10	<3	<10	<4	<1
13N-01W-34 CAB 1	05-09-88	1030	2	<3	<10	<3	<10	13	1
13N-02W-06 BCC 1	04-06-88	1430	2	<3	<10	<3	<10	8	<1

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
12N-03W-14 ADD 1	11-17-88	1145	<0.1	<10	<10	6	<1.0	510	11	37
12N-03W-14 BBA 1	11-08-88	1330	<0.1	<10	<10	<1	<1.0	350	<6	11
12N-03W-16 CBD 1	11-03-88	1130	<0.1	<10	<10	28	<1.0	2,400	26	55
12N-03W-17 BAD 1	11-03-88	1400	<0.1	<10	<10	25	<1.0	910	<6	10
12N-03W-17 CAA 1	11-03-88	930	<0.1	<10	<10	190	<1.0	1,200	13	25
12N-03W-20 BCB 1	11-04-88	945	<0.1	<10	<10	8	<1.0	950	7	17
12N-03W-20 BCB 1	11-04-88	1045	<0.1	<10	<10	8	<1.0	960	8	14
12N-03W-21 ACC 1	12-02-88	1015	<0.1	<10	<10	<1	<1.0	560	8	82
12N-03W-24 AAB 1	11-08-88	1130	<0.1	<10	<10	<1	<1.0	1,200	10	<3
12N-03W-28 DBA 1	11-15-88	1145	<0.1	<10	<10	1	<1.0	500	11	17
12N-03W-30 CBA 1	11-07-88	1415	0.5	<10	<10	3	<1.0	3,400	<6	25
12N-03W-31 DCC 1	11-09-88	1115	<0.1	<10	<10	<1	<1.0	3,000	<6	6
12N-03W-35 DBC 1	07-28-89	1000	<0.1	20	<20	<1	4.0	2,800	<12	18
12N-04W-13 BBB 1	11-07-88	1230	0.2	70	10	100	<1.0	10,000	49	37
12N-04W-14 ACD 1	11-23-88	1230	<0.1	<10	<10	<1	4.0	540	<6	12
12N-04W-15 AAD 1	11-22-88	945	0.6	<10	<10	5	<1.0	580	12	10
12N-04W-15 AAD 1	11-22-88	1045	<0.1	<10	<10	5	<1.0	570	13	7
12N-04W-17 CDA 1	06-06-89	1400	<0.1	<10	<10	<1	<1.0	260	<6	<3
12N-04W-21 ACB 1	08-05-87	1415	—	<10	<10	15	<1.0	340	510	9
12N-04W-24 ADB 1	10-31-88	1030	<0.1	20	<10	70	6.0	8,800	14	1300
12N-04W-25 AAD 1	11-07-88	930	0.2	<10	<10	<1	3.0	7,100	7	37
12N-04W-27 DBC 1	11-22-88	1230	<0.1	<10	<10	1	<1.0	550	<6	29
12N-04W-29 CCD 1	06-05-89	1000	<0.1	<10	<10	1	<1.0	340	<6	9
13N-01E-31 CBA 1	06-16-89	1030	<0.1	<10	<10	<1	<1.0	720	<6	10
13N-01W-30 CBC 1	06-14-89	915	<0.1	<10	<10	<1	1.0	49	<6	7
13N-01W-34 CAB 1	08-20-87	1100	—	<10	<10	1	2.0	220	9	<3
13N-01W-34 CAB 1	05-09-88	930	<0.1	<10	<10	<1	<1.0	240	7	9
13N-01W-34 CAB 1	05-09-88	1030	<0.1	<10	<10	<1	<1.0	230	7	9
13N-02W-06 BCC 1	04-06-88	1430	<0.1	<10	<10	<1	<1.0	830	8	<3

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
13N-02W-06 BCC 1	04-06-88	1530	353753097273501	150	473	7.5	17.0	4.4	240
13N-02W-15 AAA 1	06-01-88	945	353631097232301	149	710	7.4	17.5	2.2	270
13N-02W-21 AAB 1	07-12-88	1345	353539097243901	147	296	6.5	17.0	8.0	130
13N-02W-23 DDA 1	06-14-89	1245	353513097222201	144	544	7.5	17.0	4.2	220
13N-02W-31 DDC 1	11-21-88	1200	353310097264601	138	614	7.2	16.5	6.4	310
13N-03W-23 ABD 1	04-14-88	1030	353532097285601	145	973	7.7	17.0	0.7	230
13N-04W-28 CAD 1	09-02-87	1000	353411097374501	143	1,230	7.5	19.5	5.7	330
14N-01E-09 DAD 1	06-21-88	1230	354203097114301	169	190	6.2	17.5	6.6	59
14N-01E-09 DAD 1	06-21-88	1330	354203097114301	169	190	6.1	18.0	6.6	59
14N-01E-26 CBB 1	07-08-88	945	353931097103301	160	398	6.8	17.0	9.5	200
14N-01E-26 CDD 1	06-21-88	945	353909097100101	157	208	6.8	17.0	9.2	100
14N-01E-27 BDA 1	08-25-87	1100	353947097111501	162	911	7.6	16.5	2.0	190
14N-01W-20 DDD 1	05-11-88	1230	354008097190901	165	2,700	7.6	18.0	3.5	190
14N-01W-28 BBA 1	06-27-89	1000	353958097185001	163	2,350	7.6	17.0	0.2	190
14N-02W-31 CDD 1	04-07-88	930	353819097270701	152	487	7.6	16.5	4.9	240
14N-02W-32 DCD 1	08-17-87	1100	353819097254901	151	487	7.7	18.0	6.2	180
14N-03W-18 DCC 1	09-25-87	1100	354105097332401	167	536	7.8	18.5	5.9	140
14N-03W-18 DCC 1	09-25-87	1200	354105097332401	167	536	7.8	18.5	5.9	140
14N-03W-33 DDD 1	08-14-87	1000	353819097305101	153	502	7.5	18.0	9.1	210
14N-03W-33 DDD 1	08-14-87	1100	353819097305101	153	502	7.5	18.0	9.1	210
14N-03W-34 BBA 1	04-11-88	1300	353909097304501	158	484	7.5	17.5	8.2	220
14N-04W-19 CDD 1	08-31-87	1030	354007097395401	164	1,110	7.3	18.0	3.6	390
14N-04W-31 CBC 1	07-20-89	930	353837097402301	154	1,140	7.3	16.5	0.5	430
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	355727096582201	205	578	7.6	19.0	2.3	130
POTTAWATOMIE COUNTY									
06N-03E-08 DCC 1	06-09-88	1000	350003097003301	7	845	8.3	18.5	0.2	26

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
13N-02W-06 BCC 1	04-06-88	1530	255	282	50	27	15	12	1.3
13N-02W-15 AAA 1	06-01-88	945	302	426	67	26	53	29	1.3
13N-02W-21 AAB 1	07-12-88	1345	104	180	28	15	9.3	13	1.4
13N-02W-23 DDA 1	06-14-89	1245	232	321	55	20	35	26	1.2
13N-02W-31 DDC 1	11-21-88	1200	238	383	67	35	19	12	0.60
13N-03W-23 ABD 1	04-14-88	1030	192	532	38	33	110	51	2.9
13N-04W-28 CAD 1	09-02-87	1000	236	865	83	29	160	51	1.2
14N-01E-09 DAD 1	06-21-88	1230	44	121	12	7.0	15	35	1.2
14N-01E-09 DAD 1	06-21-88	1330	44	120	12	7.0	15	35	1.2
14N-01E-26 CBB 1	07-08-88	945	176	232	42	23	8.4	8	0.70
14N-01E-26 CDD 1	06-21-88	945	92	138	23	11	6.6	12	0.70
14N-01E-27 BDA 1	08-25-87	1100	256	533	42	21	130	59	2.3
14N-01W-20 DDD 1	05-11-88	1230	280	1,520	31	26	510	86	1.6
14N-01W-28 BBA 1	06-27-89	1000	360	1,380	38	22	460	84	1.3
14N-02W-31 CDD 1	04-07-88	930	248	281	52	27	15	12	1.2
14N-02W-32 DCD 1	08-17-87	1100	250	303	37	21	49	37	1.5
14N-03W-18 DCC 1	09-25-87	1100	254	330	25	18	75	54	0.30
14N-03W-18 DCC 1	09-25-87	1200	254	332	25	18	76	55	0.20
14N-03W-33 DDD 1	08-14-87	1000	258	306	39	26	37	28	1.6
14N-03W-33 DDD 1	08-14-87	1100	258	306	39	27	37	28	1.6
14N-03W-34 BBA 1	04-11-88	1300	249	293	45	25	29	23	1.4
14N-04W-19 CDD 1	08-31-87	1030	321	681	87	40	96	35	0.80
14N-04W-31 CBC 1	07-20-89	930	536	719	70	61	100	34	0.60
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	304	354	30	13	89	60	1.7
POTTAWATOMIE COUNTY									
06N-03E-08 DCC 1	06-09-88	1000	430	513	5.4	3.0	200	94	1.3

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
13N-02W-06 BCC 1	04-06-88	1530	311	0	5.3	4.9	0.20	0.022	23
13N-02W-15 AAA 1	06-01-88	945	368	0	40	34	0.40	0.11	19
13N-02W-21 AAB 1	07-12-88	1345	127	0	29	9.8	0.10	0.077	13
13N-02W-23 DDA 1	06-14-89	1245	283	0	28	24	0.30	0.070	17
13N-02W-31 DDC 1	11-21-88	1200	290	0	59	14	0.20	0.13	25
13N-03W-23 ABD 1	04-14-88	1030	234	0	24	190	0.30	0.12	16
13N-04W-28 CAD 1	09-02-87	1000	288	0	420	9.2	0.70	0.030	16
14N-01E-09 DAD 1	06-21-88	1230	53	0	25	13	0.20	0.084	15
14N-01E-09 DAD 1	06-21-88	1330	53	0	24	13	0.30	0.076	15
14N-01E-26 CBB 1	07-08-88	945	215	0	16	12	0.20	0.10	16
14N-01E-26 CDD 1	06-21-88	945	110	0	13	5.1	0.20	0.049	23
14N-01E-27 BDA 1	08-25-87	1100	312	0	47	120	0.10	0.32	15
14N-01W-20 DDD 1	05-11-88	1230	342	0	170	590	0.90	0.91	12
14N-01W-28 BBA 1	06-27-89	1000	452	0	130	480	1.2	0.63	14
14N-02W-31 CDD 1	04-07-88	930	302	0	6.0	6.9	0.20	0.038	23
14N-02W-32 DCD 1	08-17-87	1100	305	0	11	12	0.20	0.082	20
14N-03W-18 DCC 1	09-25-87	1100	310	0	31	6.9	0.30	0.054	17
14N-03W-18 DCC 1	09-25-87	1200	310	0	32	6.7	0.30	0.030	17
14N-03W-33 DDD 1	08-14-87	1000	315	0	12	9.9	0.30	0.093	21
14N-03W-33 DDD 1	08-14-87	1100	315	0	11	10	0.20	0.12	21
14N-03W-34 BBA 1	04-11-88	1300	303	0	9.0	8.8	0.20	0.023	23
14N-04W-19 CDD 1	08-31-87	1030	392	0	77	130	<0.10	0.30	36
14N-04W-31 CBC 1	07-20-89	930	654	0	81	17	0.50	0.12	32
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	371	0	8.0	10	0.70	0.030	16
POTTAWATOMIE COUNTY									
06N-03E-08 DCC 1	06-09-88	1000	525	0	14	20	0.50	0.040	10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
13N-02W-06 BCC 1	04-06-88	1530	<0.010	0.180	<0.010	<0.20	<0.010	1.0	<10
13N-02W-15 AAA 1	06-01-88	945	<0.010	0.810	<0.010	<0.20	0.010	0.8	<10
13N-02W-21 AAB 1	07-12-88	1345	<0.010	2.60	0.020	0.80	0.030	1.2	<10
13N-02W-23 DDA 1	06-14-89	1245	<0.010	0.110	0.020	0.30	0.030	0.4	<10
13N-02W-31 DDC 1	11-21-88	1200	<0.010	4.60	0.020	0.80	0.010	—	<10
13N-03W-23 ABD 1	04-14-88	1030	<0.010	0.150	<0.010	0.30	<0.010	0.6	<10
13N-04W-28 CAD 1	09-02-87	1000	<0.010	0.210	<0.010	—	<0.010	0.5	<10
14N-01E-09 DAD 1	06-21-88	1230	<0.010	1.40	0.050	0.20	<0.010	1.1	<10
14N-01E-09 DAD 1	06-21-88	1330	<0.010	1.40	<0.010	<0.20	<0.010	1.2	<10
14N-01E-26 CBB 1	07-08-88	945	<0.010	1.70	0.020	0.20	0.030	0.9	<10
14N-01E-26 CDD 1	06-21-88	945	<0.010	0.230	<0.010	<0.20	0.110	1.0	10
14N-01E-27 BDA 1	08-25-87	1100	<0.010	0.240	<0.010	—	<0.010	0.5	<10
14N-01W-20 DDD 1	05-11-88	1230	<0.010	1.00	0.020	<0.20	0.010	1.2	<10
14N-01W-28 BBA 1	06-27-89	1000	<0.010	2.40	0.060	0.40	0.010	0.7	<10
14N-02W-31 CDD 1	04-07-88	930	<0.010	<0.100	<0.010	<0.20	<0.010	0.8	<10
14N-02W-32 DCD 1	08-17-87	1100	<0.010	<0.100	<0.010	—	<0.010	0.7	<10
14N-03W-18 DCC 1	09-25-87	1100	<0.010	0.480	<0.010	—	<0.010	0.2	<10
14N-03W-18 DCC 1	09-25-87	1200	<0.010	0.480	<0.010	—	<0.010	0.9	<10
14N-03W-33 DDD 1	08-14-87	1000	<0.010	0.540	0.020	—	<0.010	0.3	<10
14N-03W-33 DDD 1	08-14-87	1100	<0.010	0.540	<0.010	—	<0.010	0.6	<10
14N-03W-34 BBA 1	04-11-88	1300	<0.010	0.320	<0.010	<0.20	<0.010	0.6	<10
14N-04W-19 CDD 1	08-31-87	1030	<0.010	3.50	<0.010	—	<0.010	1.3	<10
14N-04W-31 CBC 1	07-20-89	930	<0.010	7.10	0.020	0.50	0.160	2.0	<10
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	<0.010	0.340	<0.010	<0.20	0.060	0.3	<10
POTTAWATOMIE COUNTY									
06N-03E-08 DCC 1	06-09-88	1000	<0.010	<0.100	0.080	0.30	<0.010	0.8	<10

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
13N-02W-06 BCC 1	04-06-88	1530	<1	<1	470	<0.5	90	<1.0	<5
13N-02W-15 AAA 1	06-01-88	945	<1	1	77	<0.5	70	<1.0	<5
13N-02W-21 AAB 1	07-12-88	1345	<1	<1	160	<0.5	30	<1.0	<5
13N-02W-23 DDA 1	06-14-89	1245	<1	2	140	<0.5	50	<1.0	<5
13N-02W-31 DDC 1	11-21-88	1200	<1	2	130	<0.5	50	<1.0	<5
13N-03W-23 ABD 1	04-14-88	1030	<1	1	210	<0.5	320	<1.0	9
13N-04W-28 CAD 1	09-02-87	1000	—	21	17	2	1,500	<1.0	40
14N-01E-09 DAD 1	06-21-88	1230	<1	<1	82	<0.5	20	<1.0	<5
14N-01E-09 DAD 1	06-21-88	1330	<1	<1	80	<0.5	20	<1.0	<5
14N-01E-26 CBB 1	07-08-88	945	<1	<1	130	<0.5	70	<1.0	<5
14N-01E-26 CDD 1	06-21-88	945	<1	1	51	<0.5	50	<1.0	<5
14N-01E-27 BDA 1	08-25-87	1100	—	1	150	<0.5	580	<1.0	20
14N-01W-20 DDD 1	05-11-88	1230	5	2	59	<2	2,500	<3.0	30
14N-01W-28 BBA 1	06-27-89	1000	<1	1	72	<1	2,800	<2.0	20
14N-02W-31 CDD 1	04-07-88	930	<1	<1	470	<0.5	80	<1.0	<5
14N-02W-32 DCD 1	08-17-87	1100	—	2	350	<0.5	280	<1.0	20
14N-03W-18 DCC 1	09-25-87	1100	—	4	120	<0.5	640	<1.0	30
14N-03W-18 DCC 1	09-25-87	1200	—	4	120	<0.5	600	<1.0	30
14N-03W-33 DDD 1	08-14-87	1000	—	1	280	<0.5	340	<1.0	9
14N-03W-33 DDD 1	08-14-87	1100	—	1	280	<0.5	330	<1.0	9
14N-03W-34 BBA 1	04-11-88	1300	<1	2	280	<0.5	180	<1.0	7
14N-04W-19 CDD 1	08-31-87	1030	—	4	190	<0.5	320	<1.0	4
14N-04W-31 CBC 1	07-20-89	930	<1	3	110	<0.5	710	<1.0	<5
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	<1	<1	200	<0.5	570	<1.0	9
POTTAWATOMIE COUNTY									
06N-03E-08 DCC 1	06-09-88	1000	1	4	160	<0.5	520	<1.0	<5

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
13N-02W-06 BCC 1	04-06-88	1530	4	<3	<10	<3	<10	21	<1
13N-02W-15 AAA 1	06-01-88	945	1	<3	<10	5	<10	19	<1
13N-02W-21 AAB 1	07-12-88	1345	<1	<3	10	130	<10	7	16
13N-02W-23 DDA 1	06-14-89	1245	—	<3	<10	7	<10	16	<1
13N-02W-31 DDC 1	11-21-88	1200	—	<3	<10	38	<10	12	4
13N-03W-23 ABD 1	04-14-88	1030	2	<3	<10	31	10	17	4
13N-04W-28 CAD 1	09-02-87	1000	—	<3	<10	14	<10	16	<1
14N-01E-09 DAD 1	06-21-88	1230	<1	<3	20	10	<10	<4	<1
14N-01E-09 DAD 1	06-21-88	1330	1	<3	20	4	<10	8	<1
14N-01E-26 CBB 1	07-08-88	945	1	<3	10	<3	<10	12	<1
14N-01E-26 CDD 1	06-21-88	945	1	<3	<10	<3	<10	9	<1
14N-01E-27 BDA 1	08-25-87	1100	—	<3	<10	5	<10	10	<1
14N-01W-20 DDD 1	05-11-88	1230	—	<9	<30	<9	<30	17	<3
14N-01W-28 BBA 1	06-27-89	1000	—	<6	<20	17	<20	16	74
14N-02W-31 CDD 1	04-07-88	930	2	<3	<10	9	<10	21	<1
14N-02W-32 DCD 1	08-17-87	1100	—	<3	<10	3	<10	8	<1
14N-03W-18 DCC 1	09-25-87	1100	—	<3	<10	8	<10	10	<1
14N-03W-18 DCC 1	09-25-87	1200	—	<3	<10	3	—	10	3
14N-03W-33 DDD 1	08-14-87	1000	—	<3	<10	5	<10	11	<1
14N-03W-33 DDD 1	08-14-87	1100	—	<3	<10	<3	<10	11	<1
14N-03W-34 BBA 1	04-11-88	1300	1	<3	<10	<3	<10	10	<1
14N-04W-19 CDD 1	08-31-87	1030	—	<3	<10	5	<10	<4	<1
14N-04W-31 CBC 1	07-20-89	930	—	<3	<10	96	<10	16	56
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	—	<3	<10	<3	<10	15	<1
POTTAWATOMIE COUNTY									
06N-03E-08 DCC 1	06-09-88	1000	1	<3	<10	9	<10	11	37

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
13N-02W-06 BCC 1	04-06-88	1530	<0.1	<10	<10	<1	<1.0	830	9	<3
13N-02W-15 AAA 1	06-01-88	945	<0.1	<10	<10	<1	<1.0	330	<6	6
13N-02W-21 AAB 1	07-12-88	1345	<0.1	<10	<10	<1	<1.0	71	<6	180
13N-02W-23 DDA 1	06-14-89	1245	<0.1	<10	<10	<1	<1.0	280	<6	86
13N-02W-31 DDC 1	11-21-88	1200	<0.1	<10	<10	2	<1.0	120	<6	42
13N-03W-23 ABD 1	04-14-88	1030	0.1	<10	<10	2	<1.0	1,800	6	13
13N-04W-28 CAD 1	09-02-87	1000	—	10	<10	63	<1.0	1,900	190	<3
14N-01E-09 DAD 1	06-21-88	1230	<0.1	<10	<10	<1	<1.0	87	<6	12
14N-01E-09 DAD 1	06-21-88	1330	<0.1	<10	<10	<1	1.0	85	<6	11
14N-01E-26 CBB 1	07-08-88	945	<0.1	<10	<10	<1	<1.0	110	<6	<3
14N-01E-26 CDD 1	06-21-88	945	<0.1	<10	<10	1	<1.0	48	<6	7
14N-01E-27 BDA 1	08-25-87	1100	—	<10	<10	12	<1.0	370	13	8
14N-01W-20 DDD 1	05-11-88	1230	0.3	<30	<30	75	<3.0	590	<18	<9
14N-01W-28 BBA 1	06-27-89	1000	<0.1	20	30	26	<2.0	480	<12	10
14N-02W-31 CDD 1	04-07-88	930	0.2	<10	<10	<1	<1.0	580	10	<3
14N-02W-32 DCD 1	08-17-87	1100	—	<10	<10	2	<1.0	780	25	3
14N-03W-18 DCC 1	09-25-87	1100	—	<10	<10	<1	3.0	1,200	38	<3
14N-03W-18 DCC 1	09-25-87	1200	—	<10	<10	<1	3.0	1,200	39	<3
14N-03W-33 DDD 1	08-14-87	1000	—	<10	10	2	<1.0	1,200	13	11
14N-03W-33 DDD 1	08-14-87	1100	—	<10	<10	2	<1.0	1,200	14	<3
14N-03W-34 BBA 1	04-11-88	1300	<0.1	<10	<10	<1	<1.0	990	18	<3
14N-04W-19 CDD 1	08-31-87	1030	—	<10	<10	2	<1.0	4,900	38	17
14N-04W-31 CBC 1	07-20-89	930	<0.1	<10	<10	15	2.0	2,500	15	26
PAYNE COUNTY										
17N-03E-10 CDD 1	06-27-89	1400	<0.1	<10	<10	2	<1.0	600	21	7
POTTAWATOMIE COUNTY										
06N-03E-08 DCC 1	06-09-88	1000	<0.1	<10	<10	<1	1.0	78	37	12

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Specific conductance (µS/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
06N-03E-21 ABB 1	06-09-88	1200	345908096593101	4	302	6.6	17.0	6.6	76
06N-03E-28 BAA 1	07-05-89	1030	345814096593301	2	616	7.0	17.0	6.5	260
06N-03E-28 BAA 1	07-05-89	1130	345814096593301	2	593	7.0	17.0	6.1	260
06N-04E-35 DDD 1	07-06-89	1015	345634096503901	1	525	7.2	17.5	0.1	200
07N-02E-29 DCD 1	06-08-88	1215	350240097064101	12	405	7.6	17.5	3.7	140
07N-02E-32 CBC 1	06-08-88	1000	350203097072201	11	440	6.1	17.0	4.4	170
07N-03E-01 CBB 1	06-28-89	1315	350629096565401	18	1,090	7.2	17.5	0.7	370
07N-04E-06 CCC 1	06-13-88	945	350610096555001	17	790	7.1	16.5	0.9	400
07N-04E-07 ABA 1	06-14-88	1345	350603096550801	16	2,190	6.9	17.0	0.2	810
08N-02E-05 BBA 1	06-26-89	1000	351209097071701	27	696	6.8	17.5	5.0	130
08N-03E-18 DAA 1	06-26-89	1315	350959097011301	22	728	8.0	17.5	0.2	77
09N-02E-07 ADA 1	06-07-88	1145	351617097072801	41	574	6.9	17.0	2.1	280
09N-02E-07 BBB 1	06-07-88	945	351624097082401	42	517	7.3	17.0	2.1	270
09N-02E-10 ADD 1	09-08-87	1200	351611097042001	39	346	6.3	18.0	4.5	120
09N-02E-34 CDC 1	09-03-87	1100	351212097045601	28	361	6.6	18.0	4.7	42
09N-03E-13 CCA 1	09-04-87	1000	351455096563801	37	1,320	7.3	19.0	3.4	570
09N-03E-13 CCA 1	04-28-88	945	351455096563801	37	1,470	7.3	18.5	2.8	620
09N-03E-20 BDB 1	06-14-88	1130	351433097004401	36	706	6.8	17.0	2.0	370
09N-03E-21 DAD 1	06-14-88	945	351411096590001	34	1,210	7.5	18.5	6.9	320
10N-03E-22 ABB 1	06-21-89	1245	351955096582501	55	1,340	7.1	17.5	0.1	670
11N-02E-10 BBA 1	06-19-89	1300	352652097050501	83	807	7.1	16.5	0.0	330
11N-02E-16 BDA 1	08-28-87	1100	352550097055401	77	640	7.0	17.5	2.8	120
11N-02E-16 BDA 1	04-18-88	1300	352550097055401	77	635	7.0	17.0	4.6	150
11N-02E-25 BBC 1	06-20-89	930	352410097031401	206	867	8.2	17.5	0.0	56
11N-02E-34 ABB 1	06-02-88	930	352326097044801	60	628	6.9	17.0	7.9	220
11N-02E-35 BAB 1	06-02-88	1145	352327097040101	61	736	6.0	16.5	5.0	230
11N-03E-15 BCC 1	06-15-88	1000	352543096585601	76	537	7.4	17.5	8.6	230
11N-04E-28 ABB 1	07-25-89	1300	352418096530101	65	544	6.7	17.5	0.1	210
11N-04E-29 CBB 1	07-14-88	1315	352351096544001	63	938	9.1	18.5	0.2	5
11N-04E-31 DCC 1	08-27-87	1000	352236096551001	59	1,040	8.9	18.5	<0.1	7

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Alkalinity, whole water, incremental titration, field, total (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Potassium, dissolved (mg/L)
06N-03E-21 ABB 1	06-09-88	1200	92	190	18	7.4	37	51	0.40
06N-03E-28 BAA 1	07-05-89	1030	236	375	56	29	24	16	16
06N-03E-28 BAA 1	07-05-89	1130	236	376	57	29	24	16	16
06N-04E-35 DDD 1	07-06-89	1015	234	325	55	14	42	32	0.70
07N-02E-29 DCD 1	06-08-88	1215	206	246	33	14	39	37	2.1
07N-02E-32 CBC 1	06-08-88	1000	93	256	33	20	30	28	1.2
07N-03E-01 CBB 1	06-28-89	1315	368	686	77	42	110	40	0.70
07N-04E-06 CCC 1	06-13-88	945	336	494	98	38	29	14	0.70
07N-04E-07 ABA 1	06-14-88	1345	516	1,200	190	82	130	26	0.80
08N-02E-05 BBA 1	06-26-89	1000	168	422	28	14	100	63	2.1
08N-03E-18 DAA 1	06-26-89	1315	330	433	16	8.9	140	79	1.8
09N-02E-07 ADA 1	06-07-88	1145	276	318	57	33	13	9	1.1
09N-02E-07 BBB 1	06-07-88	945	274	296	56	31	11	8	1.6
09N-02E-10 ADD 1	09-08-87	1200	76	205	26	13	21	27	3.1
09N-02E-34 CDC 1	09-03-87	1100	116	227	8.3	5.1	65	76	2.0
09N-03E-13 CCA 1	09-04-87	1000	207	994	150	46	92	26	3.3
09N-03E-13 CCA 1	04-28-88	945	212	1,090	160	52	100	27	3.4
09N-03E-20 BDB 1	06-14-88	1130	340	416	75	44	17	9	1.1
09N-03E-21 DAD 1	06-14-88	945	342	881	94	21	170	53	3.4
10N-03E-22 ABB 1	06-21-89	1245	470	937	180	53	59	16	3.0
11N-02E-10 BBA 1	06-19-89	1300	382	497	82	29	59	28	2.4
11N-02E-16 BDA 1	08-28-87	1100	192	362	25	13	97	64	1.2
11N-02E-16 BDA 1	04-18-88	1300	172	285	33	17	50	41	1.3
11N-02E-25 BBC 1	06-20-89	930	174	499	13	5.6	170	86	1.9
11N-02E-34 ABB 1	06-02-88	930	210	371	50	22	49	33	1.0
11N-02E-35 BAB 1	06-02-88	1145	50	453	56	21	42	27	15
11N-03E-15 BCC 1	06-15-88	1000	208	318	48	26	30	22	1.1
11N-04E-28 ABB 1	07-25-89	1300	242	327	51	20	39	29	0.80
11N-04E-29 CBB 1	07-14-88	1315	400	556	1.3	0.43	220	99	0.80
11N-04E-31 DCC 1	08-27-87	1000	348	649	1.8	0.57	250	99	0.80

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Bicarbonate, whole water, incremental titration, field (mg/L)	Carbonate, whole water, incremental titration, field (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)
06N-03E-21 ABB 1	06-09-88	1200	112	0	26	15	0.40	0.079	16
06N-03E-28 BAA 1	07-05-89	1030	288	0	44	24	0.30	0.18	16
06N-03E-28 BAA 1	07-05-89	1130	288	0	44	24	0.30	0.18	16
06N-04E-35 DDD 1	07-06-89	1015	285	0	34	15	0.30	0.17	21
07N-02E-29 DCD 1	06-08-88	1215	251	0	7.5	8.3	0.30	0.058	14
07N-02E-32 CBC 1	06-08-88	1000	113	0	17	80	0.30	0.46	15
07N-03E-01 CBB 1	06-28-89	1315	449	0	170	45	0.30	0.21	18
07N-04E-06 CCC 1	06-13-88	945	410	0	92	15	0.30	0.17	18
07N-04E-07 ABA 1	06-14-88	1345	629	0	120	340	0.30	1.7	18
08N-02E-05 BBA 1	06-26-89	1000	205	0	49	91	0.50	0.26	18
08N-03E-18 DAA 1	06-26-89	1315	403	0	17	32	0.20	0.14	14
09N-02E-07 ADA 1	06-07-88	1145	331	0	18	15	0.40	0.17	15
09N-02E-07 BBB 1	06-07-88	945	334	0	5.2	10	0.40	0.11	15
09N-02E-10 ADD 1	09-08-87	1200	93	0	29	24	0.20	0.11	16
09N-02E-34 CDC 1	09-03-87	1100	142	0	22	25	0.10	0.081	22
09N-03E-13 CCA 1	09-04-87	1000	252	0	530	24	0.30	0.061	18
09N-03E-13 CCA 1	04-28-88	945	259	0	600	17	0.30	0.079	17
09N-03E-20 BDB 1	06-14-88	1130	415	0	18	19	0.40	0.27	20
09N-03E-21 DAD 1	06-14-88	945	417	0	350	19	0.30	0.25	14
10N-03E-22 ABB 1	06-21-89	1245	573	0	290	26	0.90	0.18	33
11N-02E-10 BBA 1	06-19-89	1300	466	0	46	23	0.50	0.19	22
11N-02E-16 BDA 1	08-28-87	1100	234	0	26	69	0.60	0.25	12
11N-02E-16 BDA 1	04-18-88	1300	210	0	15	47	0.20	0.25	16
11N-02E-25 BBC 1	06-20-89	930	212	0	47	140	0.90	0.18	12
11N-02E-34 ABB 1	06-02-88	930	256	0	36	35	0.40	0.36	14
11N-02E-35 BAB 1	06-02-88	1145	61	0	42	77	0.20	0.37	18
11N-03E-15 BCC 1	06-15-88	1000	254	0	12	35	0.10	0.33	20
11N-04E-28 ABB 1	07-25-89	1300	295	0	20	21	0.30	0.24	24
11N-04E-29 CBB 1	07-14-88	1315	429	29	40	43	0.30	0.11	9.1
11N-04E-31 DCC 1	08-27-87	1000	351	36	140	32	2.0	0.15	9.7

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic, dissolved (mg/L)	Aluminum, dissolved (µg/L)
06N-03E-21 ABB 1	06-09-88	1200	<0.010	3.30	<0.010	0.30	<0.010	1.0	<10
06N-03E-28 BAA 1	07-05-89	1030	0.010	5.30	0.030	0.40	0.030	1.3	10
06N-03E-28 BAA 1	07-05-89	1130	0.010	5.20	0.030	0.50	0.030	1.3	<10
06N-04E-35 DDD 1	07-06-89	1015	<0.010	0.260	0.120	<0.20	0.030	9.7	<10
07N-02E-29 DCD 1	06-08-88	1215	<0.010	0.720	<0.010	0.30	<0.010	1.0	<10
07N-02E-32 CBC 1	06-08-88	1000	<0.010	0.510	<0.010	<0.20	<0.010	1.3	<10
07N-03E-01 CBB 1	06-28-89	1315	0.010	0.180	0.050	<0.20	<0.010	0.9	<10
07N-04E-06 CCC 1	06-13-88	945	<0.010	<0.100	<0.010	<0.20	<0.010	0.8	<10
07N-04E-07 ABA 1	06-14-88	1345	<0.010	0.280	1.00	1.4	0.170	1.0	<10
08N-02E-05 BBA 1	06-26-89	1000	<0.010	3.60	0.010	0.30	0.060	0.5	<10
08N-03E-18 DAA 1	06-26-89	1315	<0.010	0.860	0.020	0.20	<0.010	0.6	<10
09N-02E-07 ADA 1	06-07-88	1145	<0.010	0.390	0.040	1.0	0.030	1.0	<10
09N-02E-07 BBB 1	06-07-88	945	<0.010	0.130	<0.010	0.20	<0.010	0.8	<10
09N-02E-10 ADD 1	09-08-87	1200	<0.010	5.90	0.020	—	0.040	1.5	<10
09N-02E-34 CDC 1	09-03-87	1100	<0.010	1.50	0.020	—	<0.010	0.8	<10
09N-03E-13 CCA 1	09-04-87	1000	<0.010	0.240	0.030	—	<0.010	0.5	10
09N-03E-13 CCA 1	04-28-88	945	<0.010	0.240	0.040	<0.20	<0.010	0.8	<10
09N-03E-20 BDB 1	06-14-88	1130	<0.010	3.80	<0.010	0.30	<0.010	1.1	<10
09N-03E-21 DAD 1	06-14-88	945	<0.010	<0.100	0.340	0.30	0.020	3.3	<10
10N-03E-22 ABB 1	06-21-89	1245	<0.010	0.870	0.730	2.0	<0.010	1.8	<10
11N-02E-10 BBA 1	06-19-89	1300	<0.010	<0.100	0.120	0.30	0.040	0.9	<10
11N-02E-16 BDA 1	08-28-87	1100	<0.010	0.260	<0.010	—	0.040	0.5	<10
11N-02E-16 BDA 1	04-18-88	1300	<0.010	0.260	0.010	<0.20	0.040	1.9	<10
11N-02E-25 BBC 1	06-20-89	930	0.020	<0.100	0.070	0.30	<0.010	—	<10
11N-02E-34 ABB 1	06-02-88	930	<0.010	8.40	<0.010	0.20	0.050	1.4	<10
11N-02E-35 BAB 1	06-02-88	1145	0.010	34.0	0.010	1.2	0.020	2.4	<10
11N-03E-15 BCC 1	06-15-88	1000	<0.010	4.60	<0.010	0.70	0.010	0.7	<10
11N-04E-28 ABB 1	07-25-89	1300	<0.010	1.10	0.010	<0.20	0.060	0.5	<10
11N-04E-29 CBB 1	07-14-88	1315	<0.010	<0.100	0.030	0.20	0.020	0.7	<10
11N-04E-31 DCC 1	08-27-87	1000	<0.010	<0.100	0.010	—	0.020	0.7	—

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)
06N-03E-21 ABB 1	06-09-88	1200	1	<1	94	<0.5	40	<1.0	<5
06N-03E-28 BAA 1	07-05-89	1030	2	<1	80	<0.5	90	<1.0	<5
06N-03E-28 BAA 1	07-05-89	1130	<1	<1	81	<0.5	70	<1.0	<5
06N-04E-35 DDD 1	07-06-89	1015	2	2	190	<0.5	110	<1.0	<5
07N-02E-29 DCD 1	06-08-88	1215	5	1	430	<0.5	260	<1.0	<5
07N-02E-32 CBC 1	06-08-88	1000	3	<1	490	<0.5	50	<1.0	<5
07N-03E-01 CBB 1	06-28-89	1315	<1	<1	100	<0.5	410	<1.0	<5
07N-04E-06 CCC 1	06-13-88	945	<1	1	250	<0.5	150	<1.0	<5
07N-04E-07 ABA 1	06-14-88	1345	<1	<1	190	<0.5	240	<1.0	<5
08N-02E-05 BBA 1	06-26-89	1000	<1	<1	300	<0.5	1,300	<1.0	8
08N-03E-18 DAA 1	06-26-89	1315	<1	1	260	<0.5	630	<1.0	<5
09N-02E-07 ADA 1	06-07-88	1145	<1	<1	97	<0.5	100	<1.0	<5
09N-02E-07 BBB 1	06-07-88	945	<1	<1	490	<0.5	90	<1.0	<5
09N-02E-10 ADD 1	09-08-87	1200	—	<1	180	<0.5	50	<1.0	1
09N-02E-34 CDC 1	09-03-87	1100	—	1	81	0.7	340	<1.0	6
09N-03E-13 CCA 1	09-04-87	1000	—	<1	17	<0.5	420	<1.0	<1
09N-03E-13 CCA 1	04-28-88	945	<1	<1	20	<0.5	400	<1.0	<5
09N-03E-20 BDB 1	06-14-88	1130	<1	<1	420	<0.5	120	<1.0	<5
09N-03E-21 DAD 1	06-14-88	945	<1	<1	100	<0.5	410	<1.0	5
10N-03E-22 ABB 1	06-21-89	1245	<1	<1	57	<0.5	240	<1.0	<5
11N-02E-10 BBA 1	06-19-89	1300	<1	2	85	<0.5	190	<1.0	<5
11N-02E-16 BDA 1	08-28-87	1100	—	1	75	<0.5	820	1.0	40
11N-02E-16 BDA 1	04-18-88	1300	<1	<1	90	<0.5	400	<1.0	10
11N-02E-25 BBC 1	06-20-89	930	<1	1	72	<0.5	3,600	<1.0	<5
11N-02E-34 ABB 1	06-02-88	930	<1	<1	160	<0.5	80	<1.0	<5
11N-02E-35 BAB 1	06-02-88	1145	<1	<1	290	<0.5	80	<1.0	<5
11N-03E-15 BCC 1	06-15-88	1000	<1	<1	55	<0.5	90	<1.0	<5
11N-04E-28 ABB 1	07-25-89	1300	<1	1	270	<0.5	70	<1.0	<5
11N-04E-29 CBB 1	07-14-88	1315	<1	6	63	<0.5	960	<1.0	<5
11N-04E-31 DCC 1	08-27-87	1000	—	1	24	<0.5	3,100	<1.0	<1

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)
06N-03E-21 ABB 1	06-09-88	1200	1	<3	<10	4	<10	<4	<1
06N-03E-28 BAA 1	07-05-89	1030	—	<3	<10	11	<10	10	7
06N-03E-28 BAA 1	07-05-89	1130	—	<3	<10	11	<10	9	7
06N-04E-35 DDD 1	07-06-89	1015	—	<3	<10	900	<10	9	240
07N-02E-29 DCD 1	06-08-88	1215	<1	<3	<10	3	<10	12	<1
07N-02E-32 CBC 1	06-08-88	1000	<1	<3	<10	36	<10	16	<1
07N-03E-01 CBB 1	06-28-89	1315	—	<3	10	11	<10	18	12
07N-04E-06 CCC 1	06-13-88	945	1	<3	<10	6	<10	16	<1
07N-04E-07 ABA 1	06-14-88	1345	<1	<3	<10	1,400	<10	26	180
08N-02E-05 BBA 1	06-26-89	1000	—	3	<10	6	20	16	<1
08N-03E-18 DAA 1	06-26-89	1315	—	<3	<10	33	10	11	<1
09N-02E-07 ADA 1	06-07-88	1145	<1	<3	<10	4	<10	18	<1
09N-02E-07 BBB 1	06-07-88	945	<1	<3	<10	4	10	28	<1
09N-02E-10 ADD 1	09-08-87	1200	—	<3	<10	15	<10	7	<1
09N-02E-34 CDC 1	09-03-87	1100	—	<3	<10	19	<10	14	<1
09N-03E-13 CCA 1	09-04-87	1000	—	<3	<10	340	<10	32	15
09N-03E-13 CCA 1	04-28-88	945	<1	<3	<10	320	<10	45	25
09N-03E-20 BDB 1	06-14-88	1130	1	<3	<10	<3	<10	13	<1
09N-03E-21 DAD 1	06-14-88	945	1	<3	<10	18	<10	31	14
10N-03E-22 ABB 1	06-21-89	1245	—	<3	<10	2,800	<10	73	1,200
11N-02E-10 BBA 1	06-19-89	1300	—	<3	<10	1,700	<10	35	440
11N-02E-16 BDA 1	08-28-87	1100	—	<3	<10	<3	<10	<4	<1
11N-02E-16 BDA 1	04-18-88	1300	11	<3	<10	4	<10	22	<1
11N-02E-25 BBC 1	06-20-89	930	—	<3	<10	4	<10	10	8
11N-02E-34 ABB 1	06-02-88	930	2	<3	<10	<3	<10	21	<1
11N-02E-35 BAB 1	06-02-88	1145	1	<3	<10	<3	<10	18	7
11N-03E-15 BCC 1	06-15-88	1000	<1	<3	<10	30	<10	19	7
11N-04E-28 ABB 1	07-25-89	1300	—	<3	10	8	<10	16	110
11N-04E-29 CBB 1	07-14-88	1315	<1	<3	<10	11	<10	7	2
11N-04E-31 DCC 1	08-27-87	1000	—	<3	<10	<3	<10	<4	2

Table 4.—*Physical properties and concentrations of major ions, nutrients, and trace substances in water samples from wells*—Continued

Local identifier	Date	Time	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
06N-03E-21 ABB 1	06-09-88	1200	<0.1	<10	<10	<1	<1.0	97	<6	4
06N-03E-28 BAA 1	07-05-89	1030	<0.1	<10	20	<1	<1.0	120	<6	32
06N-03E-28 BAA 1	07-05-89	1130	<0.1	<10	<10	1	<1.0	130	<6	35
06N-04E-35 DDD 1	07-06-89	1015	<0.1	<10	<10	<1	1.0	270	<6	<3
07N-02E-29 DCD 1	06-08-88	1215	<0.1	<10	<10	1	<1.0	770	24	15
07N-02E-32 CBC 1	06-08-88	1000	<0.1	<10	<10	<1	<1.0	150	<6	7
07N-03E-01 CBB 1	06-28-89	1315	<0.1	<10	<10	2	<1.0	390	7	8
07N-04E-06 CCC 1	06-13-88	945	<0.1	<10	<10	<1	<1.0	320	<6	9
07N-04E-07 ABA 1	06-14-88	1345	<0.1	<10	<10	<1	<1.0	1,400	<6	3
08N-02E-05 BBA 1	06-26-89	1000	0.9	<10	<10	<1	2.0	160	<6	<3
08N-03E-18 DAA 1	06-26-89	1315	<0.1	<10	<10	<1	3.0	290	<6	19
09N-02E-07 ADA 1	06-07-88	1145	<0.1	<10	<10	<1	<1.0	180	<6	6
09N-02E-07 BBB 1	06-07-88	945	<0.1	<10	<10	<1	<1.0	200	<6	6
09N-02E-10 ADD 1	09-08-87	1200	—	<10	<10	<1	1.0	120	<6	5
09N-02E-34 CDC 1	09-03-87	1100	—	<10	<10	8	<1.0	90	23	23
09N-03E-13 CCA 1	09-04-87	1000	—	<10	<10	2	<1.0	4,100	13	20
09N-03E-13 CCA 1	04-28-88	945	<0.1	<10	<10	2	<1.0	4,600	11	7
09N-03E-20 BDB 1	06-14-88	1130	<0.1	<10	<10	<1	<1.0	240	<6	<3
09N-03E-21 DAD 1	06-14-88	945	<0.1	<10	<10	12	<1.0	2,900	31	9
10N-03E-22 ABB 1	06-21-89	1245	<0.1	<10	<10	<1	<1.0	1,400	<6	38
11N-02E-10 BBA 1	06-19-89	1300	<0.1	<10	<10	<1	<1.0	750	<6	5
11N-02E-16 BDA 1	08-28-87	1100	—	<10	<10	75	<1.0	150	26	4
11N-02E-16 BDA 1	04-18-88	1300	0.2	<10	<10	17	<1.0	160	16	<3
11N-02E-25 BBC 1	06-20-89	930	0.2	<10	<10	<1	<1.0	220	<6	4
11N-02E-34 ABB 1	06-02-88	930	<0.1	<10	<10	1	<1.0	180	<6	5
11N-02E-35 BAB 1	06-02-88	1145	<0.1	<10	20	1	<1.0	290	<6	7
11N-03E-15 BCC 1	06-15-88	1000	<0.1	<10	<10	<1	1.0	150	<6	44
11N-04E-28 ABB 1	07-25-89	1300	<0.1	<10	<10	2	<1.0	240	<6	3
11N-04E-29 CBB 1	07-14-88	1315	0.2	<10	<10	2	<1.0	17	76	3
11N-04E-31 DCC 1	08-27-87	1000	—	<10	<10	<1	<1.0	33	<6	<3

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*

[pCi/L, *picocuries per liter;* ^{230}Th, ^{230}*thorium;* 2SPE, *two standard precision estimates;* µg/L, *micrograms per liter;* U-nat, *uranium, natural;* (—), *indicates no data are available;* ^{137}Cs, ^{137}*cesium;* ^{90}Sr/^{90}Y, ^{90}*strontium/* ^{90}*yttrium;* ^{226}Ra, ^{226}*radium;* ^{228}Ra, ^{228}*radium;* E, *values preceded by E are field estimates of* ^{222}*radon concentrations;* ^{222}Rn, ^{222}*radon;* ^{234}U, ^{234}*uranium;* ^{235}U, ^{235}*uranium;* ^{238}U, ^{238}*uranium;* U-natural, *uranium, natural (a calculated value, computed from* ^{235}*uranium and* ^{238}*uranium data); all samples analyzed by the National Water Quality Laboratory of the U.S. Geological Survey*]

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
				CANADIAN COUNTY			
14N-05W-25 DDC 1	08-26-87	1000	353915097403901	159	—	—	—
				CLEVELAND COUNTY			
06N-01E-05 DDB 1	04-20-88	1130	350101097125401	10	21 ± 3.3	20 ± 3.6	9.7 ± 1.9
06N-01E-05 DDC 1	04-20-88	930	350055097125402	9	19 ± 3.5	19 ± 3.6	8.9 ± 1.9
06N-01E-12 DCC 1	07-05-88	1300	350003097090101	8	0.1 ± 0.6	<0.4 ± 0.5	<0.4 ± 0.5
06N-01E-17 ABA 1	07-05-88	1030	350001097130101	6	1.2 ± 0.9	1.2 ± 0.9	1.3 ± 0.8
06N-01W-17 BBB 1	06-08-89	1400	345959097200301	5	2.2 ± 0.5	2.1 ± 0.5	7.3 ± 4.4
06N-01W-27 BBA 1	06-29-89	1245	345815097174901	3	3.8 ± 0.7	3.7 ± 0.6	9.6 ± 2.7
07N-01W-07 DCD 1	06-08-89	1015	350516097202601	15	1.7 ± 0.4	1.6 ± 0.4	3.0 ± 1.7
07N-01W-30 DDD 1	06-29-89	1000	350243097200901	13	0.5 ± 0.2	0.5 ± 0.2	15 ± 3.3
07N-02W-15 AAA 1	06-12-89	945	350514097232301	14	2.9 ± 0.6	2.7 ± 0.6	3.8 ± 2.7
08N-01E-08 DCC 1	06-22-88	945	351027097131401	23	3.4 ± 1.2	3.4 ± 1.2	3.9 ± 1.2
08N-01E-09 AAB 1	07-11-88	1030	351118097114901	26	1.6 ± 1.0	1.6 ± 1.0	1.1 ± 0.6
08N-01E-22 DDA 1	06-28-89	945	350851097103901	21	0.8 ± 0.3	0.8 ± 0.3	3.4 ± 0.8
08N-01W-12 BCB 1	10-02-87	1300	351106097155201	24	—	—	—
08N-01W-12 BCB 2	09-11-87	1500	351106097155202	25	—	—	—
08N-02W-25 BAA 1	04-27-88	930	350845097214501	166	23 ± 4.6	22 ± 4.0	11 ± 2.2
08N-02W-27 DDD 1	04-21-88	1000	350756097232001	19	42 ± 5.9	38 ± 5.7	22 ± 3.3
09N-01E-01 CDD 1	06-23-89	1000	351632097090901	43	6.9 ± 1.1	6.3 ± 1.0	7.0 ± 1.8
09N-01W-03 CCC 1	06-23-88	915	351638097175301	44	1.0 ± 0.7	1.0 ± 0.7	1.8 ± 0.9
09N-01W-04 CBC 1	07-11-88	1315	351651097185901	46	3.3 ± 1.5	3.2 ± 1.5	2.0 ± 0.9
09N-01W-09 BDD 1	06-23-89	1300	351613097183501	40	1.1 ± 0.4	1.0 ± 0.3	2.7 ± 1.3
09N-02W-22 DDA 1	07-29-87	1120	351409097231801	33	—	—	—
09N-02W-29 DCA 1	07-31-87	1030	351314097254701	32	—	—	—
09N-02W-31 DAA 1	04-25-88	1330	351236097262801	30	55 ± 9.2	54 ± 7.9	27 ± 4.1
09N-02W-32 CCC 1	04-25-88	1100	351219097262301	29	79 ± 9.3	75 ± 10	49 ± 6.6
09N-03W-11 AAC 1	07-31-87	1530	351648097285101	45	—	—	—

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
			CANADIAN COUNTY			
14N-05W-25 DDC 1	08-26-87	1000	— —	0.83 ± 0.14	2 ± 0.6	E360 —
			CLEVELAND COUNTY			
06N-01E-05 DDB 1	04-20-88	1130	7.2 ± 1.4	— —	— —	<80 ± 31
06N-01E-05 DDC 1	04-20-88	930	6.6 ± 1.4	— —	— —	130 ± 31
06N-01E-12 DCC 1	07-05-88	1300	<0.4 ± 0.4	— —	— —	130 ± 30
06N-01E-17 ABA 1	07-05-88	1030	1.0 ± 0.6	— —	— —	140 ± 31
06N-01W-17 BBB 1	06-08-89	1400	5.8 ± 3.5	— —	— —	210 ± 46
06N-01W-27 BBA 1	06-29-89	1245	7.6 ± 2.2	— —	— —	330 ± 70
07N-01W-07 DCD 1	06-08-89	1015	2.4 ± 1.3	— —	— —	390 ± 46
07N-01W-30 DDD 1	06-29-89	1000	12 ± 2.6	— —	— —	170 ± 73
07N-02W-15 AAA 1	06-12-89	945	3.0 ± 2.1	— —	— —	210 ± 26
08N-01E-08 DCC 1	06-22-88	945	3.0 ± 0.9	— —	— —	82 ± 31
08N-01E-09 AAB 1	07-11-88	1030	1.0 ± 0.5	— —	— —	<80 ± 29
08N-01E-22 DDA 1	06-28-89	945	2.7 ± 0.6	— —	— —	<80 ± 17
08N-01W-12 BCB 1	10-02-87	1300	— —	0.28 ± 0.03	1 ± 1.7	E240 —
08N-01W-12 BCB 2	09-11-87	1500	— —	0.16 ± 0.05	2 ± 1.4	— —
08N-02W-25 BAA 1	04-27-88	930	8.5 ± 1.6	— —	— —	180 ± 32
08N-02W-27 DDD 1	04-21-88	1000	16 ± 2.5	— —	— —	120 ± 31
09N-01E-01 CDD 1	06-23-89	1000	5.5 ± 1.4	— —	— —	130 ± 38
09N-01W-03 CCC 1	06-23-88	915	1.3 ± 0.6	— —	— —	110 ± 31
09N-01W-04 CBC 1	07-11-88	1315	1.5 ± 0.7	— —	— —	120 ± 30
09N-01W-09 BDD 1	06-23-89	1300	2.1 ± 1.0	— —	— —	160 ± 39
09N-02W-22 DDA 1	07-29-87	1120	— —	0.12 ± 0.03	— —	E210 —
09N-02W-29 DCA 1	07-31-87	1030	— —	0.04 ± 0.01	3 ± 2.6	E140 —
09N-02W-31 DAA 1	04-25-88	1330	18 ± 2.8	— —	— —	170 ± 32
09N-02W-32 CCC 1	04-25-88	1100	32 ± 4.3	— —	— —	170 ± 32
09N-03W-11 AAC 1	07-31-87	1530	— —	0.04 ± 0.02	2 ± 2.1	E200 —

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
			CANADIAN COUNTY			
14N-05W-25 DDC 1	08-26-87	1000	<0.3 ± 0.3	0.7 ± 0.1	<0.1 ± 0.0	0.1 ± 0.0
			CLEVELAND COUNTY			
06N-01E-05 DDB 1	04-20-88	1130	<0.3 ± 0.3	8.6 ± 0.9	0.1 ± 0.0	3.7 ± 0.4
06N-01E-05 DDC 1	04-20-88	930	<0.3 ± 0.3	7.8 ± 0.8	0.1 ± 0.0	3.1 ± 0.4
06N-01E-12 DCC 1	07-05-88	1300	43 ± 1.3	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
06N-01E-17 ABA 1	07-05-88	1030	38 ± 1.3	0.4 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0
06N-01W-17 BBB 1	06-08-89	1400	19 ± 1.3	0.3 ± 0.2	0.1 ± 0.1	0.3 ± 0.2
06N-01W-27 BBA 1	06-29-89	1245	38 ± 2.6	1.3 ± 0.3	0.3 ± 0.1	0.7 ± 0.2
07N-01W-07 DCD 1	06-08-89	1015	32 ± 1.9	0.3 ± 0.2	<0.1 ± 0.2	0.2 ± 0.2
07N-01W-30 DDD 1	06-29-89	1000	50 ± 3.2	2,6 ± 0.5	0.5 ± 0.2	1.8 ± 0.4
07N-02W-15 AAA 1	06-12-89	945	33 ± 1.9	0,2 ± 0.1	<0.1 ± 0.1	<0.1 ± 0.1
08N-01E-08 DCC 1	06-22-88	945	<0.3 ± 0.3	0,6 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0
08N-01E-09 AAB 1	07-11-88	1030	2.1 ± 0.3	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
08N-01E-22 DDA 1	06-28-89	945	47 ± 3.2	<0.1 ± 0.1	<0.1 ± 0.1	<0.1 ± 0.1
08N-01W-12 BCB 1	10-02-87	1300	<0.3 ± 0.5	10 ± 1.0	0.2 ± 0.0	3.6 ± 0.4
08N-01W-12 BCB 2	09-11-87	1500	1.2 ± 0.4	5.9 ± 0.6	0.1 ± 0.0	1.9 ± 0.2
08N-02W-25 BAA 1	04-27-88	930	<0.3 ± 0.3	11 ± 1.1	0.2 ± 0.1	4.6 ± 0.5
08N-02W-27 DDD 1	04-21-88	1000	0.9 ± 0.4	15 ± 1.6	0.4 ± 0.1	7.6 ± 0.9
09N-01E-01 CDD 1	06-23-89	1000	<0.3 ± 0.6	3.9 ± 0.6	0.3 ± 0.2	0.6 ± 0.2
09N-01W-03 CCC 1	06-23-88	915	<0.3 ± 0.3	0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
09N-01W-04 CBC 1	07-11-88	1315	9.9 ± 0.4	0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
09N-01W-09 BDD 1	06-23-89	1300	24 ± 1.6	0.3 ± 0.2	<0.1 ± 0.1	<0.1 ± 0.1
09N-02W-22 DDA 1	07-29-87	1120	<0.3 ± 0.3	7.1 ± 1.0	0.1 ± 0.1	2.8 ± 0.5
09N-02W-29 DCA 1	07-31-87	1030	0.4 ± 0.3	41 ± 5.2	1.0 ± 0.2	19 ± 2.5
09N-02W-31 DAA 1	04-25-88	1330	<0.3 ± 0.3	23 ± 2.4	0.5 ± 0.2	11 ± 1.2
09N-02W-32 CCC 1	04-25-88	1100	<0.3 ± 0.3	31 ± 3.3	0.9 ± 0.3	20 ± 2.3
09N-03W-11 AAC 1	07-31-87	1530	<0.3 ± 0.3	11 ± 1.5	0.1 ± 0.1	3.7 ± 0.6

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
CANADIAN COUNTY			
14N-05W-25 DDC 1	08-26-87	1000	0.4 ± 0.1
CLEVELAND COUNTY			
06N-01E-05 DDB 1	04-20-88	1130	11 ± 1.3
06N-01E-05 DDC 1	04-20-88	930	9.2 ± 1.1
06N-01E-12 DCC 1	07-05-88	1300	<0.2 ± 0.0
06N-01E-17 ABA 1	07-05-88	1030	0.5 ± 0.1
06N-01W-17 BBB 1	06-08-89	1400	0.9 ± 0.6
06N-01W-27 BBA 1	06-29-89	1245	2.4 ± 0.7
07N-01W-07 DCD 1	06-08-89	1015	0.6 ± 0.7
07N-01W-30 DDD 1	06-29-89	1000	5.5 ± 1.2
07N-02W-15 AAA 1	06-12-89	945	0.2 ± 0.4
08N-01E-08 DCC 1	06-22-88	945	0.5 ± 0.1
08N-01E-09 AAB 1	07-11-88	1030	<0.2 ± 0.0
08N-01E-22 DDA 1	06-28-89	945	0.3 ± 0.4
08N-01W-12 BCB 1	10-02-87	1300	11 ± 1.1
08N-01W-12 BCB 2	09-11-87	1500	5.8 ± 0.6
08N-02W-25 BAA 1	04-27-88	930	14 ± 1.5
08N-02W-27 DDD 1	04-21-88	1000	23 ± 2.7
09N-01E-01 CDD 1	06-23-89	1000	1.9 ± 0.7
09N-01W-03 CCC 1	06-23-88	915	<0.2 ± 0.1
09N-01W-04 CBC 1	07-11-88	1315	<0.2 ± 0.1
09N-01W-09 BDD 1	06-23-89	1300	0.3 ± 0.4
09N-02W-22 DDA 1	07-29-87	1120	8.5 ± 1.4
09N-02W-29 DCA 1	07-31-87	1030	57 ± 7.5
09N-02W-31 DAA 1	04-25-88	1330	33 ± 3.7
09N-02W-32 CCC 1	04-25-88	1100	61 ± 7.1
09N-03W-11 AAC 1	07-31-87	1530	11 ± 1.8

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
09N-03W-18 DDA 1	06-09-89	1330	351501097325301	38	1.8 ± 0.5	1.7 ± 0.4	1.1 ± 2.2
09N-03W-23 CBC 1	08-03-87	1100	351414097293901	35	—	—	—
09N-03W-23 CBC 1	08-03-87	1200	351414097293901	35	—	—	—
09N-03W-34 BCC 1	06-12-89	1330	351244097303601	31	2.1 ± 0.5	2.0 ± 0.5	<0.4 ± 4.2
10N-01W-20 CDD 1	06-01-88	1245	351912097193601	53	3.2 ± 1.2	3.1 ± 1.2	9.6 ± 2.0
10N-01W-36 BBB 1	10-07-87	1200	351817097155201	49	—	—	—
10N-02W-25 CDC 1	07-12-88	845	351823097215701	50	5.1 ± 1.6	5.0 ± 1.7	3.3 ± 1.2
10N-02W-36 CCC 1	10-15-87	1300	351729097221301	47	—	—	—
10N-02W-36 CCC 2	10-22-87	1600	351729097221302	48	—	—	—
10N-03W-12 BCD 1	04-19-88	1130	352123097282301	57	14 ± 2.6	13 ± 2.6	6.9 ± 2.0
10N-03W-13 BBD 1	04-19-88	900	352043097282001	56	34 ± 6.2	34 ± 5.2	17 ± 2.8
10N-03W-22 DAD 1	08-04-87	1030	351926097293001	54	—	—	—
10N-03W-30 BAB 1	06-09-89	1000	351907097333001	52	8.5 ± 1.2	8.1 ± 1.1	2.7 ± 3.4
10N-04W-11 AAA 1	08-06-87	1400	352145097345901	58	—	—	—
10N-04W-25 CBC 1	06-06-89	945	351832097345101	51	1.8 ± 0.6	1.6 ± 0.5	12 ± 6.4
			LINCOLN COUNTY				
12N-02E-06 ADD 1	05-24-88	1030	353236097072801	134	2.1 ± 1.2	2.0 ± 1.1	1.8 ± 0.9
12N-02E-29 CBC 1	06-19-89	1000	352854097072301	97	2.5 ± 0.6	2.3 ± 0.6	3.7 ± 1.8
12N-03E-10 BAB 1	07-25-89	945	353207096583301	128	23 ± 3.2	21 ± 2.9	200 ± 33
12N-03E-17 DAC 1	09-15-87	1200	353040097000901	112	—	—	—
12N-03E-36 ADD 1	07-14-88	1130	352816096554701	92	17 ± 3.7	17 ± 3.3	11 ± 2.2
13N-03E-13 DDD 1	06-16-88	945	353539096554501	146	8.3 ± 2.2	8.2 ± 2.0	13 ± 2.5
13N-03E-35 BBB 1	06-15-88	1200	353351096574601	141	210 ± 33	210 ± 26	1.8 ± 1.3
13N-04E-31 DDD 1	07-14-88	915	353303096544501	137	19 ± 3.7	18 ± 3.7	9.6 ± 2.0
14N-02E-26 ADD 1	07-13-88	1330	353938097031101	161	120 ± 14	110 ± 15	73 ± 9.6
14N-03E-13 BBB 1	07-12-88	1115	354143096564301	168	81 ± 9.8	77 ± 11	41 ± 5.4
14N-04E-33 CAB 1	07-24-89	1000	353840096531101	155	4.3 ± 1.1	3.9 ± 1.0	2.0 ± 0.8
14N-04E-33 CAB 1	07-24-89	1100	353840096531101	155	5.8 ± 1.3	5.3 ± 1.2	2.3 ± 0.8
15N-02E-10 CCB 1	06-29-88	930	354706097051001	182	35 ± 6.5	34 ± 5.6	19 ± 3.3
15N-02E-12 BCC 1	09-23-87	1130	354725097030501	183	—	—	—

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
09N-03W-18 DDA 1	06-09-89	1330	0.9 ± 1.8	—	—	180 ± 37
09N-03W-23 CBC 1	08-03-87	1100	—	0.10 ± 0.02	<2 ± 2.0	E85 —
09N-03W-23 CBC 1	08-03-87	1200	—	0.08 ± 0.02	2 ± 2.5	E85 —
09N-03W-34 BCC 1	06-12-89	1330	<0.4 ± 3.3	—	—	210 ± 26
10N-01W-20 CDD 1	06-01-88	1245	7.1 ± 1.5	—	—	<80 ± 30
10N-01W-36 BBB 1	10-07-87	1200	—	0.43 ± 0.07	1 ± 1.4	E170 —
10N-02W-25 CDC 1	07-12-88	845	2.4 ± 0.9	—	—	84 ± 32
10N-02W-36 CCC 1	10-15-87	1300	—	0.27 ± 0.05	1 ± 1.3	E120 —
10N-02W-36 CCC 2	10-22-87	1600	—	0.04 ± 0.01	1 ± 1.3	E150 —
10N-03W-12 BCD 1	04-19-88	1130	5.1 ± 1.9	—	—	150 ± 31
10N-03W-13 BBD 1	04-19-88	900	13 ± 2.1	—	—	110 ± 31
10N-03W-22 DAD 1	08-04-87	1030	—	0.17 ± 0.03	2 ± 2.3	E510 —
10N-03W-30 BAB 1	06-09-89	1000	2.2 ± 2.7	—	—	1,400 ± 45
10N-04W-11 AAA 1	08-06-87	1400	—	0.04 ± 0.02	2 ± 2.2	E130 —
10N-04W-25 CBC 1	06-06-89	945	9.8 ± 5.1	—	—	150 ± 31
			LINCOLN COUNTY			
12N-02E-06 ADD 1	05-24-88	1030	1.3 ± 0.7	—	—	180 ± 31
12N-02E-29 CBC 1	06-19-89	1000	2.9 ± 1.4	—	—	220 ± 26
12N-03E-10 BAB 1	07-25-89	945	160 ± 26	—	—	420 ± 25
12N-03E-17 DAC 1	09-15-87	1200	—	0.13 ± 0.03	1 ± 1.1	E600 —
12N-03E-36 ADD 1	07-14-88	1130	7.3 ± 1.5	—	—	110 ± 31
13N-03E-13 DDD 1	06-16-88	945	9.7 ± 1.8	—	—	88 ± 33
13N-03E-35 BBB 1	06-15-88	1200	1.2 ± 0.9	—	—	4,900 ± 89
13N-04E-31 DDD 1	07-14-88	915	6.9 ± 1.5	—	—	120 ± 26
14N-02E-26 ADD 1	07-13-88	1330	49 ± 6.4	—	—	170 ± 23
14N-03E-13 BBB 1	07-12-88	1115	30 ± 4.0	—	—	260 ± 32
14N-04E-33 CAB 1	07-24-89	1000	1.6 ± 0.6	—	—	580 ± 24
14N-04E-33 CAB 1	07-24-89	1100	1.8 ± 0.6	—	—	590 ± 27
15N-02E-10 CCB 1	06-29-88	930	13 ± 2.3	—	—	1,200 ± 46
15N-02E-12 BCC 1	09-23-87	1130	—	0.15 ± 0.03	1 ± 1.1	E240 —

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
09N-03W-18 DDA 1	06-09-89	1330	11 ± 0.8	0.2 ± 0.2	0.1 ± 0.1	<0.1 ± 0.1
09N-03W-23 CBC 1	08-03-87	1100	<0.3 ± 0.3	53 ± 6.8	1.3 ± 0.3	32 ± 4.1
09N-03W-23 CBC 1	08-03-87	1200	<0.3 ± 0.3	46 ± 6.0	1.2 ± 0.2	27 ± 3.5
09N-03W-34 BCC 1	06-12-89	1330	19 ± 1.3	0.5 ± 0.2	0.4 ± 0.2	0.5 ± 0.2
10N-01W-20 CDD 1	06-01-88	1245	0.8 ± 0.3	0.7 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0
10N-01W-36 BBB 1	10-07-87	1200	<0.3 ± 0.3	5.3 ± 0.6	0.1 ± 0.0	0.1 ± 0.0
10N-02W-25 CDC 1	07-12-88	845	21 ± 0.8	1.4 ± 0.2	<0.1 ± 0.0	0.3 ± 0.0
10N-02W-36 CCC 1	10-15-87	1300	0.4 ± 0.3	4.9 ± 0.5	0.1 ± 0.0	1.0 ± 0.1
10N-02W-36 CCC 2	10-22-87	1600	3.2 ± 0.3	8.8 ± 0.9	0.4 ± 0.1	3.5 ± 0.4
10N-03W-12 BCD 1	04-19-88	1130	0.7 ± 0.3	7.6 ± 0.8	<0.1 ± 0.0	2.4 ± 0.3
10N-03W-13 BBD 1	04-19-88	900	<0.3 ± 0.3	15 ± 1.7	0.5 ± 0.2	8.8 ± 1.0
10N-03W-22 DAD 1	08-04-87	1030	<0.3 ± 0.3	14 ± 1.9	0.3 ± 0.1	6.7 ± 1.0
10N-03W-30 BAB 1	06-09-89	1000	23 ± 1.5	3.7 ± 0.6	0.6 ± 0.2	2.8 ± 0.5
10N-04W-11 AAA 1	08-06-87	1400	<0.3 ± 0.3	9.5 ± 1.3	0.2 ± 0.1	3.7 ± 0.5
10N-04W-25 CBC 1	06-06-89	945	39 ± 2.6	0.2 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
LINCOLN COUNTY						
12N-02E-06 ADD 1	05-24-88	1030	10 ± 0.4	0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
12N-02E-29 CBC 1	06-19-89	1000	23 ± 1.5	1.2 ± 0.4	0.2 ± 0.2	0.2 ± 0.2
12N-03E-10 BAB 1	07-25-89	945	<0.3 ± 0.6	16 ± 1.6	0.3 ± 0.0	2.9 ± 0.3
12N-03E-17 DAC 1	09-15-87	1200	44 ± 1.6	0.7 ± 0.1	<0.1 ± 0.0	0.3 ± 0.0
12N-03E-36 ADD 1	07-14-88	1130	0.9 ± 0.3	7.2 ± 0.7	0.1 ± 0.0	2.9 ± 0.3
13N-03E-13 DDD 1	06-16-88	945	11 ± 0.4	2.5 ± 0.3	<0.1 ± 0.0	1.7 ± 0.2
13N-03E-35 BBB 1	06-15-88	1200	51 ± 1.6	65 ± 7.4	2.8 ± 0.9	73 ± 8.1
13N-04E-31 DDD 1	07-14-88	915	<0.3 ± 0.3	4.7 ± 0.5	0.1 ± 0.0	2.8 ± 0.3
14N-02E-26 ADD 1	07-13-88	1330	<0.3 ± 0.3	32 ± 3.4	0.9 ± 0.3	23 ± 2.6
14N-03E-13 BBB 1	07-12-88	1115	<0.3 ± 0.3	25 ± 2.5	0.6 ± 0.2	13 ± 1.4
14N-04E-33 CAB 1	07-24-89	1000	29 ± 1.9	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
14N-04E-33 CAB 1	07-24-89	1100	27 ± 1.7	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
15N-02E-10 CCB 1	06-29-88	930	<0.3 ± 0.3	12 ± 1.3	0.3 ± 0.1	7.6 ± 0.9
15N-02E-12 BCC 1	09-23-87	1130	66 ± 2.2	1.0 ± 0.1	<0.1 ± 0.0	0.5 ± 0.1

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
09N-03W-18 DDA 1	06-09-89	1330	<0.2 ± 0.4
09N-03W-23 CBC 1	08-03-87	1100	94 ± 12
09N-03W-23 CBC 1	08-03-87	1200	79 ± 11
09N-03W-34 BCC 1	06-12-89	1330	1.7 ± 0.7
10N-01W-20 CDD 1	06-01-88	1245	0.5 ± 0.2
10N-01W-36 BBB 1	10-07-87	1200	0.4 ± 0.1
10N-02W-25 CDC 1	07-12-88	845	0.8 ± 0.2
10N-02W-36 CCC 1	10-15-87	1300	3.2 ± 0.4
10N-02W-36 CCC 2	10-22-87	1600	11 ± 1.2
10N-03W-12 BCD 1	04-19-88	1130	7.2 ± 0.9
10N-03W-13 BBD 1	04-19-88	900	27 ± 3.2
10N-03W-22 DAD 1	08-04-87	1030	20 ± 2.9
10N-03W-30 BAB 1	06-09-89	1000	8.7 ± 1.5
10N-04W-11 AAA 1	08-06-87	1400	11 ± 1.7
10N-04W-25 CBC 1	06-06-89	945	0.2 ± 0.1
LINCOLN COUNTY			
12N-02E-06 ADD 1	05-24-88	1030	<0.2 ± 0.1
12N-02E-29 CBC 1	06-19-89	1000	0.7 ± 0.6
12N-03E-10 BAB 1	07-25-89	945	8.9 ± 1.0
12N-03E-17 DAC 1	09-15-87	1200	0.9 ± 0.1
12N-03E-36 ADD 1	07-14-88	1130	8.7 ± 1.0
13N-03E-13 DDD 1	06-16-88	945	5.0 ± 0.6
13N-03E-35 BBB 1	06-15-88	1200	220 ± 25
13N-04E-31 DDD 1	07-14-88	915	8.4 ± 0.9
14N-02E-26 ADD 1	07-13-88	1330	69 ± 7.7
14N-03E-13 BBB 1	07-12-88	1115	39 ± 4.3
14N-04E-33 CAB 1	07-24-89	1000	<0.2 ± 0.0
14N-04E-33 CAB 1	07-24-89	1100	<0.2 ± 0.1
15N-02E-10 CCB 1	06-29-88	930	23 ± 2.6
15N-02E-12 BCC 1	09-23-87	1130	1.5 ± 0.2

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
15N-02E-14 AAA 1	04-05-88	1300	354654097030801	181	85 ± 14	85 ± 11	82 ± 9.8
15N-02E-14 ADA 1	07-06-88	1000	354637097030801	180	190 ± 30	190 ± 24	110 ± 12
15N-02E-14 ADA 1	07-06-88	1100	354637097030801	180	1.0 ± 0.7	140 ± 0.7	110 ± 9.3
15N-02E-14 ADD 1	08-21-87	1200	354633097030801	179	— —	— —	— —
15N-03E-05 BAC 1	04-12-88	930	354844097004501	187	20 ± 4.1	19 ± 3.6	14 ± 2.6
16N-02E-22 DAA 1	06-28-88	1000	355039097041401	191	37 ± 5.3	36 ± 5.9	21 ± 4.6
16N-03E-01 DAA 1	05-31-88	1030	355326096554901	200	7.1 ± 1.7	7.0 ± 1.8	6.2 ± 1.6
16N-03E-11 CCC 1	04-05-88	1100	355214096574801	198	25 ± 3.7	24 ± 3.9	20 ± 3.0
16N-03E-31 ADA 1	06-28-88	1200	354914097010901	188	14 ± 3.4	14 ± 3.4	12 ± 2.3
17N-02E-19 CCC 1	06-20-88	1215	355544097082301	203	3.4 ± 1.2	3.4 ± 1.2	3.0 ± 1.2
17N-02E-32 BBB 1	06-20-88	1015	355444097071301	201	8.3 ± 2.0	8.0 ± 2.0	5.5 ± 1.5
17N-03E-34 BBA 1	06-16-88	1200	355446096583601	202	3.0 ± 1.3	3.0 ± 1.3	2.4 ± 1.0
					LOGAN COUNTY		
15N-01W-21 BBA 1	05-18-88	1000	354605097185901	175	16 ± 3.3	16 ± 3.4	7.0 ± 2.1
15N-01W-21 BBA 1	05-19-88	915	354605097185901	175	— —	— —	— —
15N-02W-13 CAB 1	09-21-87	1400	354631097215501	178	— —	— —	— —
15N-02W-26 AAA 1	04-13-88	930	354514097222101	174	11 ± 2.5	11 ± 2.5	5.1 ± 1.4
15N-02W-30 AAD 1	04-13-88	1130	354506097263601	173	6.1 ± 1.8	5.8 ± 1.7	3.2 ± 1.2
15N-03W-01 CAA 1	08-19-87	1130	354817097281101	186	— —	— —	— —
15N-03W-03 DDD 1	05-12-88	1100	354758097295201	185	61 ± 8.1	59 ± 8.5	1.6 ± 1.1
15N-03W-16 CCB 1	06-29-88	1300	354620097315201	177	3.5 ± 1.4	3.3 ± 1.4	2.5 ± 1.3
15N-03W-20 AAA 1	05-26-88	1030	354606097315601	176	1.2 ± 0.6	2.5 ± 1.3	1.5 ± 0.9
15N-03W-20 AAA 1	05-26-88	1130	354606097315601	176	1.9 ± 0.9	1.8 ± 0.9	1.5 ± 0.9
15N-03W-34 DDC 1	04-06-88	1100	354332097295301	171	4.8 ± 1.5	4.5 ± 1.5	3.3 ± 1.1
15N-04W-05 CCC 1	06-29-88	1500	354755097392001	184	11 ± 2.8	10 ± 2.6	4.6 ± 2.4
16N-01E-13 BAA 1	05-23-88	1100	355206097090101	197	3.1 ± 1.4	2.8 ± 1.2	0.8 ± 0.8
16N-01E-29 BCD 1	07-07-89	915	355005097133401	190	25 ± 2.9	24 ± 2.7	24 ± 4.3
16N-01W-18 DDA 1	07-07-88	930	355141097201401	196	22 ± 4.0	21 ± 4.1	6.1 ± 1.6

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
15N-02E-14 AAA 1	04-05-88	1300	60 ± 7.1	—	—	820 ± 71
15N-02E-14 ADA 1	07-06-88	1000	76 ± 8.9	—	—	340 ± 32
15N-02E-14 ADA 1	07-06-88	1100	81 ± 13	—	—	310 ± 31
15N-02E-14 ADD 1	08-21-87	1200	—	0.10 ± 0.02	2 ± 0.6	E830 —
15N-03E-05 BAC 1	04-12-88	930	10 ± 1.8	—	—	310 ± 32
16N-02E-22 DAA 1	06-28-88	1000	14 ± 3.0	—	—	230 ± 31
16N-03E-01 DAA 1	05-31-88	1030	4.6 ± 1.2	—	—	190 ± 32
16N-03E-11 CCC 1	04-05-88	1100	15 ± 2.3	—	—	130 ± 46
16N-03E-31 ADA 1	06-28-88	1200	8.2 ± 1.7	—	—	130 ± 31
17N-02E-19 CCC 1	06-20-88	1215	2.1 ± 0.9	—	—	1,300 ± 39
17N-02E-32 BBB 1	06-20-88	1015	3.9 ± 1.1	—	—	<80 ± 31
17N-03E-34 BBA 1	06-16-88	1200	1.8 ± 0.7	—	—	180 ± 33
			LOGAN COUNTY			
15N-01W-21 BBA 1	05-18-88	1000	4.8 ± 1.5	—	—	— —
15N-01W-21 BBA 1	05-19-88	915	—	—	—	<80 ± 38
15N-02W-13 CAB 1	09-21-87	1400	—	0.08 ± 0.02	1 ± 1.4	E200 —
15N-02W-26 AAA 1	04-13-88	930	3.8 ± 1.0	—	—	280 ± 32
15N-02W-30 AAD 1	04-13-88	1130	2.4 ± 0.9	—	—	190 ± 30
15N-03W-01 CAA 1	08-19-87	1130	—	0.13 ± 0.03	2 ± 2.2	E500 —
15N-03W-03 DDD 1	05-12-88	1100	1.1 ± 0.7	—	—	150 ± 35
15N-03W-16 CCB 1	06-29-88	1300	1.7 ± 0.9	—	—	96 ± 37
15N-03W-20 AAA 1	05-26-88	1030	1.1 ± 0.7	—	—	120 ± 30
15N-03W-20 AAA 1	05-26-88	1130	1.1 ± 0.7	—	—	150 ± 30
15N-03W-34 DDC 1	04-06-88	1100	2.5 ± 0.9	—	—	110 ± 92
15N-04W-05 CCC 1	06-29-88	1500	3.1 ± 1.6	—	—	640 ± 42
16N-01E-13 BAA 1	05-23-88	1100	0.6 ± 0.6	—	—	110 ± 35
16N-01E-29 BCD 1	07-07-89	915	19 ± 3.4	—	—	160 ± 52
16N-01W-18 DDA 1	07-07-88	930	4.5 ± 1.2	—	—	190 ± 31

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
15N-02E-14 AAA 1	04-05-88	1300	<0.3 ± 0.4	42 ± 4.4	1.3 ± 0.4	34 ± 3.7
15N-02E-14 ADA 1	07-06-88	1000	<0.3 ± 0.3	57 ± 5.8	— ± 0.4	45 ± 4.7
15N-02E-14 ADA 1	07-06-88	1100	<0.3 ± 0.3	52 ± 7.5	1.7 ± 0.8	38 ± 5.7
15N-02E-14 ADD 1	08-21-87	1200	<0.3 ± 0.3	37 ± 3.5	1.0 ± 0.1	28 ± 2.6
15N-03E-05 BAC 1	04-12-88	930	<0.3 ± 0.3	9.3 ± 1.0	0.4 ± 0.1	4.1 ± 0.5
16N-02E-22 DAA 1	06-28-88	1000	31 ± 1.0	18 ± 1.9	1.0 ± 0.2	14 ± 1.5
16N-03E-01 DAA 1	05-31-88	1030	3.5 ± 0.3	3.1 ± 0.4	<1.0 ± 0.0	1.1 ± 0.2
16N-03E-11 CCC 1	04-05-88	1100	<0.3 ± 0.3	16 ± 1.6	0.4 ± 0.1	9.6 ± 1.0
16N-03E-31 ADA 1	06-28-88	1200	<0.3 ± 0.3	4.2 ± 0.4	0.1 ± 0.0	2.7 ± 0.3
17N-02E-19 CCC 1	06-20-88	1215	25 ± 0.9	1.2 ± 0.2	<0.1 ± 0.0	1.0 ± 0.1
17N-02E-32 BBB 1	06-20-88	1015	3.4 ± 0.3	3.6 ± 0.4	<0.1 ± 0.0	1.1 ± 0.1
17N-03E-34 BBA 1	06-16-88	1200	3.4 ± 0.3	0.9 ± 0.1	<0.1 ± 0.0	0.3 ± 0.0
			LOGAN COUNTY			
15N-01W-21 BBA 1	05-18-88	1000	31 ± 0.9	3.9 ± 0.4	<0.1 ± 0.0	1.7 ± 0.2
15N-01W-21 BBA 1	05-19-88	915	— —	— —	— —	— —
15N-02W-13 CAB 1	09-21-87	1400	30 ± 1.0	0.3 ± 0.0	<0.1 ± 0.0	0.1 ± 0.0
15N-02W-26 AAA 1	04-13-88	930	3.2 ± 0.3	2.4 ± 0.3	<0.1 ± 0.0	0.7 ± 0.1
15N-02W-30 AAD 1	04-13-88	1130	<0.3 ± 0.3	2.6 ± 0.3	<0.1 ± 0.0	0.4 ± 0.1
15N-03W-01 CAA 1	08-19-87	1130	53 ± 1.6	0.9 ± 0.1	<0.1 ± 0.0	0.3 ± 0.0
15N-03W-03 DDD 1	05-12-88	1100	<0.3 ± 0.3	21 ± 2.2	0.5 ± 0.2	13 ± 1.4
15N-03W-16 CCB 1	06-29-88	1300	31 ± 1.0	1.3 ± 0.2	<0.1 ± 0.0	0.4 ± 0.1
15N-03W-20 AAA 1	05-26-88	1030	45 ± 1.6	0.7 ± 0.1	<0.1 ± 0.0	0.3 ± 0.1
15N-03W-20 AAA 1	05-26-88	1130	45 ± 1.6	0.4 ± 0.1	<0.1 ± 0.0	<0.1 ± 0.0
15N-03W-34 DDC 1	04-06-88	1100	0.7 ± 0.3	2.5 ± 0.3	<0.1 ± 0.0	0.4 ± 0.1
15N-04W-05 CCC 1	06-29-88	1500	80 ± 2.6	4.3 ± 0.5	0.1 ± 0.0	1.6 ± 0.2
16N-01E-13 BAA 1	05-23-88	1100	25 ± 0.6	0.7 ± 0.1	<0.1 ± 0.0	0.2 ± 0.1
16N-01E-29 BCD 1	07-07-89	915	<0.3 ± 0.6	8.6 ± 1.2	0.5 ± 0.2	4.2 ± 0.7
16N-01W-18 DDA 1	07-07-88	930	<0.3 ± 0.3	9.7 ± 1.0	<0.1 ± 0.0	1.8 ± 0.2

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
15N-02E-14 AAA 1	04-05-88	1300	100 ± 11
15N-02E-14 ADA 1	07-06-88	1000	130 ± 14
15N-02E-14 ADA 1	07-06-88	1100	110 ± 17
15N-02E-14 ADD 1	08-21-87	1200	82 ± 7.9
15N-03E-05 BAC 1	04-12-88	930	12 ± 1.5
16N-02E-22 DAA 1	06-28-88	1000	41 ± 4.5
16N-03E-01 DAA 1	05-31-88	1030	3.3 ± 0.5
16N-03E-11 CCC 1	04-05-88	1100	29 ± 2.8
16N-03E-31 ADA 1	06-28-88	1200	8.2 ± 0.9
17N-02E-19 CCC 1	06-20-88	1215	2.9 ± 0.4
17N-02E-32 BBB 1	06-20-88	1015	3.4 ± 0.4
17N-03E-34 BBA 1	06-16-88	1200	0.8 ± 0.2
LOGAN COUNTY			
15N-01W-21 BBA 1	05-18-88	1000	5.1 ± 0.7
15N-01W-21 BBA 1	05-19-88	915	— —
15N-02W-13 CAB 1	09-21-87	1400	0.4 ± 0.1
15N-02W-26 AAA 1	04-13-88	930	2.2 ± 0.3
15N-02W-30 AAD 1	04-13-88	1130	1.1 ± 0.2
15N-03W-01 CAA 1	08-19-87	1130	0.8 ± 0.2
15N-03W-03 DDD 1	05-12-88	1100	38 ± 4.2
15N-03W-16 CCB 1	06-29-88	1300	1.1 ± 0.2
15N-03W-20 AAA 1	05-26-88	1030	0.9 ± 0.2
15N-03W-20 AAA 1	05-26-88	1130	0.3 ± 0.1
15N-03W-34 DDC 1	04-06-88	1100	1.2 ± 0.2
15N-04W-05 CCC 1	06-29-88	1500	4.7 ± 0.6
16N-01E-13 BAA 1	05-23-88	1100	0.7 ± 0.2
16N-01E-29 BCD 1	07-07-89	915	13 ± 2.2
16N-01W-18 DDA 1	07-07-88	930	5.4 ± 0.6

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
16N-01W-27 CBB 1	07-13-88	1130	354959097175901	189	14 ± 2.8	13 ± 2.8	10 ± 2.2
16N-02W-06 DBC 1	05-25-88	1330	355321097270301	199	1.0 ± 0.6	2.0 ± 1.1	1.1 ± 0.8
16N-02W-22 AAB 1	07-13-88	915	355120097233001	195	1.0 ± 0.7	0.9 ± 0.7	1.8 ± 0.7
16N-02W-22 ADD 1	05-17-88	1100	355058097233001	193	17 ± 3.6	16 ± 3.2	6.3 ± 1.5
16N-03W-23 DAA 1	05-25-88	1030	355052097284301	192	2.2 ± 0.8	4.1 ± 1.6	1.2 ± 1.0
17N-01W-21 ACB 1	07-07-88	1145	355614097183001	204	17 ± 3.4	16 ± 3.4	9.7 ± 2.4
OKLAHOMA COUNTY							
11N-01E-11 CBC 1	07-08-88	1145	352622097103401	80	1.5 ± 0.9	1.4 ± 0.8	2.2 ± 1.0
11N-01E-12 ADA 1	06-22-88	1300	352639097083401	82	1.4 ± 0.8	1.3 ± 0.7	2.7 ± 1.0
11N-01W-03 CDD 1	05-16-88	1130	352705097175401	84	1.5 ± 0.9	1.4 ± 0.8	1.1 ± 0.8
11N-01W-05 AAD 1	09-17-87	1200	352738097191001	85	—	—	—
11N-01W-05 ABA 1	08-11-87	1000	352749097192301	20	—	—	—
11N-01W-05 ABA 1	04-26-88	1400	352749097192301	20	8.4 ± 2.0	8.2 ± 2.0	2.9 ± 1.1
11N-02W-06 AAA 1	11-18-88	1500	352750097263601	88	5.5 ± 1.4	7.9 ± 1.9	4.0 ± 1.4
11N-02W-14 DDC 1	04-26-88	1000	352519097222501	70	27 ± 4.4	26 ± 4.5	16 ± 2.7
11N-02W-17 CBC 1	11-18-88	1145	352531097262101	73	32 ± 4.4	45 ± 6.1	9.5 ± 3.3
11N-02W-18 CDD 1	08-10-87	1200	352518097270601	69	—	—	—
11N-02W-20 CCB 1	11-18-88	945	352433097262401	66	4.2 ± 1.3	6.7 ± 1.9	5.9 ± 1.7
11N-03W-01 ABD 1	11-16-88	1000	352740097275301	86	4.5 ± 1.3	7.3 ± 1.9	<0.4 ± 0.4
11N-03W-04 BBB 1	11-10-88	945	352749097314101	87	3.3 ± 1.1	5.4 ± 1.6	5.3 ± 1.3
11N-03W-09 CBA 1	11-14-88	1330	352631097313101	81	6.0 ± 1.3	8.7 ± 2.0	6.6 ± 1.8
11N-03W-13 CDD 1	11-10-88	1245	352520097280601	71	10 ± 2.0	14 ± 2.8	20 ± 4.1
11N-03W-15 CBA 1	11-30-88	1130	352535097303301	74	9.2 ± 1.8	13 ± 2.6	9.1 ± 4.7
11N-03W-18 ADC 1	11-14-88	1500	352541097330301	75	13 ± 2.3	19 ± 3.3	11 ± 2.6
11N-03W-21 ABA 1	11-09-88	1415	352509097310101	67	4.4 ± 1.2	6.2 ± 1.7	3.6 ± 1.4
11N-04W-14 BBA 1	11-15-88	1530	352605097354801	78	9.4 ± 2.1	15 ± 2.9	10 ± 2.7
11N-04W-16 BAA 1	08-06-87	1000	352605097375701	79	—	—	—
11N-04W-16 CCB 1	09-01-87	1100	352527097380501	72	—	—	—
11N-04W-16 DDD 1	04-11-88	930	352515097370801	68	34 ± 4.9	33 ± 5.1	11 ± 4.1

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
16N-01W-27 CBB 1	07-13-88	1130	7.0 ± 1.5	—	—	180 ± 24
16N-02W-06 DBC 1	05-25-88	1330	0.8 ± 0.6	—	—	460 ± 34
16N-02W-22 AAB 1	07-13-88	915	1.5 ± 0.6	—	—	<80 ± 24
16N-02W-22 ADD 1	05-17-88	1100	4.8 ± 1.1	—	—	190 ± 32
16N-03W-23 DAA 1	05-25-88	1030	0.9 ± 0.7	—	—	170 ± 31
17N-01W-21 ACB 1	07-07-88	1145	6.6 ± 1.6	—	—	150 ± 30
			OKLAHOMA COUNTY			
11N-01E-11 CBC 1	07-08-88	1145	1.7 ± 0.7	—	—	230 ± 43
11N-01E-12 ADA 1	06-22-88	1300	2.0 ± 0.7	—	—	150 ± 30
11N-01W-03 CDD 1	05-16-88	1130	0.9 ± 0.6	—	—	<80 ± 31
11N-01W-05 AAD 1	09-17-87	1200	— —	0.12 ± 0.02	1 ± 1.5	E270 —
11N-01W-05 ABA 1	08-11-87	1000	— —	0.33 ± 0.06	2 ± 2.0	E220 —
11N-01W-05 ABA 1	04-26-88	1400	2.1 ± 0.7	—	—	100 ± 30
11N-02W-06 AAA 1	11-18-88	1500	2.8 ± 1.0	—	—	580 ± 43
11N-02W-14 DDC 1	04-26-88	1000	12 ± 2.0	—	—	160 ± 32
11N-02W-17 CBC 1	11-18-88	1145	6.3 ± 2.2	—	—	160 ± 150
11N-02W-18 CDD 1	08-10-87	1200	— —	0.42 ± 0.07	2 ± 2.2	E250 —
11N-02W-20 CCB 1	11-18-88	945	3.9 ± 1.1	—	—	150 ± 43
11N-03W-01 ABD 1	11-16-88	1000	<0.4 ± 0.4	—	—	210 ± 30
11N-03W-04 BBB 1	11-10-88	945	4.1 ± 1.0	—	—	160 ± 49
11N-03W-09 CBA 1	11-14-88	1330	4.5 ± 1.2	—	—	190 ± 38
11N-03W-13 CDD 1	11-10-88	1245	13 ± 2.7	—	—	240 ± 50
11N-03W-15 CBA 1	11-30-88	1130	6.0 ± 3.1	—	—	<80 ± 27
11N-03W-18 ADC 1	11-14-88	1500	7.2 ± 1.7	—	—	1,600 ± 47
11N-03W-21 ABA 1	11-09-88	1415	2.4 ± 1.0	—	—	770 ± 30
11N-04W-14 BBA 1	11-15-88	1530	6.5 ± 1.7	—	—	<80 ± 30
11N-04W-16 BAA 1	08-06-87	1000	— —	0.06 ± 0.02	2 ± 2.1	E500 —
11N-04W-16 CCB 1	09-01-87	1100	— —	0.10 ± 0.02	<1 ± 1.3	E1,400 —
11N-04W-16 DDD 1	04-11-88	930	9.6 ± 3.2	—	—	230 ± 32

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
16N-01W-27 CBB 1	07-13-88	1130	73 ± 2.6	3.4 ± 0.4	0.2 ± 0.0	2.3 ± 0.3
16N-02W-06 DBC 1	05-25-88	1330	39 ± 1.3	0.6 ± 0.1	<0.1 ± 0.0	0.3 ± 0.1
16N-02W-22 AAB 1	07-13-88	915	29 ± 1.0	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
16N-02W-22 ADD 1	05-17-88	1100	9.9 ± 0.3	7.9 ± 0.8	0.3 ± 0.1	2.3 ± 0.3
16N-03W-23 DAA 1	05-25-88	1030	20 ± 0.7	1.1 ± 0.1	<0.1 ± 0.0	0.3 ± 0.1
17N-01W-21 ACB 1	07-07-88	1145	33 ± 1.0	6.0 ± 0.7	0.4 ± 0.1	3.9 ± 0.5
OKLAHOMA COUNTY						
11N-01E-11 CBC 1	07-08-88	1145	42 ± 1.3	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
11N-01E-12 ADA 1	06-22-88	1300	— —	0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
11N-01W-03 CDD 1	05-16-88	1130	0.3 ± 0.3	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
11N-01W-05 AAD 1	09-17-87	1200	34 ± 1.3	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
11N-01W-05 ABA 1	08-11-87	1000	<0.3 ± 0.3	3.1 ± 0.5	<0.1 ± 0.0	0.3 ± 0.1
11N-01W-05 ABA 1	04-26-88	1400	<0.3 ± 0.3	3.5 ± 0.4	<0.1 ± 0.0	0.3 ± 0.1
11N-02W-06 AAA 1	11-18-88	1500	29 ± 0.9	2.7 ± 0.3	<0.1 ± 0.0	0.5 ± 0.1
11N-02W-14 DDC 1	04-26-88	1000	<0.3 ± 0.3	11 ± 1.3	0.2 ± 0.1	5.9 ± 0.7
11N-02W-17 CBC 1	11-18-88	1145	2.5 ± 0.3	2.0 ± 0.2	<0.1 ± 0.0	0.7 ± 0.1
11N-02W-18 CDD 1	08-10-87	1200	<0.3 ± 0.3	5.0 ± 0.7	<0.1 ± 0.0	0.5 ± 0.1
11N-02W-20 CCB 1	11-18-88	945	43 ± 1.3	1.1 ± 0.2	<0.1 ± 0.0	0.2 ± 0.0
11N-03W-01 ABD 1	11-16-88	1000	<0.3 ± 0.6	2.1 ± 0.4	<0.1 ± 0.0	0.3 ± 0.1
11N-03W-04 BBB 1	11-10-88	945	<0.3 ± 0.3	1.7 ± 0.2	<0.1 ± 0.0	0.3 ± 0.1
11N-03W-09 CBA 1	11-14-88	1330	0.5 ± 0.3	2.4 ± 0.3	<0.1 ± 0.0	1.1 ± 0.2
11N-03W-13 CDD 1	11-10-88	1245	76 ± 2.6	6.0 ± 0.9	0.2 ± 0.1	4.2 ± 0.7
11N-03W-15 CBA 1	11-30-88	1130	38 ± 2.6	2.4 ± 0.3	0.0 ± 0.0	0.8 ± 0.1
11N-03W-18 ADC 1	11-14-88	1500	46 ± 1.6	8.0 ± 1.0	0.3 ± 0.1	5.3 ± 0.7
11N-03W-21 ABA 1	11-09-88	1415	46 ± 1.6	1.9 ± 0.3	<0.1 ± 0.0	1.1 ± 0.2
11N-04W-14 BBA 1	11-15-88	1530	25 ± 0.8	4.7 ± 0.7	0.2 ± 0.1	2.5 ± 0.4
11N-04W-16 BAA 1	08-06-87	1000	0.4 ± 0.3	24 ± 3.2	1.0 ± 0.2	17 ± 2.3
11N-04W-16 CCB 1	09-01-87	1100	9.7 ± 0.4	5.6 ± 0.6	0.1 ± 0.0	2.9 ± 0.3
11N-04W-16 DDD 1	04-11-88	930	<0.3 ± 0.3	16 ± 1.8	0.4 ± 0.1	8.2 ± 0.9

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
16N-01W-27 CBB 1	07-13-88	1130	7.0 ± 0.8
16N-02W-06 DBC 1	05-25-88	1330	1.0 ± 0.2
16N-02W-22 AAB 1	07-13-88	915	<0.2 ± 0.1
16N-02W-22 ADD 1	05-17-88	1100	7.1 ± 0.9
16N-03W-23 DAA 1	05-25-88	1030	1.0 ± 0.2
17N-01W-21 ACB 1	07-07-88	1145	12 ± 1.5
OKLAHOMA COUNTY			
11N-01E-11 CBC 1	07-08-88	1145	<0.2 ± 0.0
11N-01E-12 ADA 1	06-22-88	1300	0.2 ± 0.0
11N-01W-03 CDD 1	05-16-88	1130	<0.2 ± 0.0
11N-01W-05 AAD 1	09-17-87	1200	<0.2 ± 0.0
11N-01W-05 ABA 1	08-11-87	1000	1.0 ± 0.3
11N-01W-05 ABA 1	04-26-88	1400	1.0 ± 0.2
11N-02W-06 AAA 1	11-18-88	1500	1.5 ± 0.3
11N-02W-14 DDC 1	04-26-88	1000	18 ± 2.2
11N-02W-17 CBC 1	11-18-88	1145	2.0 ± 0.3
11N-02W-18 CDD 1	08-10-87	1200	1.5 ± 0.4
11N-02W-20 CCB 1	11-18-88	945	0.7 ± 0.2
11N-03W-01 ABD 1	11-16-88	1000	0.9 ± 0.4
11N-03W-04 BBB 1	11-10-88	945	0.8 ± 0.3
11N-03W-09 CBA 1	11-14-88	1330	3.3 ± 0.6
11N-03W-13 CDD 1	11-10-88	1245	12 ± 2.1
11N-03W-15 CBA 1	11-30-88	1130	2.3 ± 0.4
11N-03W-18 ADC 1	11-14-88	1500	16 ± 2.2
11N-03W-21 ABA 1	11-09-88	1415	3.4 ± 0.6
11N-04W-14 BBA 1	11-15-88	1530	7.5 ± 1.4
11N-04W-16 BAA 1	08-06-87	1000	51 ± 6.9
11N-04W-16 CCB 1	09-01-87	1100	8.6 ± 0.9
11N-04W-16 DDD 1	04-11-88	930	25 ± 2.8

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
11N-04W-29 AAA 1	07-20-89	1300	352415097381301	64	5.7 ± 1.3	5.2 ± 1.2	21 ± 4.2
11N-04W-29 CDC 1	06-30-89	930	352331097384901	62	9.4 ± 1.3	9.0 ± 1.2	12 ± 3.7
12N-01E-11 DDC 1	06-15-89	1300	353119097094101	120	2.8 ± 0.7	2.5 ± 0.6	4.0 ± 2.3
12N-01E-26 DAC 1	04-18-88	1000	352851097093801	96	23 ± 3.5	21 ± 3.5	12 ± 2.2
12N-01E-35 ABC 1	08-24-87	1300	352830097100301	93	— —	— —	— —
12N-01E-36 CBB 1	06-21-89	945	352810097092901	91	4.6 ± 0.9	4.2 ± 0.8	6.3 ± 2.0
12N-01W-20 DCC 1	06-13-89	1345	352941097193501	103	0.8 ± 0.4	0.8 ± 0.3	16 ± 2.7
12N-01W-22 AAA 1	06-15-89	930	353025097165901	109	0.6 ± 0.3	0.5 ± 0.3	1.7 ± 0.7
12N-01W-31 DDA 1	06-30-88	1300	352757097200801	90	1.7 ± 1.1	1.7 ± 1.1	2.0 ± 1.0
12N-02W-04 CBD 1	06-27-88	1345	353227097251101	132	6.6 ± 2.0	6.5 ± 2.0	3.4 ± 1.3
12N-02W-05 BDD 1	06-27-88	1030	353244097255801	136	3.3 ± 1.4	3.2 ± 1.3	3.0 ± 1.2
12N-02W-07 DAC 1	11-17-88	1000	353145097263801	125	3.5 ± 1.1	5.1 ± 1.5	3.1 ± 1.2
12N-02W-18 DDC 1	11-21-88	945	353600097264001	148	2.6 ± 0.9	3.8 ± 1.3	3.3 ± 1.2
12N-02W-19 BBB 1	11-08-88	945	353024097272501	108	4.9 ± 1.3	7.1 ± 1.8	12 ± 2.5
12N-02W-29 DDC 1	06-13-89	1045	352844097254001	94	11 ± 1.6	10 ± 1.5	7.9 ± 6.7
12N-02W-30 BCC 1	11-04-88	1300	352910097272501	101	5.1 ± 1.4	8.5 ± 2.0	9.3 ± 2.5
12N-03W-02 DBD 1	11-02-88	1015	353229097285301	133	5.1 ± 1.3	7.4 ± 1.8	5.9 ± 1.7
12N-03W-03 BCC 1	12-02-88	1300	353243097304101	135	13 ± 2.3	19 ± 3.2	14 ± 2.6
12N-03W-03 DCD 1	11-01-88	1400	353219097295801	130	14 ± 2.3	20 ± 3.3	16 ± 2.9
12N-03W-05 DCA 1	07-27-87	1130	353223097320501	131	— —	— —	— —
12N-03W-05 DCA 1	04-12-88	1300	353223097320501	131	19 ± 3.4	18 ± 3.5	12 ± 2.4
12N-03W-07 DDA 1	11-02-88	1245	353131097325401	121	82 ± 8.5	120 ± 13	74 ± 9.0
12N-03W-10 ADA 1	11-01-88	930	353155097294601	126	11 ± 2.0	16 ± 2.9	9.7 ± 2.0
12N-03W-10 DAC 1	11-23-88	945	353136097295101	122	7.2 ± 1.6	10 ± 2.3	6.6 ± 1.8
12N-03W-11 CBD 1	11-02-88	1445	353139097293001	123	3.4 ± 1.0	5.0 ± 1.5	4.7 ± 1.5
12N-03W-12 BBA 1	11-01-88	1200	353210097282401	129	11 ± 2.3	17 ± 3.1	8.3 ± 2.0
12N-03W-14 ADD 1	11-17-88	1145	353101097283701	117	5.6 ± 1.4	7.8 ± 1.9	8.0 ± 2.4
12N-03W-14 BBA 1	11-08-88	1330	353141097293001	124	4.9 ± 1.2	7.1 ± 1.8	7.8 ± 2.0
12N-03W-16 CBD 1	11-03-88	1130	353042097313801	114	58 ± 9.6	95 ± 11	47 ± 6.1
12N-03W-17 BAD 1	11-03-88	1400	353109097322401	118	11 ± 2.0	16 ± 2.8	11 ± 2.2

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
11N-04W-29 AAA 1	07-20-89	1300	17 ± 3.3	— —	— —	950 ± 28
11N-04W-29 CDC 1	06-30-89	930	9.7 ± 3.3	— —	— —	800 ± 81
12N-01E-11 DDC 1	06-15-89	1300	3.2 ± 1.8	— —	— —	200 ± 28
12N-01E-26 DAC 1	04-18-88	1000	9.4 ± 1.7	— —	— —	110 ± 31
12N-01E-35 ABC 1	08-24-87	1300	— —	0.62 ± 0.11	<2 ± 0.5	E280 —
12N-01E-36 CBB 1	06-21-89	945	4.9 ± 1.5	— —	— —	190 ± 25
12N-01W-20 DCC 1	06-13-89	1345	12 ± 2.1	— —	— —	170 ± 24
12N-01W-22 AAA 1	06-15-89	930	1.4 ± 0.5	— —	— —	120 ± 29
12N-01W-31 DDA 1	06-30-88	1300	1.4 ± 0.7	— —	— —	100 ± 30
12N-02W-04 CBD 1	06-27-88	1345	2.4 ± 0.9	— —	— —	120 ± 29
12N-02W-05 BDD 1	06-27-88	1030	2.2 ± 0.9	— —	— —	82 ± 30
12N-02W-07 DAC 1	11-17-88	1000	2.3 ± 0.9	— —	— —	180 ± 29
12N-02W-18 DDC 1	11-21-88	945	2.5 ± 0.9	— —	— —	170 ± 29
12N-02W-19 BBB 1	11-08-88	945	8.2 ± 1.7	— —	— —	220 ± 32
12N-02W-29 DDC 1	06-13-89	1045	6.3 ± 5.3	— —	— —	140 ± 25
12N-02W-30 BCC 1	11-04-88	1300	6.1 ± 1.7	— —	— —	86 ± 39
12N-03W-02 DBD 1	11-02-88	1015	4.1 ± 1.2	— —	— —	170 ± 29
12N-03W-03 BCC 1	12-02-88	1300	10 ± 1.9	— —	— —	330 ± 48
12N-03W-03 DCD 1	11-01-88	1400	10 ± 1.9	— —	— —	250 ± 32
12N-03W-05 DCA 1	07-27-87	1130	— —	0.17 ± 0.04	2 ± 2.1	E350 —
12N-03W-05 DCA 1	04-12-88	1300	8.4 ± 1.7	— —	— —	170 ± 31
12N-03W-07 DDA 1	11-02-88	1245	51 ± 6.2	— —	— —	110 ± 43
12N-03W-10 ADA 1	11-01-88	930	6.8 ± 1.4	— —	— —	140 ± 45
12N-03W-10 DAC 1	11-23-88	945	4.5 ± 1.2	— —	— —	240 ± 36
12N-03W-11 CBD 1	11-02-88	1445	3.2 ± 1.0	— —	— —	240 ± 30
12N-03W-12 BBA 1	11-01-88	1200	5.6 ± 1.3	— —	— —	150 ± 33
12N-03W-14 ADD 1	11-17-88	1145	5.3 ± 1.6	— —	— —	140 ± 27
12N-03W-14 BBA 1	11-08-88	1330	5.2 ± 1.3	— —	— —	190 ± 28
12N-03W-16 CBD 1	11-03-88	1130	33 ± 4.3	— —	— —	180 ± 31
12N-03W-17 BAD 1	11-03-88	1400	7.8 ± 1.6	— —	— —	170 ± 30

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
11N-04W-29 AAA 1	07-20-89	1300	31 ± 2.0	2.8 ± 0.3	<0.1 ± 0.0	1.6 ± 0.2
11N-04W-29 CDC 1	06-30-89	930	30 ± 2.0	4.1 ± 0.6	0.4 ± 0.1	2.5 ± 0.4
12N-01E-11 DDC 1	06-15-89	1300	0.4 ± 0.6	0.2 ± 0.1	<0.1 ± 0.1	<0.1 ± 0.1
12N-01E-26 DAC 1	04-18-88	1000	<0.3 ± 0.3	15 ± 1.5	0.2 ± 0.1	3.4 ± 0.4
12N-01E-35 ABC 1	08-24-87	1300	<0.3 ± 0.3	12 ± 1.2	<0.1 ± 0.0	2.3 ± 0.3
12N-01E-36 CBB 1	06-21-89	945	0.4 ± 0.6	1.5 ± 0.4	0.2 ± 0.2	0.2 ± 0.2
12N-01W-20 DCC 1	06-13-89	1345	37 ± 2.6	0.2 ± 0.2	<0.1 ± 0.1	<0.1 ± 0.1
12N-01W-22 AAA 1	06-15-89	930	28 ± 1.8	0.8 ± 0.2	<0.1 ± 0.1	0.2 ± 0.1
12N-01W-31 DDA 1	06-30-88	1300	2.0 ± 0.3	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
12N-02W-04 CBD 1	06-27-88	1345	20 ± 0.6	1.1 ± 0.1	<0.1 ± 0.0	0.4 ± 0.1
12N-02W-05 BDD 1	06-27-88	1030	15 ± 0.5	0.7 ± 0.1	<0.1 ± 0.0	0.3 ± 0.1
12N-02W-07 DAC 1	11-17-88	1000	7.0 ± 0.3	0.9 ± 0.2	<0.1 ± 0.0	0.2 ± 0.1
12N-02W-18 DDC 1	11-21-88	945	12 ± 0.4	1.1 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0
12N-02W-19 BBB 1	11-08-88	945	18 ± 0.6	2.3 ± 0.3	0.1 ± 0.0	0.7 ± 0.1
12N-02W-29 DDC 1	06-13-89	1045	7.8 ± 0.6	4.2 ± 0.7	0.3 ± 0.2	0.9 ± 0.3
12N-02W-30 BCC 1	11-04-88	1300	13 ± 0.4	3.0 ± 0.4	<0.1 ± 0.0	1.2 ± 0.2
12N-03W-02 DBD 1	11-02-88	1015	19 ± 0.7	2.1 ± 0.3	<0.1 ± 0.0	0.9 ± 0.2
12N-03W-03 BCC 1	12-02-88	1300	<0.3 ± 0.6	7.0 ± 0.8	0.2 ± 0.1	3.8 ± 0.5
12N-03W-03 DCD 1	11-01-88	1400	0.7 ± 0.3	6.7 ± 0.8	0.2 ± 0.1	2.0 ± 0.3
12N-03W-05 DCA 1	07-27-87	1130	0.6 ± 0.3	4.8 ± 0.5	0.2 ± 0.0	4.1 ± 0.4
12N-03W-05 DCA 1	04-12-88	1300	<0.3 ± 0.3	9.3 ± 0.9	0.2 ± 0.0	3.8 ± 0.4
12N-03W-07 DDA 1	11-02-88	1245	<0.3 ± 0.3	29 ± 3.5	0.7 ± 0.4	23 ± 2.9
12N-03W-10 ADA 1	11-01-88	930	2.3 ± 0.3	6.9 ± 0.8	<0.1 ± 0.0	1.6 ± 0.3
12N-03W-10 DAC 1	11-23-88	945	59 ± 3.8	1.2 ± 0.2	<0.1 ± 0.0	0.7 ± 0.1
12N-03W-11 CBD 1	11-02-88	1445	60 ± 1.9	0.4 ± 0.1	<0.1 ± 0.0	0.3 ± 0.1
12N-03W-12 BBA 1	11-01-88	1200	3.4 ± 0.3	7.1 ± 0.8	<0.1 ± 0.0	0.9 ± 0.2
12N-03W-14 ADD 1	11-17-88	1145	47 ± 1.6	2.8 ± 0.4	<0.1 ± 0.0	1.8 ± 0.3
12N-03W-14 BBA 1	11-08-88	1330	64 ± 2.2	1.0 ± 0.2	<0.1 ± 0.0	0.5 ± 0.1
12N-03W-16 CBD 1	11-03-88	1130	1.4 ± 0.3	24 ± 2.8	1.8 ± 0.5	21 ± 2.6
12N-03W-17 BAD 1	11-03-88	1400	1.4 ± 0.3	5.7 ± 0.7	<0.1 ± 0.0	2.8 ± 0.4

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
11N-04W-29 AAA 1	07-20-89	1300	4.7 ± 0.5
11N-04W-29 CDC 1	06-30-89	930	7.5 ± 1.3
12N-01E-11 DDC 1	06-15-89	1300	<0.2 ± 0.3
12N-01E-26 DAC 1	04-18-88	1000	10 ± 1.2
12N-01E-35 ABC 1	08-24-87	1300	6.9 ± 0.8
12N-01E-36 CBB 1	06-21-89	945	0.7 ± 0.5
12N-01W-20 DCC 1	06-13-89	1345	<0.2 ± 0.4
12N-01W-22 AAA 1	06-15-89	930	0.4 ± 0.4
12N-01W-31 DDA 1	06-30-88	1300	<0.2 ± 0.0
12N-02W-04 CBD 1	06-27-88	1345	1.1 ± 0.2
12N-02W-05 BDD 1	06-27-88	1030	0.9 ± 0.2
12N-02W-07 DAC 1	11-17-88	1000	0.7 ± 0.2
12N-02W-18 DDC 1	11-21-88	945	0.7 ± 0.2
12N-02W-19 BBB 1	11-08-88	945	2.0 ± 0.4
12N-02W-29 DDC 1	06-13-89	1045	2.9 ± 0.9
12N-02W-30 BCC 1	11-04-88	1300	3.4 ± 0.6
12N-03W-02 DBD 1	11-02-88	1015	2.7 ± 0.6
12N-03W-03 BCC 1	12-02-88	1300	11 ± 1.5
12N-03W-03 DCD 1	11-01-88	1400	6.0 ± 1.0
12N-03W-05 DCA 1	07-27-87	1130	12 ± 1.3
12N-03W-05 DCA 1	04-12-88	1300	11 ± 1.2
12N-03W-07 DDA 1	11-02-88	1245	69 ± 8.9
12N-03W-10 ADA 1	11-01-88	930	4.8 ± 0.8
12N-03W-10 DAC 1	11-23-88	945	2.2 ± 0.3
12N-03W-11 CBD 1	11-02-88	1445	0.8 ± 0.2
12N-03W-12 BBA 1	11-01-88	1200	2.8 ± 0.5
12N-03W-14 ADD 1	11-17-88	1145	5.3 ± 0.9
12N-03W-14 BBA 1	11-08-88	1330	1.7 ± 0.3
12N-03W-16 CBD 1	11-03-88	1130	62 ± 7.9
12N-03W-17 BAD 1	11-03-88	1400	8.2 ± 1.2

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
12N-03W-17 CAA 1	11-03-88	930	353051097322001	115	67 ± 11	110 ± 12	67 ± 8.4
12N-03W-20 BCB 1	11-04-88	945	353010097324601	105	6.2 ± 1.5	9.1 ± 2.1	7.8 ± 1.9
12N-03W-20 BCB 1	11-04-88	1045	353010097324601	105	8.9 ± 1.8	13 ± 2.6	10 ± 2.2
12N-03W-21 ACC 1	12-02-88	1015	353008097310701	104	6.5 ± 1.6	10 ± 2.4	5.2 ± 1.5
12N-03W-24 AAB 1	11-08-88	1130	353026097274801	110	7.1 ± 1.6	10 ± 2.2	8.4 ± 2.1
12N-03W-28 DBA 1	11-15-88	1145	352905097310201	100	5.2 ± 1.3	7.3 ± 1.8	4.8 ± 1.4
12N-03W-30 CBA 1	11-07-88	1415	352904097334201	99	5.9 ± 1.4	8.5 ± 2.0	6.5 ± 1.7
12N-03W-31 DCC 1	11-09-88	1115	352755097332002	89	11 ± 2.1	17 ± 3.0	10 ± 2.7
12N-03W-35 DBC 1	07-28-89	1000	352805097290101	170	6.9 ± 1.4	6.3 ± 1.3	100 ± 18
12N-04W-13 BBB 1	11-07-88	1230	353115097345501	119	45 ± 5.8	64 ± 7.9	42 ± 8.2
12N-04W-14 ACD 1	11-23-88	1230	353055097352201	116	0.8 ± 0.5	1.2 ± 0.8	2.5 ± 1.2
12N-04W-15 AAD 1	11-22-88	945	353841097360501	156	1.8 ± 0.8	3.0 ± 1.2	3.4 ± 1.2
12N-04W-15 AAD 1	11-22-88	1045	353841097360501	156	1.8 ± 0.8	2.7 ± 1.1	3.7 ± 1.2
12N-04W-17 CDA 1	06-06-89	1400	353041097384301	113	2.2 ± 0.5	2.1 ± 0.5	5.0 ± 2.0
12N-04W-21 ACB 1	08-05-87	1415	353013097373301	107	— —	— —	— —
12N-04W-24 ADB 1	10-31-88	1030	353011097340901	106	63 ± 6.8	93 ± 10	62 ± 11
12N-04W-25 AAD 1	11-07-88	930	352927097335801	102	8.7 ± 1.7	13 ± 2.5	12 ± 3.4
12N-04W-27 DBC 1	11-22-88	1230	352859097363501	98	2.7 ± 1.0	3.7 ± 1.3	4.9 ± 1.5
12N-04W-29 CCD 1	06-05-89	1000	352845097390101	95	1.7 ± 0.7	1.5 ± 0.8	3.5 ± 1.0
13N-01E-31 CBA 1	06-16-89	1030	353328097144101	140	1.7 ± 0.5	1.5 ± 0.4	7.3 ± 3.1
13N-01W-30 CBC 1	06-14-89	915	353403097210901	142	0.4 ± 0.3	<0.4 ± 0.3	1.8 ± 1.2
13N-01W-34 CAB 1	08-20-87	1100	353324097173701	139	— —	— —	— —
13N-01W-34 CAB 1	05-09-88	930	353324097173701	139	14 ± 2.7	13 ± 2.8	5.1 ± 1.3
13N-01W-34 CAB 1	05-09-88	1030	353324097173701	139	11 ± 2.3	11 ± 2.4	4.2 ± 1.2
13N-02W-06 BCC 1	04-06-88	1430	353753097273501	150	8.2 ± 2.0	8.1 ± 1.9	2.8 ± 3.5
13N-02W-06 BCC 1	04-06-88	1530	353753097273501	150	7.9 ± 1.8	7.5 ± 1.8	4.6 ± 1.3
13N-02W-15 AAA 1	06-01-88	945	353631097232301	149	3.8 ± 1.3	3.4 ± 1.2	3.1 ± 1.2
13N-02W-21 AAB 1	07-12-88	1345	353539097243901	147	1.6 ± 1.0	1.6 ± 1.0	2.3 ± 0.9
13N-02W-23 DDA 1	06-14-89	1245	353513097222201	144	3.3 ± 0.6	3.1 ± 0.6	1.9 ± 2.1
13N-02W-31 DDC 1	11-21-88	1200	353310097264601	138	1.1 ± 0.6	1.6 ± 0.9	1.9 ± 1.0

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
12N-03W-17 CAA 1	11-03-88	930	45 ± 5.7	— —	— —	520 ± 32
12N-03W-20 BCB 1	11-04-88	945	5.5 ± 1.3	— —	— —	140 ± 42
12N-03W-20 BCB 1	11-04-88	1045	7.3 ± 1.5	— —	— —	140 ± 41
12N-03W-21 ACC 1	12-02-88	1015	3.8 ± 1.1	— —	— —	350 ± 51
12N-03W-24 AAB 1	11-08-88	1130	5.5 ± 1.4	— —	— —	200 ± 32
12N-03W-28 DBA 1	11-15-88	1145	3.5 ± 1.0	— —	— —	140 ± 32
12N-03W-30 CBA 1	11-07-88	1415	4.6 ± 1.2	— —	— —	1,100 ± 33
12N-03W-31 DCC 1	11-09-88	1115	6.6 ± 1.7	— —	— —	160 ± 27
12N-03W-35 DBC 1	07-28-89	1000	81 ± 14	— —	— —	<80 ± 37
12N-04W-13 BBB 1	11-07-88	1230	28 ± 5.4	— —	— —	1,300 ± 33
12N-04W-14 ACD 1	11-23-88	1230	1.8 ± 0.8	— —	— —	240 ± 36
12N-04W-15 AAD 1	11-22-88	945	2.6 ± 0.9	— —	— —	910 ± 33
12N-04W-15 AAD 1	11-22-88	1045	2.8 ± 0.9	— —	— —	950 ± 34
12N-04W-17 CDA 1	06-06-89	1400	4.0 ± 1.6	— —	— —	290 ± 30
12N-04W-21 ACB 1	08-05-87	1415	— —	0.09 ± 0.02	2 ± 2.0	E340 —
12N-04W-24 ADB 1	10-31-88	1030	40 ± 7.1	— —	— —	2,600 ± 38
12N-04W-25 AAD 1	11-07-88	930	7.9 ± 2.3	— —	— —	390 ± 30
12N-04W-27 DBC 1	11-22-88	1230	3.5 ± 1.0	— —	— —	420 ± 29
12N-04W-29 CCD 1	06-05-89	1000	2.9 ± 0.9	— —	— —	250 ± 26
13N-01E-31 CBA 1	06-16-89	1030	5.8 ± 2.4	— —	— —	120 ± 34
13N-01W-30 CBC 1	06-14-89	915	1.4 ± 1.0	— —	— —	160 ± 24
13N-01W-34 CAB 1	08-20-87	1100	— —	0.32 ± 0.06	<2 ± 1.9	E170 —
13N-01W-34 CAB 1	05-09-88	930	3.8 ± 1.0	— —	— —	240 ± 32
13N-01W-34 CAB 1	05-09-88	1030	3.2 ± 0.9	— —	— —	<80 ± 30
13N-02W-06 BCC 1	04-06-88	1430	2.6 ± 3.1	— —	— —	<80 ± 60
13N-02W-06 BCC 1	04-06-88	1530	3.5 ± 1.0	— —	— —	<80 ± 78
13N-02W-15 AAA 1	06-01-88	945	2.3 ± 0.9	— —	— —	<80 ± 31
13N-02W-21 AAB 1	07-12-88	1345	1.8 ± 0.7	— —	— —	<80 ± 31
13N-02W-23 DDA 1	06-14-89	1245	1.5 ± 1.7	— —	— —	150 ± 24
13N-02W-31 DDC 1	11-21-88	1200	1.4 ± 0.7	— —	— —	280 ± 29

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
12N-03W-17 CAA 1	11-03-88	930	1.5 ± 0.3	28 ± 3.4	0.9 ± 0.4	22 ± 2.9
12N-03W-20 BCB 1	11-04-88	945	<0.3 ± 0.3	4.9 ± 0.7	<0.1 ± 0.1	1.7 ± 0.3
12N-03W-20 BCB 1	11-04-88	1045	<0.3 ± 0.3	5.3 ± 0.6	<0.1 ± 0.0	1.7 ± 0.2
12N-03W-21 ACC 1	12-02-88	1015	1.2 ± 0.6	3.3 ± 0.4	<0.1 ± 0.0	0.5 ± 0.1
12N-03W-24 AAB 1	11-08-88	1130	6.9 ± 0.3	3.1 ± 0.4	<0.1 ± 0.0	1.0 ± 0.2
12N-03W-28 DBA 1	11-15-88	1145	<0.3 ± 0.3	2.6 ± 0.5	0.1 ± 0.1	0.7 ± 0.2
12N-03W-30 CBA 1	11-07-88	1415	29 ± 1.0	4.2 ± 0.6	0.1 ± 0.1	2.3 ± 0.4
12N-03W-31 DCC 1	11-09-88	1115	<0.3 ± 0.6	6.1 ± 0.7	<0.1 ± 0.0	2.0 ± 0.3
12N-03W-35 DBC 1	07-28-89	1000	66 ± 3.8	2.2 ± 0.3	0.1 ± 0.0	1.6 ± 0.2
12N-04W-13 BBB 1	11-07-88	1230	31 ± 1.0	25 ± 3.1	0.7 ± 0.4	16 ± 2.2
12N-04W-14 ACD 1	11-23-88	1230	92 ± 5.8	0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
12N-04W-15 AAD 1	11-22-88	945	34 ± 2.6	1.1 ± 0.2	<0.1 ± 0.0	0.5 ± 0.1
12N-04W-15 AAD 1	11-22-88	1045	35 ± 1.3	1.2 ± 0.2	<0.1 ± 0.0	0.5 ± 0.1
12N-04W-17 CDA 1	06-06-89	1400	61 ± 3.8	0.2 ± 0.1	<0.1 ± 0.1	0.3 ± 0.2
12N-04W-21 ACB 1	08-05-87	1415	<0.3 ± 0.3	14 ± 1.9	0.3 ± 0.1	8.2 ± 1.1
12N-04W-24 ADB 1	10-31-88	1030	24 ± 0.8	26 ± 3.7	0.6 ± 0.5	17 ± 2.7
12N-04W-25 AAD 1	11-07-88	930	26 ± 0.9	4.6 ± 0.6	<0.1 ± 0.1	2.4 ± 0.4
12N-04W-27 DBC 1	11-22-88	1230	47 ± 3.2	0.4 ± 0.1	<0.1 ± 0.0	0.3 ± 0.1
12N-04W-29 CCD 1	06-05-89	1000	37 ± 2.6	0.2 ± 0.0	<0.1 ± 0.0	0.1 ± 0.0
13N-01E-31 CBA 1	06-16-89	1030	3.7 ± 0.6	0.9 ± 0.2	<0.1 ± 0.1	0.4 ± 0.2
13N-01W-30 CBC 1	06-14-89	915	31 ± 2.2	0.1 ± 0.1	0.2 ± 0.1	0.2 ± 0.1
13N-01W-34 CAB 1	08-20-87	1100	<0.3 ± 0.3	3.9 ± 0.4	<0.1 ± 0.0	0.4 ± 0.1
13N-01W-34 CAB 1	05-09-88	930	<0.3 ± 0.3	5.6 ± 0.6	<0.1 ± 0.0	0.5 ± 0.1
13N-01W-34 CAB 1	05-09-88	1030	<0.3 ± 0.3	5.6 ± 0.6	<0.1 ± 0.0	0.5 ± 0.1
13N-02W-06 BCC 1	04-06-88	1430	<0.3 ± 0.3	3.5 ± 0.4	<0.1 ± 0.0	0.6 ± 0.1
13N-02W-06 BCC 1	04-06-88	1530	<0.3 ± 0.3	3.8 ± 0.5	0.2 ± 0.1	0.9 ± 0.2
13N-02W-15 AAA 1	06-01-88	945	1.6 ± 0.3	1.6 ± 0.2	<0.1 ± 0.0	0.3 ± 0.1
13N-02W-21 AAB 1	07-12-88	1345	25 ± 0.9	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
13N-02W-23 DDA 1	06-14-89	1245	0.6 ± 0.6	1.5 ± 0.3	0.2 ± 0.1	0.2 ± 0.1
13N-02W-31 DDC 1	11-21-88	1200	27 ± 0.9	0.4 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
12N-03W-17 CAA 1	11-03-88	930	67 ± 8.7
12N-03W-20 BCB 1	11-04-88	945	5.2 ± 1.0
12N-03W-20 BCB 1	11-04-88	1045	5.0 ± 0.7
12N-03W-21 ACC 1	12-02-88	1015	1.5 ± 0.3
12N-03W-24 AAB 1	11-08-88	1130	3.1 ± 0.6
12N-03W-28 DBA 1	11-15-88	1145	2.1 ± 0.7
12N-03W-30 CBA 1	11-07-88	1415	6.9 ± 1.1
12N-03W-31 DCC 1	11-09-88	1115	6.1 ± 0.9
12N-03W-35 DBC 1	07-28-89	1000	4.9 ± 0.6
12N-04W-13 BBB 1	11-07-88	1230	48 ± 6.7
12N-04W-14 ACD 1	11-23-88	1230	<0.2 ± 0.1
12N-04W-15 AAD 1	11-22-88	945	1.3 ± 0.3
12N-04W-15 AAD 1	11-22-88	1045	1.5 ± 0.3
12N-04W-17 CDA 1	06-06-89	1400	1.0 ± 0.5
12N-04W-21 ACB 1	08-05-87	1415	25 ± 3.4
12N-04W-24 ADB 1	10-31-88	1030	51 ± 8.4
12N-04W-25 AAD 1	11-07-88	930	7.3 ± 1.3
12N-04W-27 DBC 1	11-22-88	1230	0.8 ± 0.2
12N-04W-29 CCD 1	06-05-89	1000	0.4 ± 0.1
13N-01E-31 CBA 1	06-16-89	1030	1.3 ± 0.5
13N-01W-30 CBC 1	06-14-89	915	0.7 ± 0.5
13N-01W-34 CAB 1	08-20-87	1100	1.2 ± 0.2
13N-01W-34 CAB 1	05-09-88	930	1.5 ± 0.2
13N-01W-34 CAB 1	05-09-88	1030	1.5 ± 0.3
13N-02W-06 BCC 1	04-06-88	1430	1.8 ± 0.3
13N-02W-06 BCC 1	04-06-88	1530	2.6 ± 0.5
13N-02W-15 AAA 1	06-01-88	945	1.0 ± 0.2
13N-02W-21 AAB 1	07-12-88	1345	<0.2 ± 0.0
13N-02W-23 DDA 1	06-14-89	1245	0.8 ± 0.5
13N-02W-31 DDC 1	11-21-88	1200	0.5 ± 0.2

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
13N-03W-23 ABD 1	04-14-88	1030	353532097285601	145	12 ± 2.5	11 ± 2.4	8.0 ± 1.9
13N-04W-28 CAD 1	09-02-87	1000	353411097374501	143	—	—	—
14N-01E-09 DAD 1	06-21-88	1230	354203097114301	169	0.8 ± 0.7	0.8 ± 0.7	1.7 ± 0.8
14N-01E-09 DAD 1	06-21-88	1330	354203097114301	169	1.0 ± 0.7	1.0 ± 0.7	2.4 ± 0.9
14N-01E-26 CBB 1	07-08-88	945	353931097103301	160	1.4 ± 0.8	1.4 ± 0.8	1.4 ± 0.8
14N-01E-26 CDD 1	06-21-88	945	353909097100101	157	0.8 ± 0.7	0.7 ± 0.6	1.2 ± 0.7
14N-01E-27 BDA 1	08-25-87	1100	353947097111501	162	—	—	—
14N-01W-20 DDD 1	05-11-88	1230	354008097190901	165	120 ± 13	110 ± 15	45 ± 12
14N-01W-28 BBA 1	06-27-89	1000	353958097185001	163	40 ± 4.4	39 ± 4.2	38 ± 8.7
14N-02W-31 CDD 1	04-07-88	930	353819097270701	152	6.9 ± 1.6	6.7 ± 1.6	3.7 ± 1.2
14N-02W-32 DCD 1	08-17-87	1100	353819097254901	151	—	—	—
14N-03W-18 DCC 1	09-25-87	1100	354105097332401	167	—	—	—
14N-03W-18 DCC 1	09-25-87	1200	354105097332401	167	—	—	—
14N-03W-33 DDD 1	08-14-87	1000	353819097305101	153	—	—	—
14N-03W-33 DDD 1	08-14-87	1100	353819097305101	153	—	—	—
14N-03W-34 BBA 1	04-11-88	1300	353909097304501	158	11 ± 2.4	10 ± 2.3	6.5 ± 1.5
14N-04W-19 CDD 1	08-31-87	1030	354007097395401	164	—	—	—
14N-04W-31 CBC 1	07-20-89	930	353837097402301	154	10 ± 1.8	9.1 ± 1.7	79 ± 12
PAYNE COUNTY							
17N-03E-10 CDD 1	06-27-89	1400	355727096582201	205	14 ± 1.8	14 ± 1.7	15 ± 2.9
POTTAWATOMIE COUNTY							
06N-03E-08 DCC 1	06-09-88	1000	350003097003301	7	170 ± 17	160 ± 21	96 ± 11
06N-03E-21 ABB 1	06-09-88	1200	345908096593101	4	1.2 ± 0.8	1.1 ± 0.8	0.6 ± 0.6
06N-03E-28 BAA 1	07-05-89	1030	345814096593301	2	2.9 ± 0.5	2.8 ± 0.5	22 ± 3.7
06N-03E-28 BAA 1	07-05-89	1130	345814096593301	2	2.5 ± 0.5	2.4 ± 0.5	20 ± 3.4
06N-04E-35 DDD 1	07-06-89	1015	345634096503901	1	2.8 ± 0.5	2.7 ± 0.5	7.7 ± 2.0
07N-02E-29 DCD 1	06-08-88	1215	350240097064101	12	8.2 ± 2.1	8.0 ± 2.2	5.4 ± 1.3
07N-02E-32 CBC 1	06-08-88	1000	350203097072201	11	3.5 ± 1.4	3.4 ± 1.3	2.2 ± 1.0

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
13N-03W-23 ABD 1	04-14-88	1030	5.6 ± 1.3	—	—	160 ± 31
13N-04W-28 CAD 1	09-02-87	1000	—	0.10 ± 0.02	<2 ± 1.6	E250 —
14N-01E-09 DAD 1	06-21-88	1230	1.3 ± 0.6	—	—	<80 ± 30
14N-01E-09 DAD 1	06-21-88	1330	2.0 ± 0.7	—	—	<80 ± 30
14N-01E-26 CBB 1	07-08-88	945	1.1 ± 0.6	—	—	120 ± 43
14N-01E-26 CDD 1	06-21-88	945	0.9 ± 0.6	—	—	86 ± 30
14N-01E-27 BDA 1	08-25-87	1100	—	0.29 ± 0.05	2 ± 0.6	E300 —
14N-01W-20 DDD 1	05-11-88	1230	33 ± 7.0	—	—	140 ± 30
14N-01W-28 BBA 1	06-27-89	1000	30 ± 6.9	—	—	720 ± 29
14N-02W-31 CDD 1	04-07-88	930	2.7 ± 0.9	—	—	93 ± 53
14N-02W-32 DCD 1	08-17-87	1100	—	0.35 ± 0.07	<2 ± 2.0	E260 —
14N-03W-18 DCC 1	09-25-87	1100	—	0.15 ± 0.03	2 ± 1.6	E280 —
14N-03W-18 DCC 1	09-25-87	1200	—	0.15 ± 0.03	1 ± 1.4	E280 —
14N-03W-33 DDD 1	08-14-87	1000	—	0.41 ± 0.07	2 ± 2.1	E310 —
14N-03W-33 DDD 1	08-14-87	1100	—	0.38 ± 0.07	2 ± 2.2	E310 —
14N-03W-34 BBA 1	04-11-88	1300	4.8 ± 1.2	—	—	140 ± 30
14N-04W-19 CDD 1	08-31-87	1030	—	0.08 ± 0.02	<2 ± 1.5	E1,900 —
14N-04W-31 CBC 1	07-20-89	930	62 ± 9.8	—	—	1,300 ± 29
PAYNE COUNTY						
17N-03E-10 CDD 1	06-27-89	1400	12 ± 2.3	—	—	200 ± 25
POTTAWATOMIE COUNTY						
06N-03E-08 DCC 1	06-09-88	1000	67 ± 7.9	—	—	1,400 ± 40
06N-03E-21 ABB 1	06-09-88	1200	0.4 ± 0.5	—	—	180 ± 32
06N-03E-28 BAA 1	07-05-89	1030	17 ± 2.9	—	—	180 ± 29
06N-03E-28 BAA 1	07-05-89	1130	15 ± 2.7	—	—	180 ± 29
06N-04E-35 DDD 1	07-06-89	1015	6.1 ± 1.6	—	—	250 ± 27
07N-02E-29 DCD 1	06-08-88	1215	4.2 ± 1.0	—	—	220 ± 32
07N-02E-32 CBC 1	06-08-88	1000	1.6 ± 0.7	—	—	170 ± 33

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
13N-03W-23 ABD 1	04-14-88	1030	<0.3 ± 0.3	6.5 ± 0.7	<0.1 ± 0.0	1.4 ± 0.2
13N-04W-28 CAD 1	09-02-87	1000	0.3 ± 0.3	43 ± 4.3	1.2 ± 0.2	31 ± 3.1
14N-01E-09 DAD 1	06-21-88	1230	61 ± 1.9	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
14N-01E-09 DAD 1	06-21-88	1330	57 ± 1.9	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
14N-01E-26 CBB 1	07-08-88	945	17 ± 0.6	0.3 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0
14N-01E-26 CDD 1	06-21-88	945	44 ± 1.6	<0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
14N-01E-27 BDA 1	08-25-87	1100	1.5 ± 0.3	12 ± 1.3	0.3 ± 0.1	6.6 ± 0.1
14N-01W-20 DDD 1	05-11-88	1230	3.4 ± 0.3	43 ± 4.7	0.9 ± 0.3	27 ± 3.1
14N-01W-28 BBA 1	06-27-89	1000	4.5 ± 0.6	19 ± 2.4	1.3 ± 0.3	13 ± 1.7
14N-02W-31 CDD 1	04-07-88	930	0.6 ± 0.3	3.0 ± 0.4	<0.1 ± 0.0	0.5 ± 0.1
14N-02W-32 DCD 1	08-17-87	1100	0.4 ± 0.3	7.4 ± 0.8	0.1 ± 0.0	1.9 ± 0.2
14N-03W-18 DCC 1	09-25-87	1100	<0.3 ± 0.3	14 ± 1.4	0.3 ± 0.0	4.7 ± 0.5
14N-03W-18 DCC 1	09-25-87	1200	<0.3 ± 0.3	13 ± 1.3	0.3 ± 0.1	4.4 ± 0.5
14N-03W-33 DDD 1	08-14-87	1000	0.6 ± 0.3	8.7 ± 0.9	<0.1 ± 0.0	2.2 ± 0.3
14N-03W-33 DDD 1	08-14-87	1100	— —	7.9 ± 0.8	<0.1 ± 0.0	2.1 ± 0.2
14N-03W-34 BBA 1	04-11-88	1300	<0.3 ± 0.3	5.3 ± 0.5	<0.1 ± 0.1	1.3 ± 0.9
14N-04W-19 CDD 1	08-31-87	1030	29 ± 1.0	6.9 ± 0.7	0.2 ± 0.0	3.6 ± 0.4
14N-04W-31 CBC 1	07-20-89	930	24 ± 1.4	4.1 ± 0.2	0.1 ± 0.0	3.3 ± 0.4
PAYNE COUNTY						
17N-03E-10 CDD 1	06-27-89	1400	<0.3 ± 0.6	5.7 ± 0.8	0.3 ± 0.2	3.2 ± 0.5
POTTAWATOMIE COUNTY						
06N-03E-08 DCC 1	06-09-88	1000	0.4 ± 0.3	28 ± 3.2	2.5 ± 0.5	36 ± 4.0
06N-03E-21 ABB 1	06-09-88	1200	49 ± 1.6	0.1 ± 0.0	<0.1 ± 0.0	<0.1 ± 0.0
06N-03E-28 BAA 1	07-05-89	1030	24 ± 1.6	0.7 ± 0.2	0.2 ± 0.1	0.6 ± 0.2
06N-03E-28 BAA 1	07-05-89	1130	24 ± 1.6	0.9 ± 0.3	<0.1 ± 0.2	0.8 ± 0.3
06N-04E-35 DDD 1	07-06-89	1015	4.2 ± 0.6	0.2 ± 0.2	<0.1 ± 0.1	<0.1 ± 0.1
07N-02E-29 DCD 1	06-08-88	1215	2.7 ± 0.3	3.0 ± 0.3	<0.1 ± 0.0	1.3 ± 0.2
07N-02E-32 CBC 1	06-08-88	1000	31 ± 1.1	0.5 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
13N-03W-23 ABD 1	04-14-88	1030	4.3 ± 0.5
13N-04W-28 CAD 1	09-02-87	1000	92 ± 9.2
14N-01E-09 DAD 1	06-21-88	1230	<0.2 ± 0.1
14N-01E-09 DAD 1	06-21-88	1330	<0.2 ± 0.1
14N-01E-26 CBB 1	07-08-88	945	0.5 ± 0.1
14N-01E-26 CDD 1	06-21-88	945	<0.2 ± 0.0
14N-01E-27 BDA 1	08-25-87	1100	20 ± 2.4
14N-01W-20 DDD 1	05-11-88	1230	80 ± 9.3
14N-01W-28 BBA 1	06-27-89	1000	40 ± 5.2
14N-02W-31 CDD 1	04-07-88	930	1.7 ± 0.3
14N-02W-32 DCD 1	08-17-87	1100	5.7 ± 0.7
14N-03W-18 DCC 1	09-25-87	1100	14 ± 1.5
14N-03W-18 DCC 1	09-25-87	1200	13 ± 1.4
14N-03W-33 DDD 1	08-14-87	1000	6.6 ± 0.8
14N-03W-33 DDD 1	08-14-87	1100	6.3 ± 0.7
14N-03W-34 BBA 1	04-11-88	1300	3.7 ± 2.8
14N-04W-19 CDD 1	08-31-87	1030	11 ± 1.1
14N-04W-31 CBC 1	07-20-89	930	10 ± 1.1
PAYNE COUNTY			
17N-03E-10 CDD 1	06-27-89	1400	9.6 ± 1.7
POTTAWATOMIE COUNTY			
06N-03E-08 DCC 1	06-09-88	1000	110 ± 12
06N-03E-21 ABB 1	06-09-88	1200	0.2 ± 0.1
06N-03E-28 BAA 1	07-05-89	1030	1.9 ± 0.7
06N-03E-28 BAA 1	07-05-89	1130	2.4 ± 0.9
06N-04E-35 DDD 1	07-06-89	1015	0.2 ± 0.4
07N-02E-29 DCD 1	06-08-88	1215	3.8 ± 0.5
07N-02E-32 CBC 1	06-08-88	1000	0.5 ± 0.1

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Gross alpha, dissolved (pCi/L as ^{230}Th ± 2SPE)	Gross alpha, dissolved (µg/L as U-nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)
07N-03E-01 CBB 1	06-28-89	1315	350629096565401	18	11 ± 1.5	11 ± 1.4	18 ± 5.0
07N-04E-06 CCC 1	06-13-88	945	350610096555001	17	8.7 ± 2.2	8.4 ± 2.2	4.2 ± 1.4
07N-04E-07 ABA 1	06-14-88	1345	350603096550801	16	16 ± 3.2	15 ± 3.0	12 ± 2.4
08N-02E-05 BBA 1	06-26-89	1000	351209097071701	27	7.5 ± 1.1	7.2 ± 1.0	9.7 ± 2.3
08N-03E-18 DAA 1	06-26-89	1315	350959097011301	22	6.7 ± 1.0	6.4 ± 0.9	9.8 ± 2.9
09N-02E-07 ADA 1	06-07-88	1145	351617097072801	41	5.6 ± 1.6	5.1 ± 1.5	4.8 ± 1.4
09N-02E-07 BBB 1	06-07-88	945	351624097082401	42	5.3 ± 1.7	5.2 ± 1.7	3.8 ± 1.2
09N-02E-10 ADD 1	09-08-87	1200	351611097042001	39	— —	— —	— —
09N-02E-34 CDC 1	09-03-87	1100	351212097045601	28	— —	— —	— —
09N-03E-13 CCA 1	09-04-87	1000	351455096563801	37	— —	— —	— —
09N-03E-13 CCA 1	04-28-88	945	351455096563801	37	18 ± 3.3	17 ± 3.3	14 ± 2.8
09N-03E-20 BDB 1	06-14-88	1130	351433097004401	36	12 ± 2.6	11 ± 2.6	7.9 ± 1.8
09N-03E-21 DAD 1	06-14-88	945	351411096590001	34	4.0 ± 1.4	3.9 ± 1.4	3.7 ± 2.6
10N-03E-22 ABB 1	06-21-89	1245	351955096582501	55	1.5 ± 0.5	1.4 ± 0.5	3.2 ± 5.0
11N-02E-10 BBA 1	06-19-89	1300	352652097050501	83	3.4 ± 0.8	3.1 ± 0.7	5.4 ± 3.7
11N-02E-16 BDA 1	08-28-87	1100	352550097055401	77	— —	— —	— —
11N-02E-16 BDA 1	04-18-88	1300	352550097055401	77	9.8 ± 2.3	6.3 ± 1.5	5.0 ± 1.3
11N-02E-25 BBC 1	06-20-89	930	352410097031401	206	8.5 ± 1.3	7.8 ± 1.2	5.3 ± 3.3
11N-02E-34 ABB 1	06-02-88	930	352326097044801	60	2.2 ± 1.0	2.2 ± 1.0	2.4 ± 1.0
11N-02E-35 BAB 1	06-02-88	1145	352327097040101	61	5.6 ± 1.6	5.5 ± 1.6	17 ± 2.8
11N-03E-15 BCC 1	06-15-88	1000	352543096585601	76	1.7 ± 1.0	1.7 ± 1.0	1.5 ± 0.8
11N-04E-28 ABB 1	07-25-89	1300	352418096530101	65	5.5 ± 1.2	5.1 ± 1.1	14 ± 3.0
11N-04E-29 CBB 1	07-14-88	1315	352351096544001	63	50 ± 6.9	49 ± 7.2	42 ± 5.8
11N-04E-31 DCC 1	08-27-87	1000	352236096551001	59	— —	— —	— —

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Gross beta, dissolved (pCi/L as $^{90}Sr/^{90}Y$ ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, total (pCi/L ± 2SPE)
07N-03E-01 CBB 1	06-28-89	1315	14 ± 4.0	—	—	620 ± 20
07N-04E-06 CCC 1	06-13-88	945	3.0 ± 1.0	—	—	81 ± 31
07N-04E-07 ABA 1	06-14-88	1345	7.7 ± 1.6	—	—	1,100 ± 37
08N-02E-05 BBA 1	06-26-89	1000	9.7 ± 2.3	—	—	180 ± 29
08N-03E-18 DAA 1	06-26-89	1315	7.8 ± 2.3	—	—	280 ± 29
09N-02E-07 ADA 1	06-07-88	1145	3.6 ± 1.0	—	—	87 ± 32
09N-02E-07 BBB 1	06-07-88	945	2.8 ± 0.9	—	—	140 ± 33
09N-02E-10 ADD 1	09-08-87	1200	—	0.17 ± 0.03	3 ± 0.8	E280 —
09N-02E-34 CDC 1	09-03-87	1100	—	0.15 ± 0.03	1 ± 1.2	E600 —
09N-03E-13 CCA 1	09-04-87	1000	—	0.17 ± 0.03	2 ± 1.9	E470 —
09N-03E-13 CCA 1	04-28-88	945	9.4 ± 1.9	—	—	110 ± 35
09N-03E-20 BDB 1	06-14-88	1130	5.6 ± 1.3	—	—	150 ± 30
09N-03E-21 DAD 1	06-14-88	945	2.7 ± 1.9	—	—	120 ± 32
10N-03E-22 ABB 1	06-21-89	1245	2.5 ± 3.9	—	—	160 ± 25
11N-02E-10 BBA 1	06-19-89	1300	4.3 ± 2.9	—	—	180 ± 24
11N-02E-16 BDA 1	08-28-87	1100	—	0.23 ± 0.04	<1 ± 1.1	E300 —
11N-02E-16 BDA 1	04-18-88	1300	3.7 ± 1.0	—	—	100 ± 30
11N-02E-25 BBC 1	06-20-89	930	4.2 ± 2.6	—	—	1,400 ± 30
11N-02E-34 ABB 1	06-02-88	930	1.8 ± 0.8	—	—	260 ± 32
11N-02E-35 BAB 1	06-02-88	1145	13 ± 2.1	—	—	90 ± 30
11N-03E-15 BCC 1	06-15-88	1000	1.2 ± 0.6	—	—	<80 ± 31
11N-04E-28 ABB 1	07-25-89	1300	11 ± 2.4	—	—	830 ± 27
11N-04E-29 CBB 1	07-14-88	1315	29 ± 3.9	—	—	330 ± 33
11N-04E-31 DCC 1	08-27-87	1000	—	0.07 ± 0.01	2 ± 0.6	E650 —

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	Tritium, total (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)
07N-03E-01 CBB 1	06-28-89	1315	26 ± 1.7	4.6 ± 0.7	0.3 ± 0.1	3.2 ± 0.5
07N-04E-06 CCC 1	06-13-88	945	12 ± 0.4	2.8 ± 0.3	<0.1 ± 0.0	1.9 ± 0.2
07N-04E-07 ABA 1	06-14-88	1345	33 ± 1.3	7.9 ± 0.8	0.5 ± 0.1	4.1 ± 0.4
08N-02E-05 BBA 1	06-26-89	1000	16 ± 1.0	3.8 ± 0.6	0.4 ± 0.2	1.5 ± 0.3
08N-03E-18 DAA 1	06-26-89	1315	0.5 ± 0.6	2.5 ± 0.5	0.5 ± 0.2	1.6 ± 0.4
09N-02E-07 ADA 1	06-07-88	1145	11 ± 0.4	1.3 ± 0.2	<0.1 ± 0.0	1.0 ± 0.1
09N-02E-07 BBB 1	06-07-88	945	0.4 ± 0.3	1.2 ± 0.2	<0.1 ± 0.0	0.3 ± 0.1
09N-02E-10 ADD 1	09-08-87	1200	50 ± 1.3	0.5 ± 0.1	<0.1 ± 0.0	0.3 ± 0.0
09N-02E-34 CDC 1	09-03-87	1100	<0.3 ± 0.3	4.0 ± 0.4	<0.1 ± 0.0	1.3 ± 0.2
09N-03E-13 CCA 1	09-04-87	1000	16 ± 0.5	7.4 ± 0.7	0.3 ± 0.0	4.0 ± 0.4
09N-03E-13 CCA 1	04-28-88	945	<0.3 ± 0.3	7.1 ± 0.8	0.1 ± 0.0	3.6 ± 0.4
09N-03E-20 BDB 1	06-14-88	1130	27 ± 1.0	3.5 ± 0.4	0.3 ± 0.1	3.0 ± 0.3
09N-03E-21 DAD 1	06-14-88	945	<0.3 ± 0.3	1.3 ± 0.2	<0.1 ± 0.0	1.0 ± 0.1
10N-03E-22 ABB 1	06-21-89	1245	44 ± 3.2	0.2 ± 0.2	<0.1 ± 0.1	<0.1 ± 0.1
11N-02E-10 BBA 1	06-19-89	1300	1.9 ± 0.6	<0.1 ± 0.1	<0.1 ± 0.1	0.1 ± 0.1
11N-02E-16 BDA 1	08-28-87	1100	4.5 ± 0.3	21 ± 2.1	0.4 ± 0.1	10 ± 1.1
11N-02E-16 BDA 1	04-18-88	1300	12 ± 0.4	3.2 ± 0.3	<0.1 ± 0.0	1.5 ± 0.2
11N-02E-25 BBC 1	06-20-89	930	<0.3 ± 0.6	2.6 ± 0.5	<0.1 ± 0.1	0.5 ± 0.2
11N-02E-34 ABB 1	06-02-88	930	3.9 ± 0.3	0.9 ± 0.1	<0.1 ± 0.0	0.4 ± 0.1
11N-02E-35 BAB 1	06-02-88	1145	47 ± 1.6	0.4 ± 0.1	<0.1 ± 0.0	0.2 ± 0.0
11N-03E-15 BCC 1	06-15-88	1000	12 ± 0.4	0.4 ± 0.1	<0.1 ± 0.0	0.1 ± 0.0
11N-04E-28 ABB 1	07-25-89	1300	7.1 ± 0.6	2.3 ± 0.3	<0.1 ± 0.0	1.9 ± 0.2
11N-04E-29 CBB 1	07-14-88	1315	<0.3 ± 0.3	18 ± 1.9	0.5 ± 0.2	12 ± 1.3
11N-04E-31 DCC 1	08-27-87	1000	0.4 ± 0.3	8.0 ± 0.8	<0.1 ± 0.0	0.9 ± 0.1

Table 5.—*Concentrations of radionuclides and radioactivities in water samples from wells*—Continued

Local identifier	Date	Time	U-natural, dissolved (µg/L ± 2SPE)
07N-03E-01 CBB 1	06-28-89	1315	9.6 ± 1.6
07N-04E-06 CCC 1	06-13-88	945	5.6 ± 0.7
07N-04E-07 ABA 1	06-14-88	1345	12 ± 1.4
08N-02E-05 BBA 1	06-26-89	1000	4.6 ± 1.1
08N-03E-18 DAA 1	06-26-89	1315	5.1 ± 1.2
09N-02E-07 ADA 1	06-07-88	1145	2.9 ± 0.4
09N-02E-07 BBB 1	06-07-88	945	1.0 ± 0.2
09N-02E-10 ADD 1	09-08-87	1200	0.9 ± 0.1
09N-02E-34 CDC 1	09-03-87	1100	4.0 ± 0.5
09N-03E-13 CCA 1	09-04-87	1000	12 ± 1.2
09N-03E-13 CCA 1	04-28-88	945	11 ± 1.3
09N-03E-20 BDB 1	06-14-88	1130	9.1 ± 1.0
09N-03E-21 DAD 1	06-14-88	945	3.1 ± 0.4
10N-03E-22 ABB 1	06-21-89	1245	<0.2 ± 0.4
11N-02E-10 BBA 1	06-19-89	1300	0.4 ± 0.3
11N-02E-16 BDA 1	08-28-87	1100	31 ± 3.3
11N-02E-16 BDA 1	04-18-88	1300	4.5 ± 0.6
11N-02E-25 BBC 1	06-20-89	930	1.5 ± 0.6
11N-02E-34 ABB 1	06-02-88	930	1.1 ± 0.2
11N-02E-35 BAB 1	06-02-88	1145	0.6 ± 0.1
11N-03E-15 BCC 1	06-15-88	1000	0.3 ± 0.1
11N-04E-28 ABB 1	07-25-89	1300	5.7 ± 0.7
11N-04E-29 CBB 1	07-14-88	1315	37 ± 4.1
11N-04E-31 DCC 1	08-27-87	1000	2.7 ± 0.3

Table 6.—*Carbon isotope ratios and δ-values of selected isotopes in water samples from wells*

[Percent modern, *0.7 percent, or less, modern carbon at the 40,000-year age;* δ-value, *delta value;* per mil, *((isotope ratio in sample minus ratio in standard) divided by ratio in standard) multiplied by 1,000;* PDB, *Peedee belemnite;* SMOW, *Standard Mean Ocean Water;* CDT, *Canyon Diablo Troilite;* (—), *indicates no data are available; all samples, except for* ^{14}*carbon, were analyzed by the National Water Quality Laboratory of the U.S. Geological Survey.* ^{14}*Carbon samples were analyzed by the Radiocarbon Laboratory of Southern Methodist University*]

Local identifier	Date	Time	Site identification number	Well number	^{14}Carbon, percent modern	$^{13}/^{12}$Carbon, δ-value relative to PDB (per mil)	$^{2}/^{1}$Hydrogen, δ-value relative to SMOW (per mil)	$^{18}/^{16}$Oxygen, δ-value relative to SMOW (per mil)	$^{34}/^{32}$Sulfur, δ-value relative to CDT (per mil)
				CANADIAN COUNTY					
14N–05W–25 DDC 1	08–26–87	1000	353915097403901	159	8.5	–13.30	–44.0	–6.90	9.70
				CLEVELAND COUNTY					
06N–01E–05 DDB 1	04–20–88	1130	350101097125401	10	—	—	–33.5	–5.95	—
06N–01E–05 DDC 1	04–20–88	930	350055097125402	9	—	—	–37.5	–6.20	—
08N–01W–12 BCB 1	10–02–87	1300	351106097155201	24	14.5	–13.46	–36.5	–6.20	8.69
08N–01W–12 BCB 2	09–11–87	1500	351106097155202	25	8.8	–13.07	–36.0	–6.30	–26.77
08N–02W–25 BAA 1	04–27–88	930	350845097214501	166	—	—	–29.0	–5.45	—
08N–02W–27 DDD 1	04–21–88	1000	350756097232001	19	—	—	–37.0	–6.35	—
09N–02W–22 DDA 1	07–29–87	1120	351409097231801	33	3.8	–10.10	–41.0	–6.75	6.40
09N–02W–29 DCA 1	07–31–87	1030	351314097254701	32	12.8	–9.50	–39.0	–6.45	9.80
09N–02W–31 DAA 1	04–25–88	1330	351236097262801	30	—	—	–41.5	–6.95	—
09N–02W–32 CCC 1	04–25–88	1100	351219097262301	29	—	—	–41.5	–6.95	—
09N–03W–11 AAC 1	07–31–87	1530	351648097285101	45	10.7	–10.50	–38.0	–6.45	9.80
09N–03W–23 CBC 1	08–03–87	1100	351414097293901	35	<0.70	–7.70	–41.5	–6.85	9.70
09N–03W–23 CBC 1	08–03–87	1200	351414097293901	35	—	–7.70	–43.0	–6.80	9.70
10N–01W–36 BBB 1	10–07–87	1200	351817097155201	49	23.5	–17.00	–34.5	–5.90	4.20
10N–02W–36 CCC 1	10–15–87	1300	351729097221301	47	44.9	–9.50	–33.0	–5.45	5.60
10N–02W–36 CCC 2	10–22–87	1600	351729097221302	48	15.3	–12.30	–40.0	–6.40	10.30
10N–03W–12 BCD 1	04–19–88	1130	352123097282301	57	—	—	–38.0	–6.50	—
10N–03W–13 BBD 1	04–19–88	900	352043097282001	56	—	—	–37.5	–6.40	—
10N–03W–22 DAD 1	08–04–87	1030	351926097293001	54	12.4	–10.80	–38.5	–6.35	9.40
10N–04W–11 AAA 1	08–06–87	1400	352145097345901	58	7.2	–11.20	–40.5	–6.45	8.50

Table 6. *Carbon isotope ratios and δ-values of selected isotopes in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	^{14}Carbon, percent modern	$^{13}/^{12}$Carbon, δ-value relative to PDB (per mil)	$^{2}/^{1}$Hydrogen, δ-value relative to SMOW (per mil)	$^{18}/^{16}$Oxygen, δ-value relative to SMOW (per mil)	$^{34}/^{32}$Sulfur, δ-value relative to CDT (per mil)
				LINCOLN COUNTY					
12N-03E-17 DAC 1	09-15-87	1200	353040097000901	112	115	—	-37.0	-6.10	5.20
15N-02E-12 BCC 1	09-23-87	1130	354725097030501	183	91.5	-15.60	-32.0	-5.25	3.40
15N-02E-14 AAA 1	04-05-88	1300	354654097030801	181	—	—	-37.0	-6.30	—
15N-02E-14 ADA 1	07-06-88	1000	354637097030801	180	—	—	-36.0	-6.35	—
15N-02E-14 ADD 1	08-21-87	1200	354633097030801	179	25.1	-10.70	-36.5	-6.10	6.50
15N-03E-05 BAC 1	04-12-88	930	354844097004501	187	—	—	-30.5	-5.50	—
16N-03E-11 CCC 1	04-05-88	1100	355214096574801	198	—	—	-33.0	-5.90	—
				LOGAN COUNTY					
15N-02W-13 CAB 1	09-21-87	1400	354631097215501	178	109	-16.10	-27.5	-4.00	8.80
15N-02W-26 AAA 1	04-13-88	930	354514097222101	174	—	—	-34.0	-6.05	—
15N-02W-30 AAD 1	04-13-88	1130	354506097263601	173	—	—	-33.5	-5.80	—
15N-03W-01 CAA 1	08-19-87	1130	354817097281101	186	91.5	-12.50	-29.0	-5.55	4.60
15N-03W-03 DDD 1	05-12-88	1100	354758097295201	185	—	—	-40.5	-6.55	—
15N-03W-34 DDC 1	04-06-88	1100	354332097295301	171	—	—	-32.0	-5.60	—
				OKLAHOMA COUNTY					
11N-01W-05 AAD 1	09-17-87	1200	352738097191001	85	113	-20.20	-36.0	-6.20	5.70
11N-01W-05 ABA 1	08-11-87	1000	352749097192301	20	29.6	-13.40	-37.5	-5.75	5.10
11N-01W-05 ABA 1	04-26-88	1400	352749097192301	20	—	—	-32.5	-5.85	—
11N-02W-14 DDC 1	04-26-88	1000	352519097222501	70	—	—	-31.5	-5.85	—
11N-02W-18 CDD 1	08-10-87	1200	352518097270601	69	21.6	-11.40	-38.0	-6.05	2.40
11N-04W-16 BAA 1	08-06-87	1000	352605097375701	79	2.2	-10.20	-43.5	-6.95	9.60
11N-04W-16 CCB 1	09-01-87	1100	352527097380501	72	103	-9.10	-33.0	-5.65	5.10
11N-04W-16 DDD 1	04-11-88	930	352515097370801	68	—	—	-38.5	-6.75	—
12N-01E-26 DAC 1	04-18-88	1000	352851097093801	96	—	—	-36.0	-6.20	—
12N-01E-35 ABC 1	08-24-87	1300	352830097100301	93	21.0	-15.20	-37.5	-6.10	0.70

Table 6. *Carbon isotope ratios and δ-values of selected isotopes in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	^{14}Carbon, percent modern	$^{13}/^{12}$Carbon, δ-value relative to PDB (per mil)	$^{2}/^{1}$Hydrogen, δ-value relative to SMOW (per mil)	$^{18}/^{16}$Oxygen, δ-value relative to SMOW (per mil)	$^{34}/^{32}$Sulfur, δ-value relative to CDT (per mil)
12N-03W-05 DCA 1	07-27-87	1130	353223097320501	131	4.4	-10.90	-39.0	-6.50	11.40
12N-03W-05 DCA 1	04-12-88	1300	353223097320501	131	—	—	-36.0	-6.20	—
12N-04W-21 ACB 1	08-05-87	1415	353013097373301	107	3.5	-11.00	-40.5	-6.80	9.90
13N-01W-34 CAB 1	08-20-87	1100	353324097173701	139	32.0	-13.80	-33.5	-5.90	1.70
13N-01W-34 CAB 1	05-09-88	930	353324097173701	139	—	—	-33.5	-5.95	—
13N-02W-06 BCC 1	04-06-88	1430	353753097273501	150	—	—	-33.5	-5.65	—
13N-03W-23 ABD 1	04-14-88	1030	353532097285601	145	—	—	-37.5	-6.35	—
13N-04W-28 CAD 1	09-02-87	1000	353411097374501	143	0.71	-10.50	-44.0	-7.05	10.30
14N-01E-27 BDA 1	08-25-87	1100	353947097111501	162	44.8	-14.10	-36.5	-6.15	9.90
14N-02W-31 CDD 1	04-07-88	930	353819097270701	152	—	—	-33.0	-5.80	—
14N-02W-32 DCD 1	08-17-87	1100	353819097254901	151	50.0	-10.40	-34.0	-5.90	7.80
14N-03W-18 DCC 1	09-25-87	1100	354105097332401	167	15.6	-10.80	-39.0	-6.40	7.70
14N-03W-18 DCC 1	09-25-87	1200	354105097332401	167	15.6	-10.80	-39.0	-6.35	7.50
14N-03W-33 DDD 1	08-14-87	1000	353819097305101	153	42.6	-9.50	-33.5	-5.75	4.90
14N-03W-33 DDD 1	08-14-87	1100	353819097305101	153	43.2	-9.60	-33.0	-5.75	4.10
14N-03W-34 BBA 1	04-11-88	1300	353909097304501	158	—	—	-33.0	-5.75	—
14N-04W-19 CDD 1	08-31-87	1030	354007097395401	164	92.6	-10.00	-30.5	-5.05	7.30
			POTTAWATOMIE COUNTY						
09N-02E-10 ADD 1	09-08-87	1200	351611097042001	39	123	-13.60	-35.5	-6.00	4.10
09N-02E-34 CDC 1	09-03-87	1100	351212097045601	28	70.1	-17.80	-33.0	-5.75	7.00
09N-03E-13 CCA 1	09-04-87	1000	351455096563801	37	33.3	-10.95	-31.0	-5.25	8.88
09N-03E-13 CCA 1	04-28-88	945	351455096563801	37	—	—	-29.0	-5.30	—
11N-02E-16 BDA 1	08-28-87	1100	352550097055401	77	40.6	-9.80	-34.5	-6.10	6.90
11N-02E-16 BDA 1	04-18-88	1300	352550097055401	77	—	—	-33.0	-5.65	—
11N-04E-31 DCC 1	08-27-87	1000	352236096551001	59	1.5	-11.10	-39.5	-6.25	8.50

Table 7.—*Concentrations of organic constituents reported in water samples from wells*

[*µg/L, micrograms per liter; (**), indicates the concentration is less than the minimum reporting level; (—), indicates no data are available; all samples analyzed by the National Water Quality Laboratory of the U.S. Geological Survey*]

Local identifier	Date	Time	Site identification number	Well number	Bromoform, total (µg/L)	Carbon tetra-chloride, total (µg/L)	Chloroform, total (µg/L)	Chloro-ethane, total (µg/L)	1,2-Dibromo-ethane, whole water, total (µg/L)
			CLEVELAND COUNTY						
06N-01E-17 ABA 1	07-05-88	1030	350001097130101	6	**	**	**	**	**
06N-01W-27 BBA 1	11-14-89	1115	345815097174901	3	—	—	—	—	—
08N-01E-09 AAB 1	07-11-88	1030	351118097114901	26	**	**	**	**	**
09N-01W-03 CCC 1	06-23-88	915	351638097175301	44	**	**	**	**	**
09N-03W-18 DDA 1	06-09-89	1330	351501097325301	38	**	**	**	**	**
09N-03W-18 DDA 1	06-07-90	1100	351501097325301	38	**	**	**	**	**
10N-03W-30 BAB 1	06-09-89	1000	351907097333001	52	**	**	**	**	**
			LINCOLN COUNTY						
12N-02E-06 ADD 1	05-24-88	1030	353236097072801	134	**	**	**	**	**
13N-03E-13 DDD 1	06-16-88	945	353539096554501	146	**	**	0.8	**	**
13N-03E-13 DDD 1	12-20-88	1430	353539096554501	146	**	**	**	**	**
13N-03E-13 DDD 1	06-06-90	1045	353539096554501	146	**	**	0.2	**	**
14N-04E-33 CAB 1	07-24-89	1000	353840096531101	155	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1100	353840096531101	155	**	**	**	**	**
15N-02E-14 AAA 1	04-05-88	1300	354654097030801	181	**	**	**	**	**
15N-02E-14 ADA 1	07-06-88	1000	354637097030801	180	**	**	**	**	**
15N-02E-14 ADA 1	07-06-88	1100	354637097030801	180	**	**	**	**	**
16N-03E-11 CCC 1	04-05-88	1100	355214096574801	198	**	**	**	**	**
17N-02E-19 CCC 1	06-20-88	1215	355544097082301	203	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethane, total (µg/L)	1,2-Dichloroethane, total (µg/L)	1,1,2,2-Tetrachloroethane, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, whole water, recoverable (µg/L)	Tetrachloroethylene, total (µg/L)	Trichloroethylene, total (µg/L)
					CLEVELAND COUNTY				
06N-01E-17 ABA 1	07-05-88	1030	**	**	**	**	**	**	**
06N-01W-27 BBA 1	11-14-89	1115	—	—	—	—	—	—	—
08N-01E-09 AAB 1	07-11-88	1030	**	0.2	**	**	**	**	**
09N-01W-03 CCC 1	06-23-88	915	**	**	**	**	**	**	**
09N-03W-18 DDA 1	06-09-89	1330	**	**	**	**	0.2	**	**
09N-03W-18 DDA 1	06-07-90	1100	**	**	**	**	0.3	**	**
10N-03W-30 BAB 1	06-09-89	1000	**	**	**	**	**	**	**
					LINCOLN COUNTY				
12N-02E-06 ADD 1	05-24-88	1030	**	**	**	**	**	**	**
13N-03E-13 DDD 1	06-16-88	945	**	**	**	**	**	**	**
13N-03E-13 DDD 1	12-20-88	1430	**	**	**	**	**	**	**
13N-03E-13 DDD 1	06-06-90	1045	**	**	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1000	**	**	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1100	**	**	**	**	**	**	**
15N-02E-14 AAA 1	04-05-88	1300	**	**	**	**	**	**	**
15N-02E-14 ADA 1	07-06-88	1000	**	**	**	**	**	**	**
15N-02E-14 ADA 1	07-06-88	1100	**	**	**	**	**	**	**
16N-03E-11 CCC 1	04-05-88	1100	**	**	**	**	**	**	**
17N-02E-19 CCC 1	06-20-88	1215	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethylene, total (µg/L)	Chlorodibromomethane, total (µg/L)	Dichlorobromomethane, total (µg/L)	Dichlorodifluoromethane, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
					CLEVELAND COUNTY				
06N-01E-17 ABA 1	07-05-88	1030	**	**	**	**	**	**	**
06N-01W-27 BBA 1	11-14-89	1115	—	—	—	—	—	—	—
08N-01E-09 AAB 1	07-11-88	1030	**	**	**	**	**	**	**
09N-01W-03 CCC 1	06-23-88	915	**	**	**	**	0.3	**	**
09N-03W-18 DDA 1	06-09-89	1330	**	**	**	**	**	**	**
09N-03W-18 DDA 1	06-07-90	1100	**	**	**	**	**	**	**
10N-03W-30 BAB 1	06-09-89	1000	**	**	**	**	**	**	**
					LINCOLN COUNTY				
12N-02E-06 ADD 1	05-24-88	1030	**	**	**	**	**	**	**
13N-03E-13 DDD 1	06-16-88	945	**	**	**	**	**	**	**
13N-03E-13 DDD 1	12-20-88	1430	**	**	**	<0.3	**	**	**
13N-03E-13 DDD 1	06-06-90	1045	**	**	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1000	**	**	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1100	**	**	**	**	**	**	**
15N-02E-14 AAA 1	04-05-88	1300	**	**	**	**	**	4.4	**
15N-02E-14 ADA 1	07-06-88	1000	**	**	**	**	**	**	**
15N-02E-14 ADA 1	07-06-88	1100	**	**	**	**	**	**	**
16N-03E-11 CCC 1	04-05-88	1100	**	**	**	**	**	1.7	**
17N-02E-19 CCC 1	06-20-88	1215	**	**	**	**	0.2	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Styrene, total (µg/L)	Toluene, total (µg/L)	Aldrin, total (µg/L)	Chlordane, total (µg/L)	DDE, total (µg/L)	Dieldrin, total (µg/L)	Hepta-chlor-epoxide, total (µg/L)
				CLEVELAND COUNTY					
06N-01E-17 ABA 1	07-05-88	1030	**	**	**	**	**	**	**
06N-01W-27 BBA 1	11-14-89	1115	—	—	—	—	—	—	—
08N-01E-09 AAB 1	07-11-88	1030	**	**	**	**	**	**	**
09N-01W-03 CCC 1	06-23-88	915	**	**	**	**	**	**	**
09N-03W-18 DDA 1	06-09-89	1330	**	**	**	**	**	**	**
09N-03W-18 DDA 1	06-07-90	1100	**	**	—	—	—	—	—
10N-03W-30 BAB 1	06-09-89	1000	**	**	**	**	**	**	**
				LINCOLN COUNTY					
12N-02E-06 ADD 1	05-24-88	1030	**	**	**	**	**	**	**
13N-03E-13 DDD 1	06-16-88	945	**	**	**	**	**	0.010	**
13N-03E-13 DDD 1	12-20-88	1430	**	**	**	**	**	**	**
13N-03E-13 DDD 1	06-06-90	1045	**	**	**	**	**	0.050	0.010
14N-04E-33 CAB 1	07-24-89	1000	**	**	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1100	**	**	**	**	**	**	**
15N-02E-14 AAA 1	04-05-88	1300	**	**	—	—	—	—	—
15N-02E-14 ADA 1	07-06-88	1000	**	0.2	—	—	—	—	—
15N-02E-14 ADA 1	07-06-88	1100	**	0.2	—	—	—	—	—
16N-03E-11 CCC 1	04-05-88	1100	**	**	—	—	—	—	—
17N-02E-19 CCC 1	06-20-88	1215	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	PCB's, total (µg/L)	Dicamba, total (µg/L)	Picloram, total (µg/L)	2,4-D, total (µg/L)	2,4-DP, total (µg/L)	2,4,5-T, total (µg/L)
				CLEVELAND COUNTY				
06N-01E-17 ABA 1	07-05-88	1030	**	—	—	**	**	**
06N-01W-27 BBA 1	11-14-89	1115	—	**	**	**	0.01	**
08N-01E-09 AAB 1	07-11-88	1030	**	—	—	**	**	**
09N-01W-03 CCC 1	06-23-88	915	**	—	—	**	**	**
09N-03W-18 DDA 1	06-09-89	1330	**	**	**	**	**	**
09N-03W-18 DDA 1	06-07-90	1100	—	—	—	—	—	—
10N-03W-30 BAB 1	06-09-89	1000	**	**	0.01	**	**	**
				LINCOLN COUNTY				
12N-02E-06 ADD 1	05-24-88	1030	**	—	—	0.02	**	**
13N-03E-13 DDD 1	06-16-88	945	**	—	—	**	**	**
13N-03E-13 DDD 1	12-20-88	1430	0.1	—	—	—	—	—
13N-03E-13 DDD 1	06-06-90	1045	**	—	—	—	—	—
14N-04E-33 CAB 1	07-24-89	1000	**	**	**	**	**	**
14N-04E-33 CAB 1	07-24-89	1100	**	**	**	**	**	**
15N-02E-14 AAA 1	04-05-88	1300	—	—	—	—	—	—
15N-02E-14 ADA 1	07-06-88	1000	—	—	—	—	—	—
15N-02E-14 ADA 1	07-06-88	1100	—	—	—	—	—	—
16N-03E-11 CCC 1	04-05-88	1100	—	—	—	—	—	—
17N-02E-19 CCC 1	06-20-88	1215	**	0.01	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Atrazine, total (µg/L)	Prometone, total (µg/L)
CLEVELAND COUNTY				
06N-01E-17 ABA 1	07-05-88	1030	0.10	**
06N-01W-27 BBA 1	11-14-89	1115	—	—
08N-01E-09 AAB 1	07-11-88	1030	**	**
09N-01W-03 CCC 1	06-23-88	915	**	**
09N-03W-18 DDA 1	06-09-89	1330	**	**
09N-03W-18 DDA 1	06-07-90	1100	—	—
10N-03W-30 BAB 1	06-09-89	1000	**	0.40
LINCOLN COUNTY				
12N-02E-06 ADD 1	05-24-88	1030	**	**
13N-03E-13 DDD 1	06-16-88	945	**	**
13N-03E-13 DDD 1	12-20-88	1430	—	—
13N-03E-13 DDD 1	06-06-90	1045	—	—
14N-04E-33 CAB 1	07-24-89	1000	0.10	**
14N-04E-33 CAB 1	07-24-89	1100	0.10	**
15N-02E-14 AAA 1	04-05-88	1300	—	—
15N-02E-14 ADA 1	07-06-88	1000	—	—
15N-02E-14 ADA 1	07-06-88	1100	—	—
16N-03E-11 CCC 1	04-05-88	1100	—	—
17N-02E-19 CCC 1	06-20-88	1215	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Bromoform, total (µg/L)	Carbon tetra-chloride, total (µg/L)	Chloroform, total (µg/L)	Chloro-ethane, total (µg/L)	1,2-Dibromo-ethane, whole water, total (µg/L)
				LOGAN COUNTY					
16N-01W-27 CBB 1	07-13-88	1130	354959097175901	189	**	**	**	**	**
16N-02W-06 DBC 1	05-25-88	1330	355321097270301	199	**	**	**	**	**
16N-02W-06 DBC 1	12-21-88	915	355321097270301	199	—	—	—	—	—
16N-03W-23 DAA 1	05-25-88	1030	355052097284301	192	**	**	**	**	**
				OKLAHOMA COUNTY					
11N-01W-03 CDD 1	05-16-88	1130	352705097175401	84	**	**	0.5	**	**
11N-01W-03 CDD 1	12-19-88	1240	352705097175401	84	**	**	0.5	**	**
11N-01W-03 CDD 1	05-22-90	1120	352705097175401	84	**	**	0.5	**	**
11N-01W-05 ABA 1	04-26-88	1400	352749097192301	20	**	**	**	**	**
11N-02W-06 AAA 1	11-18-88	1500	352750097263601	88	**	**	0.4	**	**
11N-02W-06 AAA 1	06-07-90	930	352750097263601	88	**	**	0.4	**	**
11N-02W-14 DDC 1	04-26-88	1000	352519097222501	70	1.1	**	**	**	**
11N-02W-17 CBC 1	11-18-88	1145	352531097262101	73	**	**	**	**	**
11N-02W-20 CCB 1	11-18-88	945	352433097262401	66	**	**	0.4	**	**
11N-03W-04 BBB 1	11-10-88	945	352749097314101	87	**	**	**	**	**
11N-03W-04 BBB 1	11-10-88	1045	352749097314101	87	**	**	**	**	**
11N-03W-09 CBA 1	11-14-88	1330	352631097313101	81	**	**	0.3	**	**
11N-03W-15 CBA 1	11-30-88	1130	352535097303301	74	**	**	1.1	**	**
11N-03W-18 ADC 1	11-14-88	1500	352541097330301	75	**	**	**	**	**
11N-03W-18 ADC 1	06-11-90	1415	352541097330301	75	**	**	**	**	**
11N-03W-21 ABA 1	11-09-88	1415	352509097310101	67	**	1.6	3.7	**	**
11N-04W-14 BBA 1	11-15-88	1530	352605097354801	78	**	**	**	**	**
11N-04W-29 AAA 1	07-20-89	1300	352415097381301	64	**	**	**	**	**
12N-01W-20 DCC 1	06-13-89	1345	352941097193501	103	**	**	**	**	**
12N-02W-04 CBD 1	06-27-88	1345	353227097251101	132	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethane, total (µg/L)	1,2-Dichloroethane, total (µg/L)	1,1,2,2-Tetrachloroethane, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, whole water, recoverable (µg/L)	Tetrachloroethylene, total (µg/L)	Trichloroethylene, total (µg/L)
					LOGAN COUNTY				
16N-01W-27 CBB 1	07-13-88	1130	**	**	**	**	**	**	**
16N-02W-06 DBC 1	05-25-88	1330	**	**	**	**	**	**	**
16N-02W-06 DBC 1	12-21-88	915	—	—	—	—	—	—	—
16N-03W-23 DAA 1	05-25-88	1030	**	**	**	**	**	**	**
					OKLAHOMA COUNTY				
11N-01W-03 CDD 1	05-16-88	1130	**	**	**	**	**	**	**
11N-01W-03 CDD 1	12-19-88	1240	**	**	**	**	**	**	**
11N-01W-03 CDD 1	05-22-90	1120	**	**	**	**	**	**	**
11N-01W-05 ABA 1	04-26-88	1400	**	**	**	**	**	**	0.2
11N-02W-06 AAA 1	11-18-88	1500	**	**	**	**	**	0.4	**
11N-02W-06 AAA 1	06-07-90	930	**	**	**	**	**	0.2	**
11N-02W-14 DDC 1	04-26-88	1000	**	**	**	**	**	**	**
11N-02W-17 CBC 1	11-18-88	1145	**	**	**	**	**	**	**
11N-02W-20 CCB 1	11-18-88	945	**	**	**	**	**	**	**
11N-03W-04 BBB 1	11-10-88	945	**	0.4	**	**	0.3	**	2.0
11N-03W-04 BBB 1	11-10-88	1045	0.2	<0.7	**	**	0.2	**	2.3
11N-03W-09 CBA 1	11-14-88	1330	**	<0.4	**	**	**	**	**
11N-03W-15 CBA 1	11-30-88	1130	**	**	**	**	**	0.5	**
11N-03W-18 ADC 1	11-14-88	1500	**	**	**	**	**	0.2	90
11N-03W-18 ADC 1	06-11-90	1415	**	**	**	**	0.2	**	43
11N-03W-21 ABA 1	11-09-88	1415	**	**	**	**	**	**	**
11N-04W-14 BBA 1	11-15-88	1530	**	**	**	**	**	2.1	**
11N-04W-29 AAA 1	07-20-89	1300	**	**	**	**	**	**	**
12N-01W-20 DCC 1	06-13-89	1345	**	**	**	**	**	**	0.2
12N-02W-04 CBD 1	06-27-88	1345	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethylene, total (µg/L)	Chlorodibromomethane, total (µg/L)	Dichlorobromomethane, total (µg/L)	Dichlorodifluoromethane, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
				LOGAN COUNTY					
16N-01W-27 CBB 1	07-13-88	1130	**	**	**	**	**	**	**
16N-02W-06 DBC 1	05-25-88	1330	**	**	**	**	**	**	**
16N-02W-06 DBC 1	12-21-88	915	—	—	—	—	—	—	—
16N-03W-23 DAA 1	05-25-88	1030	**	**	**	**	**	**	**
				OKLAHOMA COUNTY					
11N-01W-03 CDD 1	05-16-88	1130	**	**	**	**	**	**	**
11N-01W-03 CDD 1	12-19-88	1240	**	**	**	<0.6	**	**	**
11N-01W-03 CDD 1	05-22-90	1120	**	**	**	**	**	**	**
11N-01W-05 ABA 1	04-26-88	1400	**	**	**	**	**	**	**
11N-02W-06 AAA 1	11-18-88	1500	**	**	**	**	**	**	**
11N-02W-06 AAA 1	06-07-90	930	**	**	**	**	**	**	**
11N-02W-14 DDC 1	04-26-88	1000	**	0.2	**	**	**	**	**
11N-02W-17 CBC 1	11-18-88	1145	**	**	**	**	**	**	0.7
11N-02W-20 CCB 1	11-18-88	945	**	**	**	**	**	**	**
11N-03W-04 BBB 1	11-10-88	945	**	**	**	**	**	**	**
11N-03W-04 BBB 1	11-10-88	1045	**	**	**	**	**	**	**
11N-03W-09 CBA 1	11-14-88	1330	**	**	**	**	**	**	**
11N-03W-15 CBA 1	11-30-88	1130	**	**	**	**	**	**	**
11N-03W-18 ADC 1	11-14-88	1500	**	**	**	**	**	**	**
11N-03W-18 ADC 1	06-11-90	1415	**	**	**	**	**	**	**
11N-03W-21 ABA 1	11-09-88	1415	**	**	**	0.3	**	**	0.2
11N-04W-14 BBA 1	11-15-88	1530	**	**	**	<1.6	**	**	**
11N-04W-29 AAA 1	07-20-89	1300	**	**	**	**	**	**	**
12N-01W-20 DCC 1	06-13-89	1345	**	**	**	**	**	**	**
12N-02W-04 CBD 1	06-27-88	1345	**	**	**	**	**	**	<0.3

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Styrene, total (µg/L)	Toluene, total (µg/L)	Aldrin, total (µg/L)	Chlordane, total (µg/L)	DDE, total (µg/L)	Dieldrin, total (µg/L)	Heptachlor epoxide, total (µg/L)
					LOGAN COUNTY				
16N-01W-27 CBB 1	07-13-88	1130	**	**	**	**	**	**	**
16N-02W-06 DBC 1	05-25-88	1330	**	**	**	**	**	**	**
16N-02W-06 DBC 1	12-21-88	915	—	—	—	—	—	—	—
16N-03W-23 DAA 1	05-25-88	1030	**	**	**	**	**	**	**
					OKLAHOMA COUNTY				
11N-01W-03 CDD 1	05-16-88	1130	**	**	**	**	**	**	**
11N-01W-03 CDD 1	12-19-88	1240	**	**	—	—	—	—	—
11N-01W-03 CDD 1	05-22-90	1120	**	**	—	—	—	—	—
11N-01W-05 ABA 1	04-26-88	1400	**	**	—	—	—	—	—
11N-02W-06 AAA 1	11-18-88	1500	**	**	**	**	**	**	**
11N-02W-06 AAA 1	06-07-90	930	**	**	—	—	—	—	—
11N-02W-14 DDC 1	04-26-88	1000	**	**	—	—	—	—	—
11N-02W-17 CBC 1	11-18-88	1145	**	**	**	**	**	**	**
11N-02W-20 CCB 1	11-18-88	945	**	**	**	**	**	**	**
11N-03W-04 BBB 1	11-10-88	945	**	**	**	**	**	**	**
11N-03W-04 BBB 1	11-10-88	1045	**	**	**	**	**	**	**
11N-03W-09 CBA 1	11-14-88	1330	**	**	**	**	**	**	**
11N-03W-15 CBA 1	11-30-88	1130	**	**	**	**	**	**	**
11N-03W-18 ADC 1	11-14-88	1500	**	**	**	**	**	**	**
11N-03W-18 ADC 1	06-11-90	1415	**	**	—	—	—	—	—
11N-03W-21 ABA 1	11-09-88	1415	**	**	**	0.8	**	0.58	**
11N-04W-14 BBA 1	11-15-88	1530	**	**	**	**	**	**	**
11N-04W-29 AAA 1	07-20-89	1300	**	**	**	**	**	**	**
12N-01W-20 DCC 1	06-13-89	1345	**	**	**	**	**	**	**
12N-02W-04 CBD 1	06-27-88	1345	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	PCB's, total (µg/L)	Dicamba, total (µg/L)	Picloram, total (µg/L)	2,4-D, total (µg/L)	2,4-DP, total (µg/L)	2,4,5-T, total (µg/L)
				LOGAN COUNTY				
16N-01W-27 CBB 1	07-13-88	1130	**	—	—	0.01	**	**
16N-02W-06 DBC 1	05-25-88	1330	**	**	0.01	0.01	**	**
16N-02W-06 DBC 1	12-21-88	915	—	**	0.02	0.01	**	**
16N-03W-23 DAA 1	05-25-88	1030	**	0.01	**	**	**	**
				OKLAHOMA COUNTY				
11N-01W-03 CDD 1	05-16-88	1130	**	—	—	**	**	**
11N-01W-03 CDD 1	12-19-88	1240	—	—	—	—	—	—
11N-01W-03 CDD 1	05-22-90	1120	—	—	—	—	—	—
11N-01W-05 ABA 1	04-26-88	1400	—	—	—	—	—	—
11N-02W-06 AAA 1	11-18-88	1500	**	—	—	**	**	**
11N-02W-06 AAA 1	06-07-90	930	—	—	—	—	—	—
11N-02W-14 DDC 1	04-26-88	1000	—	—	—	—	—	—
11N-02W-17 CBC 1	11-18-88	1145	**	—	—	**	**	**
11N-02W-20 CCB 1	11-18-88	945	**	—	—	**	**	**
11N-03W-04 BBB 1	11-10-88	945	**	—	—	**	**	**
11N-03W-04 BBB 1	11-10-88	1045	**	—	—	**	**	**
11N-03W-09 CBA 1	11-14-88	1330	**	—	—	**	**	**
11N-03W-15 CBA 1	11-30-88	1130	**	—	—	**	**	**
11N-03W-18 ADC 1	11-14-88	1500	**	—	—	0.02	**	**
11N-03W-18 ADC 1	06-11-90	1415	—	—	—	—	—	—
11N-03W-21 ABA 1	11-09-88	1415	**	—	—	**	**	**
11N-04W-14 BBA 1	11-15-88	1530	**	—	—	**	**	**
11N-04W-29 AAA 1	07-20-89	1300	**	**	**	**	**	**
12N-01W-20 DCC 1	06-13-89	1345	**	**	—	**	**	**
12N-02W-04 CBD 1	06-27-88	1345	**	—	—	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Atrazine, total (µg/L)	Prometone, total (µg/L)
LOGAN COUNTY				
16N–01W–27 CBB 1	07–13–88	1130	**	**
16N–02W–06 DBC 1	05–25–88	1330	**	**
16N–02W–06 DBC 1	12–21–88	915	—	—
16N–03W–23 DAA 1	05–25–88	1030	**	**
OKLAHOMA COUNTY				
11N–01W–03 CDD 1	05–16–88	1130	**	**
11N–01W–03 CDD 1	12–19–88	1240	—	—
11N–01W–03 CDD 1	05–22–90	1120	—	—
11N–01W–05 ABA 1	04–26–88	1400	—	—
11N–02W–06 AAA 1	11–18–88	1500	**	**
11N–02W–06 AAA 1	06–07–90	930	—	—
11N–02W–14 DDC 1	04–26–88	1000	—	—
11N–02W–17 CBC 1	11–18–88	1145	**	**
11N–02W–20 CCB 1	11–18–88	945	**	**
11N–03W–04 BBB 1	11–10–88	945	**	**
11N–03W–04 BBB 1	11–10–88	1045	**	**
11N–03W–09 CBA 1	11–14–88	1330	**	**
11N–03W–15 CBA 1	11–30–88	1130	**	**
11N–03W–18 ADC 1	11–14–88	1500	**	**
11N–03W–18 ADC 1	06–11–90	1415	—	—
11N–03W–21 ABA 1	11–09–88	1415	**	0.10
11N–04W–14 BBA 1	11–15–88	1530	**	**
11N–04W–29 AAA 1	07–20–89	1300	0.30	**
12N–01W–20 DCC 1	06–13–89	1345	**	**
12N–02W–04 CBD 1	06–27–88	1345	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Bromoform, total (µg/L)	Carbon tetra-chloride, total (µg/L)	Chloroform, total (µg/L)	Chloro-ethane, total (µg/L)	1,2-Dibromo-ethane, whole water, total (µg/L)
12N-02W-05 BDD 1	06-27-88	1030	353244097255801	136	**	**	**	**	**
12N-02W-18 DDC 1	11-21-88	945	353600097264001	148	**	**	**	**	**
12N-02W-30 BCC 1	11-04-88	1300	352910097272501	101	**	**	1.1	**	**
12N-03W-02 DBD 1	11-02-88	1015	353229097285301	133	**	**	**	**	**
12N-03W-07 DDA 1	11-02-88	1245	353131097325401	121	**	**	0.4	**	**
12N-03W-10 DAC 1	11-23-88	945	353136097295101	122	**	**	**	**	**
12N-03W-11 CBD 1	11-02-88	1445	353139097293001	123	**	**	0.2	**	**
12N-03W-14 ADD 1	11-17-88	1145	353101097283701	117	**	**	0.4	**	**
12N-03W-16 CBD 1	11-03-88	1130	353042097313801	114	**	**	0.6	**	**
12N-03W-17 BAD 1	11-03-88	1400	353109097322401	118	2.1	0.2	25	**	**
12N-03W-28 DBA 1	11-15-88	1145	352905097310201	100	**	**	0.2	**	**
12N-03W-30 CBA 1	11-07-88	1415	352904097334201	99	0.4	**	4.1	**	**
12N-03W-35 DBC 1	07-28-89	1000	352805097290101	170	**	**	**	0.2	**
12N-04W-13 BBB 1	11-07-88	1230	353115097345501	119	**	**	0.7	**	0.2
12N-04W-14 ACD 1	11-23-88	1230	353055097352201	116	**	0.3	1.3	**	**
12N-04W-14 ACD 1	05-23-90	1300	353055097352201	116	**	0.2	0.8	**	**
12N-04W-15 AAD 1	11-22-88	945	353841097360501	156	**	**	0.3	**	**
12N-04W-15 AAD 1	11-22-88	1045	353841097360501	156	**	**	0.3	**	**
12N-04W-24 ADB 1	10-31-88	1030	353011097340901	106	**	**	0.4	**	**
12N-04W-24 ADB 1	06-01-90	1045	353011097340901	106	**	**	0.8	**	**
12N-04W-25 AAD 1	11-07-88	930	352927097335801	102	**	**	0.6	**	**
12N-04W-25 AAD 1	05-23-90	1030	352927097335801	102	**	**	0.3	**	**
12N-04W-27 DBC 1	11-22-88	1230	352859097363501	98	**	**	0.3	**	**
12N-04W-27 DBC 1	06-11-90	1300	352859097363501	98	**	**	0.6	**	**
13N-01W-30 CBC 1	06-14-89	915	353403097210901	142	**	**	**	**	**
13N-01W-30 CBC 1	06-22-89	1000	353403097210901	142	**	**	**	**	**
13N-01W-30 CBC 1	05-22-90	945	353403097210901	142	**	**	**	**	**
13N-02W-21 AAB 1	07-12-88	1345	353539097243901	147	**	**	0.3	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethane, total (µg/L)	1,2-Dichloroethane, total (µg/L)	1,1,2,2-Tetrachloroethane, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, whole water, recoverable (µg/L)	Tetrachloroethylene, total (µg/L)	Trichloroethylene, total (µg/L)
12N-02W-05 BDD 1	06-27-88	1030	**	**	**	**	**	**	**
12N-02W-18 DDC 1	11-21-88	945	**	**	**	**	**	**	**
12N-02W-30 BCC 1	11-04-88	1300	**	**	**	**	**	**	**
12N-03W-02 DBD 1	11-02-88	1015	**	**	**	**	**	**	**
12N-03W-07 DDA 1	11-02-88	1245	**	**	**	**	**	**	**
12N-03W-10 DAC 1	11-23-88	945	**	**	**	**	**	0.4	**
12N-03W-11 CBD 1	11-02-88	1445	**	**	**	**	**	**	**
12N-03W-14 ADD 1	11-17-88	1145	**	**	**	**	**	**	**
12N-03W-16 CBD 1	11-03-88	1130	**	**	**	**	**	**	**
12N-03W-17 BAD 1	11-03-88	1400	**	**	**	**	**	**	**
12N-03W-28 DBA 1	11-15-88	1145	**	**	**	**	**	**	**
12N-03W-30 CBA 1	11-07-88	1415	**	**	**	**	**	**	**
12N-03W-35 DBC 1	07-28-89	1000	2.5	**	**	**	1.0	**	0.4
12N-04W-13 BBB 1	11-07-88	1230	**	**	**	**	**	**	**
12N-04W-14 ACD 1	11-23-88	1230	**	0.2	**	**	**	**	**
12N-04W-14 ACD 1	05-23-90	1300	**	**	**	**	**	**	**
12N-04W-15 AAD 1	11-22-88	945	**	**	**	**	**	**	**
12N-04W-15 AAD 1	11-22-88	1045	**	**	**	**	**	**	**
12N-04W-24 ADB 1	10-31-88	1030	**	**	**	**	**	0.7	**
12N-04W-24 ADB 1	06-01-90	1045	**	**	**	**	**	**	**
12N-04W-25 AAD 1	11-07-88	930	**	**	**	**	**	**	**
12N-04W-25 AAD 1	05-23-90	1030	**	**	**	**	**	**	**
12N-04W-27 DBC 1	11-22-88	1230	**	<0.3	**	**	**	**	**
12N-04W-27 DBC 1	06-11-90	1300	**	**	**	**	**	**	**
13N-01W-30 CBC 1	06-14-89	915	1.6	0.2	**	200	**	**	30
13N-01W-30 CBC 1	06-22-89	1000	1.6	0.2	**	150	**	**	21
13N-01W-30 CBC 1	05-22-90	945	1.7	**	**	120	**	**	25
13N-02W-21 AAB 1	07-12-88	1345	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethylene, total (µg/L)	Chlorodibromomethane, total (µg/L)	Dichlorobromomethane, total (µg/L)	Dichlorodifluoromethane, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
12N-02W-05 BDD 1	06-27-88	1030	**	**	**	**	**	**	<0.3
12N-02W-18 DDC 1	11-21-88	945	**	**	**	**	**	**	<0.3
12N-02W-30 BCC 1	11-04-88	1300	**	**	**	**	**	**	**
12N-03W-02 DBD 1	11-02-88	1015	**	**	**	**	**	**	**
12N-03W-07 DDA 1	11-02-88	1245	**	**	**	**	**	**	**
12N-03W-10 DAC 1	11-23-88	945	**	**	**	**	**	**	**
12N-03W-11 CBD 1	11-02-88	1445	**	**	**	**	**	**	**
12N-03W-14 ADD 1	11-17-88	1145	**	**	**	**	<0.3	**	**
12N-03W-16 CBD 1	11-03-88	1130	**	**	0.4	**	**	**	**
12N-03W-17 BAD 1	11-03-88	1400	**	11	25	**	**	**	**
12N-03W-28 DBA 1	11-15-88	1145	**	**	**	**	**	**	**
12N-03W-30 CBA 1	11-07-88	1415	**	0.3	0.7	**	**	**	**
12N-03W-35 DBC 1	07-28-89	1000	1.9	**	**	0.2	**	**	**
12N-04W-13 BBB 1	11-07-88	1230	**	**	**	**	**	**	**
12N-04W-14 ACD 1	11-23-88	1230	**	**	0.2	**	**	**	**
12N-04W-14 ACD 1	05-23-90	1300	**	**	**	**	**	**	**
12N-04W-15 AAD 1	11-22-88	945	**	**	**	**	**	**	**
12N-04W-15 AAD 1	11-22-88	1045	**	**	**	**	**	**	**
12N-04W-24 ADB 1	10-31-88	1030	**	**	**	**	**	**	**
12N-04W-24 ADB 1	06-01-90	1045	**	**	**	**	**	**	**
12N-04W-25 AAD 1	11-07-88	930	**	**	0.2	0.7	**	**	**
12N-04W-25 AAD 1	05-23-90	1030	**	**	**	**	**	**	**
12N-04W-27 DBC 1	11-22-88	1230	**	**	**	**	**	**	**
12N-04W-27 DBC 1	06-11-90	1300	**	**	**	**	**	**	**
13N-01W-30 CBC 1	06-14-89	915	45	**	**	**	**	**	0.2
13N-01W-30 CBC 1	06-22-89	1000	40	**	**	**	**	**	0.2
13N-01W-30 CBC 1	05-22-90	945	39	**	**	**	**	**	**
13N-02W-21 AAB 1	07-12-88	1345	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Styrene, total (µg/L)	Toluene, total (µg/L)	Aldrin, total (µg/L)	Chlordane, total (µg/L)	DDE, total (µg/L)	Dieldrin, total (µg/L)	Hepta-chlor-epoxide, total (µg/L)
12N-02W-05 BDD 1	06-27-88	1030	**	**	**	**	**	**	**
12N-02W-18 DDC 1	11-21-88	945	**	**	**	**	**	**	**
12N-02W-30 BCC 1	11-04-88	1300	**	**	0.010	**	**	0.090	**
12N-03W-02 DBD 1	11-02-88	1015	**	**	**	0.1	**	0.020	**
12N-03W-07 DDA 1	11-02-88	1245	**	**	**	**	**	**	**
12N-03W-10 DAC 1	11-23-88	945	**	**	**	**	**	**	**
12N-03W-11 CBD 1	11-02-88	1445	**	**	**	**	**	**	**
12N-03W-14 ADD 1	11-17-88	1145	0.2	**	**	0.1	**	**	**
12N-03W-16 CBD 1	11-03-88	1130	**	**	**	**	**	**	**
12N-03W-17 BAD 1	11-03-88	1400	**	**	**	**	**	**	**
12N-03W-28 DBA 1	11-15-88	1145	**	**	**	**	**	**	**
12N-03W-30 CBA 1	11-07-88	1415	**	**	**	**	**	**	**
12N-03W-35 DBC 1	07-28-89	1000	**	**	**	**	**	**	**
12N-04W-13 BBB 1	11-07-88	1230	**	**	**	**	**	**	**
12N-04W-14 ACD 1	11-23-88	1230	**	**	**	**	**	**	**
12N-04W-14 ACD 1	05-23-90	1300	**	**	—	—	—	—	—
12N-04W-15 AAD 1	11-22-88	945	**	**	**	0.1	**	0.18	**
12N-04W-15 AAD 1	11-22-88	1045	**	**	**	0.1	**	0.20	**
12N-04W-24 ADB 1	10-31-88	1030	**	**	**	0.3	**	0.030	**
12N-04W-24 ADB 1	06-01-90	1045	**	**	—	—	—	—	—
12N-04W-25 AAD 1	11-07-88	930	**	**	**	**	**	**	**
12N-04W-25 AAD 1	05-23-90	1030	**	**	—	—	—	—	—
12N-04W-27 DBC 1	11-22-88	1230	**	**	**	**	**	0.010	**
12N-04W-27 DBC 1	06-11-90	1300	**	**	—	—	—	—	—
13N-01W-30 CBC 1	06-14-89	915	**	**	**	**	**	**	**
13N-01W-30 CBC 1	06-22-89	1000	**	**	—	—	—	—	—
13N-01W-30 CBC 1	05-22-90	945	**	**	—	—	—	—	—
13N-02W-21 AAB 1	07-12-88	1345	**	0.2	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	PCB's, total (µg/L)	Dicamba, total (µg/L)	Picloram, total (µg/L)	2,4-D, total (µg/L)	2,4-DP, total (µg/L)	2,4,5-T, total (µg/L)
12N-02W-05 BDD 1	06-27-88	1030	**	—	—	**	**	**
12N-02W-18 DDC 1	11-21-88	945	**	—	—	**	**	**
12N-02W-30 BCC 1	11-04-88	1300	**	—	—	**	**	**
12N-03W-02 DBD 1	11-02-88	1015	**	—	—	**	**	**
12N-03W-07 DDA 1	11-02-88	1245	**	—	—	**	**	**
12N-03W-10 DAC 1	11-23-88	945	**	—	—	**	**	**
12N-03W-11 CBD 1	11-02-88	1445	**	—	—	**	**	**
12N-03W-14 ADD 1	11-17-88	1145	**	—	—	**	**	**
12N-03W-16 CBD 1	11-03-88	1130	**	—	—	**	**	**
12N-03W-17 BAD 1	11-03-88	1400	**	—	—	0.01	**	**
12N-03W-28 DBA 1	11-15-88	1145	**	—	—	**	**	**
12N-03W-30 CBA 1	11-07-88	1415	**	—	—	**	**	**
12N-03W-35 DBC 1	07-28-89	1000	**	**	**	**	**	**
12N-04W-13 BBB 1	11-07-88	1230	**	—	—	**	**	**
12N-04W-14 ACD 1	11-23-88	1230	**	—	—	**	**	**
12N-04W-14 ACD 1	05-23-90	1300	—	—	—	—	—	—
12N-04W-15 AAD 1	11-22-88	945	**	—	—	**	**	**
12N-04W-15 AAD 1	11-22-88	1045	**	—	—	**	**	**
12N-04W-24 ADB 1	10-31-88	1030	**	—	—	**	**	**
12N-04W-24 ADB 1	06-01-90	1045	—	—	—	—	—	—
12N-04W-25 AAD 1	11-07-88	930	**	—	—	**	**	**
12N-04W-25 AAD 1	05-23-90	1030	—	—	—	—	—	—
12N-04W-27 DBC 1	11-22-88	1230	**	—	—	**	**	**
12N-04W-27 DBC 1	06-11-90	1300	—	—	—	—	—	—
13N-01W-30 CBC 1	06-14-89	915	**	**	**	**	**	**
13N-01W-30 CBC 1	06-22-89	1000	—	—	—	—	—	—
13N-01W-30 CBC 1	05-22-90	945	—	—	—	—	—	—
13N-02W-21 AAB 1	07-12-88	1345	**	—	—	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Atrazine, total (µg/L)	Prometone, total (µg/L)
12N–02W–05 BDD 1	06–27–88	1030	**	**
12N–02W–18 DDC 1	11–21–88	945	**	**
12N–02W–30 BCC 1	11–04–88	1300	**	**
12N–03W–02 DBD 1	11–02–88	1015	**	**
12N–03W–07 DDA 1	11–02–88	1245	**	**
12N–03W–10 DAC 1	11–23–88	945	**	0.10
12N–03W–11 CBD 1	11–02–88	1445	**	**
12N–03W–14 ADD 1	11–17–88	1145	**	**
12N–03W–16 CBD 1	11–03–88	1130	**	**
12N–03W–17 BAD 1	11–03–88	1400	**	**
12N–03W–28 DBA 1	11–15–88	1145	**	**
12N–03W–30 CBA 1	11–07–88	1415	**	0.40
12N–03W–35 DBC 1	07–28–89	1000	**	**
12N–04W–13 BBB 1	11–07–88	1230	**	**
12N–04W–14 ACD 1	11–23–88	1230	**	**
12N–04W–14 ACD 1	05–23–90	1300	—	—
12N–04W–15 AAD 1	11–22–88	945	**	3.5
12N–04W–15 AAD 1	11–22–88	1045	**	4.4
12N–04W–24 ADB 1	10–31–88	1030	**	**
12N–04W–24 ADB 1	06–01–90	1045	—	—
12N–04W–25 AAD 1	11–07–88	930	**	**
12N–04W–25 AAD 1	05–23–90	1030	—	—
12N–04W–27 DBC 1	11–22–88	1230	**	**
12N–04W–27 DBC 1	06–11–90	1300	—	—
13N–01W–30 CBC 1	06–14–89	915	**	**
13N–01W–30 CBC 1	06–22–89	1000	—	—
13N–01W–30 CBC 1	05–22–90	945	—	—
13N–02W–21 AAB 1	07–12–88	1345	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Site identification number	Well number	Bromoform, total (µg/L)	Carbon tetra-chloride, total (µg/L)	Chloroform, total (µg/L)	Chloro-ethane, total (µg/L)	1,2-Dibromo-ethane, whole water, total (µg/L)
13N-02W-31 DDC 1	11-21-88	1200	353310097264601	138	**	**	**	**	**
14N-01E-09 DAD 1	06-21-88	1230	354203097114301	169	**	**	**	**	**
14N-01E-09 DAD 1	06-21-88	1330	354203097114301	169	**	**	**	**	**
14N-01E-09 DAD 1	01-25-89	1000	354203097114301	169	**	**	**	**	**
14N-01E-26 CBB 1	07-08-88	945	353931097103301	160	**	**	**	**	**
14N-01E-26 CDD 1	06-21-88	945	353909097100101	157	**	**	**	**	**
14N-01W-28 BBA 1	06-27-89	1000	353958097185001	163	**	**	**	**	**
14N-02W-31 CDD 1	04-07-88	930	353819097270701	152	**	**	0.3	**	**
14N-02W-31 CDD 1	12-21-88	1330	353819097270701	152	0.2	**	0.4	**	**
14N-02W-31 CDD 1	05-24-90	1015	353819097270701	152	**	**	**	**	**
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	355727096582201	205	**	**	**	**	**
POTTAWATOMIE COUNTY									
07N-02E-32 CBC 1	06-08-88	1000	350203097072201	11	**	**	0.3	**	**
08N-02E-05 BBA 1	06-26-89	1000	351209097071701	27	**	**	**	**	**
09N-03E-13 CCA 1	04-28-88	945	351455096563801	37	**	**	**	**	**
09N-03E-13 CCA 1	05-30-90	1015	351455096563801	37	**	**	**	**	**
09N-03E-21 DAD 1	06-14-88	945	351411096590001	34	0.7	**	6.8	**	**
09N-03E-21 DAD 1	12-20-88	1000	351411096590001	34	0.6	**	2.0	**	**
11N-04E-29 CBB 1	07-14-88	1315	352351096544001	63	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethane, total (µg/L)	1,2-Dichloroethane, total (µg/L)	1,1,2,2-Tetrachloroethane, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, whole water, recoverable (µg/L)	Tetrachloroethylene, total (µg/L)	Trichloroethylene, total (µg/L)
13N-02W-31 DDC 1	11-21-88	1200	**	**	**	**	**	**	**
14N-01E-09 DAD 1	06-21-88	1230	**	**	**	**	**	**	**
14N-01E-09 DAD 1	06-21-88	1330	**	**	**	**	**	**	**
14N-01E-09 DAD 1	01-25-89	1000	**	**	**	**	**	**	**
14N-01E-26 CBB 1	07-08-88	945	**	**	**	**	**	**	<0.3
14N-01E-26 CDD 1	06-21-88	945	**	**	**	**	**	**	**
14N-01W-28 BBA 1	06-27-89	1000	**	**	**	**	**	**	**
14N-02W-31 CDD 1	04-07-88	930	**	**	**	**	**	**	**
14N-02W-31 CDD 1	12-21-88	1330	**	**	**	**	**	**	**
14N-02W-31 CDD 1	05-24-90	1015	**	**	**	**	**	**	**
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	**	**	**	**	**	**	**
POTTAWATOMIE COUNTY									
07N-02E-32 CBC 1	06-08-88	1000	**	**	**	**	**	**	**
08N-02E-05 BBA 1	06-26-89	1000	**	**	**	**	**	**	**
09N-03E-13 CCA 1	04-28-88	945	**	**	**	**	**	0.9	0.2
09N-03E-13 CCA 1	05-30-90	1015	**	**	**	**	**	**	**
09N-03E-21 DAD 1	06-14-88	945	**	**	0.3	**	**	**	**
09N-03E-21 DAD 1	12-20-88	1000	**	**	**	**	**	**	**
11N-04E-29 CBB 1	07-14-88	1315	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	1,1-Dichloroethylene, total (µg/L)	Chlorodibromomethane, total (µg/L)	Dichlorobromomethane, total (µg/L)	Dichlorodifluoromethane, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
13N-02W-31 DDC 1	11-21-88	1200	**	**	**	**	**	**	<0.3
14N-01E-09 DAD 1	06-21-88	1230	**	**	**	**	**	**	0.6
14N-01E-09 DAD 1	06-21-88	1330	**	**	**	**	**	**	**
14N-01E-09 DAD 1	01-25-89	1000	**	**	**	**	**	**	**
14N-01E-26 CBB 1	07-08-88	945	**	**	**	**	**	**	**
14N-01E-26 CDD 1	06-21-88	945	**	**	**	**	0.3	**	**
14N-01W-28 BBA 1	06-27-89	1000	**	**	**	**	**	**	0.2
14N-02W-31 CDD 1	04-07-88	930	**	**	**	**	**	**	**
14N-02W-31 CDD 1	12-21-88	1330	**	0.7	0.5	**	**	**	**
14N-02W-31 CDD 1	05-24-90	1015	**	0.3	0.2	**	**	**	**
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	**	**	**	<0.5	**	**	**
POTTAWATOMIE COUNTY									
07N-02E-32 CBC 1	06-08-88	1000	**	**	**	**	**	**	**
08N-02E-05 BBA 1	06-26-89	1000	**	**	**	**	**	**	**
09N-03E-13 CCA 1	04-28-88	945	**	**	**	**	**	**	**
09N-03E-13 CCA 1	05-30-90	1015	**	**	**	**	**	**	**
09N-03E-21 DAD 1	06-14-88	945	**	0.6	0.6	**	**	1.0	**
09N-03E-21 DAD 1	12-20-88	1000	**	0.3	0.3	**	**	1.1	**
11N-04E-29 CBB 1	07-14-88	1315	**	**	**	**	**	**	<0.3

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Styrene, total (µg/L)	Toluene, total (µg/L)	Aldrin, total (µg/L)	Chlordane, total (µg/L)	DDE, total (µg/L)	Dieldrin, total (µg/L)	Heptachlor epoxide, total (µg/L)
13N-02W-31 DDC 1	11-21-88	1200	**	**	**	**	**	**	**
14N-01E-09 DAD 1	06-21-88	1230	**	**	**	0.3	0.010	0.030	**
14N-01E-09 DAD 1	06-21-88	1330	**	**	**	0.3	0.010	0.040	**
14N-01E-09 DAD 1	01-25-89	1000	**	**	**	0.3	0.010	0.020	**
14N-01E-26 CBB 1	07-08-88	945	**	**	**	**	**	**	**
14N-01E-26 CDD 1	06-21-88	945	**	**	**	**	**	**	**
14N-01W-28 BBA 1	06-27-89	1000	**	**	**	**	**	**	**
14N-02W-31 CDD 1	04-07-88	930	**	**	—	—	—	—	—
14N-02W-31 CDD 1	12-21-88	1330	**	**	—	—	—	—	—
14N-02W-31 CDD 1	05-24-90	1015	**	**	**	**	**	**	**
PAYNE COUNTY									
17N-03E-10 CDD 1	06-27-89	1400	**	**	**	**	**	**	**
POTTAWATOMIE COUNTY									
07N-02E-32 CBC 1	06-08-88	1000	**	**	**	**	**	**	**
08N-02E-05 BBA 1	06-26-89	1000	**	**	**	**	**	**	**
09N-03E-13 CCA 1	04-28-88	945	**	**	—	—	—	—	—
09N-03E-13 CCA 1	05-30-90	1015	**	**	**	**	**	**	**
09N-03E-21 DAD 1	06-14-88	945	**	**	**	**	**	**	**
09N-03E-21 DAD 1	12-20-88	1000	**	**	—	—	—	—	—
11N-04E-29 CBB 1	07-14-88	1315	**	**	**	**	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	PCB's, total (µg/L)	Dicamba, total (µg/L)	Picloram, total (µg/L)	2,4-D, total (µg/L)	2,4-DP, total (µg/L)	2,4,5-T, total (µg/L)
13N-02W-31 DDC 1	11-21-88	1200	**	—	—	**	**	**
14N-01E-09 DAD 1	06-21-88	1230	**	—	—	**	**	**
14N-01E-09 DAD 1	06-21-88	1330	**	—	—	**	**	**
14N-01E-09 DAD 1	01-25-89	1000	**	—	—	—	—	—
14N-01E-26 CBB 1	07-08-88	945	**	—	—	**	**	**
14N-01E-26 CDD 1	06-21-88	945	**	—	—	**	**	**
14N-01W-28 BBA 1	06-27-89	1000	**	**	**	**	**	**
14N-02W-31 CDD 1	04-07-88	930	—	—	—	—	—	—
14N-02W-31 CDD 1	12-21-88	1330	—	—	—	—	—	—
14N-02W-31 CDD 1	05-24-90	1015	**	**	**	**	**	**
PAYNE COUNTY								
17N-03E-10 CDD 1	06-27-89	1400	**	**	**	**	**	**
POTTAWATOMIE COUNTY								
07N-02E-32 CBC 1	06-08-88	1000	**	—	—	**	**	**
08N-02E-05 BBA 1	06-26-89	1000	**	**	**	**	**	0.01
09N-03E-13 CCA 1	04-28-88	945	—	—	—	—	—	—
09N-03E-13 CCA 1	05-30-90	1015	**	**	**	**	**	**
09N-03E-21 DAD 1	06-14-88	945	**	—	—	**	**	**
09N-03E-21 DAD 1	12-20-88	1000	—	—	—	—	—	—
11N-04E-29 CBB 1	07-14-88	1315	**	—	—	**	**	**

Table 7.—*Concentrations of organic constituents reported in water samples from wells*—Continued

Local identifier	Date	Time	Atrazine, total (µg/L)	Prometone, total (µg/L)
13N–02W–31 DDC 1	11–21–88	1200	**	**
14N–01E–09 DAD 1	06–21–88	1230	**	**
14N–01E–09 DAD 1	06–21–88	1330	**	**
14N–01E–09 DAD 1	01–25–89	1000	—	—
14N–01E–26 CBB 1	07–08–88	945	**	**
14N–01E–26 CDD 1	06–21–88	945	**	**
14N–01W–28 BBA 1	06–27–89	1000	**	**
14N–02W–31 CDD 1	04–07–88	930	—	—
14N–02W–31 CDD 1	12–21–88	1330	—	—
14N–02W–31 CDD 1	05–24–90	1015	**	**
PAYNE COUNTY				
17N–03E–10 CDD 1	06–27–89	1400	**	**
POTTAWATOMIE COUNTY				
07N–02E–32 CBC 1	06–08–88	1000	**	**
08N–02E–05 BBA 1	06–26–89	1000	**	**
09N–03E–13 CCA 1	04–28–88	945	—	—
09N–03E–13 CCA 1	05–30–90	1015	**	0.60
09N–03E–21 DAD 1	06–14–88	945	**	**
09N–03E–21 DAD 1	12–20–88	1000	—	—
11N–04E–29 CBB 1	07–14–88	1315	**	**

Table 8.—*Organic constituents not reported in water samples from wells*

[μg/L, *micrograms per liter; all analyses by the National Water Quality Laboratory of the U.S. Geological Survey*]

Volatile Organic Constituents

Benzene, total (μg/L)
Bromobenzene, whole water, total (μg/L)
Chlorobenzene, total (μg/L)
1,2-Dichlorobenzene, total (μg/L)
1,3-Dichlorobenzene, total (μg/L)
1,4-Dichlorobenzene, total (μg/L)
Ethyl benzene, total (μg/L)
1,1,1,2-Tetrachloroethane, whole water, total (μg/L)
1,1,2-Trichloroethane, total (μg/L)
Dibromomethane, whole water, recoverable (μg/L)
Methyl bromide, total (μg/L)
1,2-Dichloropropane, total (μg/L)
1,3-Dichloropropane, whole water, total (μg/L)
2,2-Dicloropropane, whole water, total (μg/L)
1,2,3-Trichloropropane, whole water, total (μg/L)
1,1-Dichloropropene, whole water, total (μg/L)
cis-1,3-Dichloropropene, total (μg/L)
trans-1,3-Dichloropropene, total (μg/L)
ortho-Chlorotoluene, whole water, total (μg/L)
para-Chlorotoluene, whole water, total (μg/L)
Vinyl chloride, total (μg/L)
Xylene, total, whole water, total recoverable (μg/L)

Carbamate Insecticides

Aldicarb, whole water, total recoverable (μg/L)
Aldicarb sulfone, whole water, total recoverable (μg/L)
Aldicarb sulfoxide, whole water, total recoverable (μg/L)
Carbofuran, whole water, total recoverable (μg/L)
3-Hydroxycarbofuran, whole water, total recoverable (μg/L)
Methiocarb, whole water, total recoverable (μg/L)
Methomyl, total (μg/L)
1-Naphthol, whole water, total recoverable (μg/L)
Oxyamyl, whole water, total recoverable (μg/L)
Propham, total (μg/L)
Propoxur, whole water, total recoverable (μg/L)
Sevin, total (μg/L)

Organochlorine Compounds

DDD, total (μg/L)
DDT, total (μg/L)
Endosulfan, total (μg/L)
Endrin, total (μg/L)
Heptachlor, total (μg/L)
Lindane, total (μg/L)

Organochlorine Compounds— Continued

Methoxychlor, total (μg/L)
Mirex, total (μg/L)
Naphthalenes, polychlorinated (μg/L)
Perthane, total (μg/L)
Toxaphene, total (μg/L)

Chlorophenoxy Acid Herbicides

Silvex, total (μg/L)

Organophosphorus Insecticides

Def, total (μg/L)
Diazinon, total (μg/L)
Disyston, total (μg/L)
Ethion, total (μg/L)
Ethyl trithion, total (μg/L)
Malathion, total (μg/L)
Methyl parathion, total (μg/L)
Methyl trithion, total (μg/L)
Parathion, total (μg/L)
Phorate, total (μg/L)

Triazines and Other Nitrogen-Containing Herbicides

Alachlor, total recoverable (μg/L)
Ametryne, total (μg/L)
Bromacil, whole water, recoverable (μg/L)
Butachlor, whole water, recoverable (μg/L)
Butylate, whole water, recoverable (μg/L)
Carboxin, whole water, recoverable (μg/L)
Cyanazine, total (μg/L)
Cycloate, whole water, recoverable (μg/L)
Diphenamid, whole water, recoverable (μg/L)
Hexazinone, whole water, recoverable (μg/L)
Metolachlor, whole water, total recoverable (μg/L)
Metribuzine, whole water, total recoverable (μg/L)
Prometryne, total (μg/L)
Propachlor, whole water, recoverable (μg/L)
Propazine, total (μg/L)
Simazine, total (μg/L)
Simetryne, total (μg/L)
Terbacil, whole water, recoverable (μg/L)
Trifluralin, total recoverable (μg/L)
Vernolate, whole water, recoverable (μg/L)

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*

[MCL, *Maximum Contaminant Level*[1]; NIPDWR, *National Interim Primary Drinking Water Regulations*[2]; SMCL, *Secondary Maximum Contaminant Level*[3]; Health Advisories: RfD, *Reference Dose*[4]; DWEL, *Drinking Water Equivalent Level*[6]. °C, *degrees Celsius*; µS/cm, *microsiemens per centimeter at 25°C*; mg/L, *milligrams per liter*; mg/L as N, *milligrams per liter as nitrogen*; Pr, *proposed levels*; mg/L as P, *milligrams per liter as phosphorus*; µg/L, *micrograms per liter*; ( ), *a number in parentheses is the highest concentration actually detected for a constituent, but other samples had concentrations reported as "less than" values greater than the detected value*; pCi/L, *picocuries per liter*; ^{230}Th, ^{230}*thorium*; U-nat, *uranium, natural*; ^{137}Cs, ^{137}*cesium*; mrem/yr, *millirems/year*; ^{90}Sr/^{90}Y, ^{90}*strontium*/^{90}*yttrium*; Percent modern, *0.7 percent, or less, modern carbon at the 40,000-year age*; δ-value, *delta value*; per mil, *((isotope ratio in sample minus ratio in standard) divided by ratio in standard) multiplied by 1,000*; PDB, *Peedee belemnite*; SMOW, *Standard Mean Ocean Water*; CDT, *Canyon Diablo Troilite*; *all analytical data from the National Water Quality Laboratory of the U.S. Geological Survey.* ^{14}*Carbon samples were analyzed by the Radiocarbon Laboratory of Southern Methodist University. Suggested and regulated levels for public water supplys are from the U.S. Environmental Protection Agency (1976, 1986a, 1986b 1988a, 1988b, 1988c, 1989, 1990a, 1990b, 1991)*]

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Health Advisories Lifetime Level[5]	Health Advisories DWEL	Health Advisories Cancer Risk[7]
Specific conductance (µS/cm)	219	91	661	6,440							
pH (standard units)	219	5.7	7.3	9.2			6.5–8.5				
Water temperature (°C)	219	15.5	17.5	20.5							
Dissolved Oxygen (mg/L)	218	0.	4.6	13.2							
Total Hardness (mg/L as $CaCO_3$)	219	4	220	1,800							
Total Alkalinity (mg/L as $CaCO_3$)	219	22	270	646							
Solids, sum of constituents (mg/L)	218	71	402	5,610			[8]500				
Calcium (mg/L)	219	1.0	48	500							
Magnesium (mg/L)	219	0.33	24	210							
Sodium (mg/L)	219	4.1	49	1,400						20	

[1] The maximum permissible level of a contaminant in water which is delivered to any user of a public water system.
[2] Interim enforceable drinking water regulations first established under the Safe Drinking Water Act.
[3] The suggested maximum level of contaminants that only affect the aesthetic quality of drinking water; at high concentrations or values, health implications as well as aesthetic degradation may also exist.
[4] An estimate of exposure, in milligrams per kilogram of body weight per day [(mg/kg)/day], to the human population that is likely to be without appreciable risk of deleterious effects over a lifetime.
[5] An estimate of the concentration of a contaminant in water, taking into consideration all other sources of the contaminant, that would be without adverse, non-carcinogenic, health effects over a lifetime.
[6] A lifetime exposure concentration, computed from the RfD, protective of adverse, non-carcinogenic, health effects, that assumes that all of the exposure to a contaminant is from a drinking water source.
[7] The concentration or level at which, if consumed in drinking water by an individual at the specified level over his or her lifetime, would theoretically produce no more than a one in ten thousand probability of developing cancer as a direct result of drinking the contaminated water.
[8] The SMCL for Total Dissolved Solids is 500 mg/L.

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*—Continued

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Health Advisories Lifetime Level[5]	Health Advisories DWEL	Health Advisories Cancer Risk[7]
Percent sodium	218	5	28	99							
Potassium (mg/L)	219	<0.1	1.3	16							
Bicarbonate (mg/L)	219	27	315	788							
Carbonate (mg/L)	219	0	0	43							
Chloride (mg/L)	219	1.7	21	1,800			250				
Fluoride (mg/L)	219	0.10	0.3	3.9	4	4	2	60			
Bromide (mg/L)	219	0.022	0.1	7.7							
Silica (mg/L)	219	8.7	17	36							
Sulfate (mg/L)	219	3.3	25	3,700	Pr400/500		250				
Nitrite (mg/L as N)	217	<0.010	< 0.010	0.05	Pr1						
Nitrite plus nitrate (mg/L as N)	219	<0.050	0.5	85.0	Pr10						
Ammonia (mg/L as N)	217	<0.010	<0.010	2.1					30		
Ammonia plus organic nitrogen (mg/L as N)	177	<0.20	0.3	2.4							
Phosphorus, orthophosphate (mg/L as P)	217	<0.010	0.010	0.200							
Dissolved organic carbon (mg/L)	173	0.2	0.8	9.7							
Aluminum (µg/L)	216	<10	<10	70			Pr50				
Antimony (µg/L)	179	<1	<1	5	[9] 10/5			0.4	3	15	
Arsenic (µg/L)	219	<1	1	110		50		1			3
Barium (µg/L)	219	<5	180	6,400	Pr5,000	1,000			5,000		
Beryllium (µg/L)	219	<0.5	<0.5	3.00	Pr1			5		200	0.7
Boron (µg/L)	217	10	160	9,600				90	600	3,000	
Cadmium (µg/L)	219	<1.0	<1.0	10	Pr5	10		0.5	5	20	
Chromium (µg/L)	219	<1	<5	100	Pr100	50		5	100	200	
Hexavalent chromium (µg/L)	92	<1	1	93	Pr100	50		5	100	200	
Cobalt (µg/L)	219	<3	<3	(4)<20							
Copper (µg/L)	219	<10	<10	80	Pr1,300		1,000				
Iron (µg/L)	219	<3	6	3,400			300				

[9] As an alternative, dual MCL's for antimony are presented for public review and comment. One value will be dropped at the end of the review period.

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*—Continued

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Lifetime Level[5]	DWEL	Cancer Risk[7]
Lead (µg/L)	218	<10	<10	50	Pr5	50					
Lithium (µg/L)	219	<4	14	180							
Manganese (µg/L)	219	<1	<1	1,300			50				
Mercury (µg/L)	179	<0.1	<0.1	0.9	Pr2	2		0.3	2	10	
Molybdenum (µg/L)	219	<10	<10	80							
Nickel (µg/L)	219	<10	<10	(40)<50	Pr100			20	100	600	
Selenium (µg/L)	219	<1	<1	190	Pr50	10					
Silver (µg/L)	219	<1	<1	44		50	Pr90	5	100	200	
Strontium (µg/L)	219	17	340	10,000				2,500	17,000	90,000	
Vanadium (µg/L)	219	<6	7	560							
Zinc (µg/L)	219	<3	8	1,300			5,000				
Gross alpha (pCi/L as ^{230}Th)	179	0.1	6.0	210	[10]15	[10]15					
Gross alpha (µg/L as U-nat)	188	<0.4	7.8	210							
Gross beta (pCi/L as ^{137}Cs)	188	<0.4	6.6	200	[11]4	4					[12]4
Gross beta (pCi/L as ^{90}Sr/^{90}Y)	188	<0.4	4.8	160	[11]4	4					[12]4
^{226}Radium (pCi/L)	40	0.04	0.15	0.83	Pr20	[13]5					29
^{228}Radium (pCi/L)	39	<1.0	2.0	3.0	Pr20	[13]5					29
^{222}Radon (pCi/L)	226	<80	180	4,900	Pr300						160
Tritium (pCi/L)	217	<0.3	3.5	92							
^{234}Uranium (pCi/L)	228	<0.1	3.35	65	[14]30						[15]160
^{235}Uranium (pCi/L)	228	<0.1	<0.1	2.8	[14]30						[15]160
^{238}Uranium (pCi/L)	228	<0.1	1.1	73	[14]30						[15]160
Uranium, natural (µg/L)	221	<0.2	3.2	220	[14]20						
^{14}Carbon (percent modern)	39	0.7	23.5	123							
^{13}/^{12}Carbon (δ-value relative to PDB) per mil	39	-20.20	-10.95	-7.70							

[10] The proposed MCL for adjusted gross alpha emitters (excluding ^{226}radium, uranium, and ^{222}radon emissions) is 15 pCi/L.
[11] The proposed MCL for beta particle and photon emitters (excluding ^{228}radium) is 4 mrem ede/yr (the unit mrem ede/yr refers to the dose committed over a 50-year period to reference man from an annual intake at the rate of 2 liters of drinking water per day).
[12] The Cancer Risk level for beta particle and photon activity is set at 4 mrem/yr.
[13] The NIPDWR level for ^{226}radium plus ^{228}radium is 5 pCi/L.
[14] The proposed MCL for uranium is 20 µg/L (20 µg/L uranium is approximately equal to 30 pCi/L using an activity-to-mass conversion of 1.3 pCi/µg. The activity-to-mass ratio can vary depending on the relative amounts of each uranium isotope in the sample. The MCL applies to the total mass of uranium in the sample).
[15] The Cancer Risk value for total uranium activity is set at 160 pCi/L.

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*—Continued

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Health Advisories Lifetime Level[5]	Health Advisories DWEL	Health Advisories Cancer Risk[7]
$^{2}/_{1}$Hydrogen (δ–value relative to SMOW) per mil	68	–44.0	–36.0	–27.5							
$^{18}/_{16}$Oxygen (δ–value relative to SMOW) per mil	68	–7.05	–6.10	–4.00							
$^{34}/_{32}$Sulfur (δ–value relative to CDT) per mil	40	–26.77	7.40	11.40							
Benzene (µg/L)	212	<0.20	<0.20	<0.30	5						100
Bromobenzene (µg/L)	212	<0.20	<0.20	<0.20							
Chlorobenzene (µg/L)	212	<0.20	<0.20	<0.20	Pr100			20	100	700	
1,2–Dichlorobenzene (µg/L)	212	<0.20	<0.20	<0.20	Pr600		Pr10	89	600	3,000	
1,3–Dichlorobenzene (µg/L)	212	<0.20	<0.20	<0.20				89	600	3,000	
1,4–Dichlorobenzene (µg/L)	212	<0.20	<0.20	<0.20	75	75	Pr5	100	75	4,000	
Ethyl benzene (µg/L)	212	<0.20	<0.20	<0.20	Pr700		Pr30	100	700	3,000	
Bromoform (µg/L)	212	<0.20	<0.20	2.1		[16]100		20		700	
Carbon tetrachloride (µg/L)	212	<0.20	<0.20	1.6	5			0.7		30	30
Chloroform (µg/L)	212	<0.20	<0.20	25		[16]100		10			600
Chloroethane	212	<0.2	<0.2	0.2							
1,2–Dibromoethane (µg/L)	212	<0.2	<0.2	0.2	Pr0.05						0.04
1,1–Dichloroethane (µg/L)	212	<0.20	<0.20	2.5							
1,2–Dichloroethane (µg/L)	212	<0.20	<0.20	(0.4)<0.70	5	5				40	
1,1,1,2–Tetrachloroethane (µg/L)	212	<0.20	<0.20	<0.20				30	70	1,000	100
1,1,2,2–Tetrachloroethane (µg/L)	212	<0.20	<0.20	0.30							
1,1,1–Trichloroethane (µg/L)	212	<0.20	<0.20	200	200	200		90	200	1,000	
1,1,2–Trichloroethane (µg/L)	212	<0.20	<0.20	<0.20	Pr5			4	3	100	60
1,2–Dichloroethene (µg/L)	212	<0.2	<0.2	1.0	[17]70/100			[17]10/20	[17]70/100	[17]400/600	
1,1–Dichloroethylene (µg/L)	212	<0.20	<0.20	45	7	7		9	7	400	0.02
Tetrachloroethylene (µg/L)	212	<0.20	<0.20	2.1	Pr5			10		500	70
Trichloroethylene (µg/L)	212	<0.2	<0.2	90.0	5	5		7		300	300
Chlorodibromomethane (µg/L)	212	<0.20	<0.20	11		[16]100		20	100	700	
Dibromomethane (µg/L)	212	<0.20	<0.20	<0.20							
Dichlorobromomethane (µg/L)	212	<0.20	<0.20	25		[16]100		20		700	30

[16] The NIPDWR level for total trihalomethanes is set at 100 µg/L.
[17] The dual numbers are the respective levels for the cis–/trans– isomers of 1,2–dichloroethene.

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*—Continued

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Lifetime Level[5]	DWEL	Cancer Risk[7]
Dichlorodifluoromethane (µg/L)	212	<0.20	<0.20	(0.7)<1.6				200	1,000	5,000	
Trichlorofluoromethane (µg/L)	212	<0.20	<0.20	0.30							
Methyl bromide (µg/L)	212	<0.20	<0.20	<0.20				1	10	50	
Methyl chloride (µg/L)	212	<0.20	<0.20	4.4							
Methylene chloride (µg/L)	212	<0.20	<0.20	0.70	5			60		2,000	500
1,2-Dichloropropane (µg/L)	212	<0.20	<0.20	<0.20	Pr5						60
1,3-Dichloropropane (µg/L)	212	<0.20	<0.20	<0.20							
2,2-Dicloropropane (µg/L)	212	<0.20	<0.20	<0.20							
1,2,3-Trichloropropane (µg/L)	212	<0.20	<0.20	<0.20				6	40	200	
1,1-Dichloropropene (µg/L)	212	<0.20	<0.20	<0.20							
cis-1,3-Dichloropropene (µg/L)	212	<0.20	<0.20	<0.20				0.3		10	20
trans-1,3-Dichloropropene (µg/L)	212	<0.20	<0.20	<0.20				0.3		10	20
Styrene (µg/L)	212	<0.2	<0.2	0.2	[18]5/100		Pr10	200	0/100	7,000	1
Toluene (µg/L)	212	<0.20	<0.20	0.20	Pr2,000		Pr40	300	2,000	10,000	
ortho-Chlorotoluene (µg/L)	212	<0.20	<0.20	<0.20				20	100	700	
para-Chlorotoluene (µg/L)	212	<0.20	<0.20	<0.20				20	100	700	
Vinyl chloride (µg/L)	212	<0.20	<0.20	<0.20	2	2					1.5
Xylenes (µg/L)	212	<0.2	<0.2	<0.2	Pr10,000		Pr20	2,000	10,000	60,000	
Aldicarb (µg/L)	179	<0.5	<0.5	<0.5	Pr10			1.3	10	40	
Aldicarb sulfone (µg/L)	179	<0.5	<0.5	<0.5	Pr40			6.0	40	200	
Aldicarb sulfoxide (µg/L)	179	<0.5	<0.5	<0.5	Pr10			1.3	10	40	
Carbofuran (µg/L)	179	<0.5	<0.5	<0.5	Pr40			5	40	200	
3-Hydroxycarbofuran (µg/L)	179	<0.5	<0.5	<0.5							
Methiocarb (µg/L)	179	<0.5	<0.5	<0.5							
Methomyl (µg/L)	179	<0.5	<0.5	<0.5				25	200	900	
1-Naphthol (µg/L)	179	<0.5	<0.5	<0.5							
Oxamyl (µg/L)	179	<0.5	<0.5	<0.5	Pr200			25	200	900	
Propham (µg/L)	176	<0.5	<0.5	<0.5				20	100	600	
Propoxur (µg/L)	179	<0.5	<0.5	<0.5							
Sevin (µg/L)	179	<0.50	<0.50	<0.50				100	700	4,000	

[18]As an alternative, dual MCL's for styrene are presented for public review and comment. One value will be dropped at the end of the review period.

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*—Continued

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Lifetime Level[5]	DWEL	Cancer Risk[7]
Aldrin (µg/L)	180	<0.010	<0.010	0.010				0.03		0.9	0.2
Chlordane (µg/L)	180	<0.1	<0.1	0.8	Pr2			0.045		2	3
DDD (µg/L)	180	<0.010	<0.010	<0.010							
DDE (µg/L)	180	<0.010	<0.010	0.010							
DDT (µg/L)	180	<0.010	<0.010	<0.010							
Dieldrin (µg/L)	180	<0.010	<0.010	0.58				0.05		2	0.2
Endosulfan (µg/L)	180	<0.010	<0.010	<0.010							
Endrin (µg/L)	180	<0.010	<0.010	<0.010	Pr2	0.2		3	2	9	
Heptachlor (µg/L)	180	<0.010	<0.010	<0.010	Pr0.4			0.5		20	0.8
Heptachlor epoxide (µg/L)	180	<0.010	<0.010	0.010	Pr0.2			0.013		0.4	0.4
Lindane (µg/L)	180	<0.010	<0.010	<0.010	Pr0.2	4		0.3	0.2	10	3
Methoxychlor (µg/L)	180	<0.010	<0.010	<0.010	Pr400	100		50	400	2,000	
Mirex (µg/L)	180	<0.01	<0.01	<0.01							
PCB's (µg/L)	180	<0.1	<0.1	0.1	Pr0.5						0.5
Naphthalenes (µg/L)	180	<0.1	<0.1	<0.1				40	300	1,000	
Perthane (µg/L)	180	<0.1	<0.1	<0.1							
Toxaphene (µg/L)	180	<1	<1	<1	Pr5	5		100		3.5	3
Dicamba (µg/L)	76	<0.01	<0.01	0.01				30	200	1,000	
Picloram (µg/L)	75	<0.01	<0.01	0.02	Pr500			70	500	2,000	
Silvex (µg/L)	179	<0.01	<0.01	<0.01	Pr50	10		7.5	50	300	
2,4-D (µg/L)	179	<0.01	<0.01	0.02	Pr70	100		10	70	400	
2,4-DP (µg/L)	179	<0.01	<0.01	0.01							
2,4,5-T (µg/L)	179	<0.01	<0.01	0.01	Pr50	100		10	70	350	
Def (µg/L)	28	<0.01	<0.01	<0.01							
Diazinon (µg/L)	178	<0.01	<0.01	<0.01				0.09	0.6	3	
Disyston (µg/L)	28	<0.01	<0.01	<0.01				0.04	0.3	1	
Ethion (µg/L)	178	<0.01	<0.01	<0.01							
Ethyl trithion (µg/L)	178	<0.01	<0.01	<0.01							
Malathion (µg/L)	178	<0.01	<0.01	<0.01				20	200	800	
Methyl parathion (µg/L)	178	<0.01	<0.01	<0.01				0.25	2	9	
Methyl trithion (µg/L)	178	<0.01	<0.01	<0.01							

Table 9.—*Statistical summary of the Oklahoma NAWQA water-quality data from wells*—Continued

Constituent	Number of Samples	Lowest Value	Median Value	Highest Value	MCL	NIPDWR	SMCL	Health Advisories RfD ug/kg/day	Lifetime Level[5]	DWEL	Cancer Risk[7]
Parathion (µg/L)	178	<0.01	<0.01	<0.01							
Phorate (µg/L)	28	<0.01	<0.01	<0.01							
Alachlor (µg/L)	179	<0.10	<0.10	<0.10	Pr2			10		400	40
Ametryne (µg/L)	179	<0.10	<0.10	<0.10				9	60	300	
Atrazine (µg/L)	179	<0.10	<0.10	0.30	Pr3			5	3	200	
Bromacil (µg/L)	179	<0.10	<0.10	<0.10				130	90	5,000	
Butachlor (µg/L)	179	<0.10	<0.10	<0.10							
Butylate (µg/L)	179	<0.10	<0.10	<0.10				50	350	2,000	
Carboxin (µg/L)	179	<0.10	<0.10	<0.10				100	700	4,000	
Cyanazine (µg/L)	179	<0.10	<0.10	<0.10				2	10	70	
Cycloate (µg/L)	179	<0.10	<0.10	<0.10							
Diphenamid (µg/L)	179	<0.10	<0.10	<0.10				30	200	1,000	
Hexazinone (µg/L)	179	<0.10	<0.10	<0.10							
Metolachlor (µg/L)	151	<0.1	<0.1	<0.1				150	100	5,000	
Metribuzine (µg/L)	151	<0.1	<0.1	<0.1				25	200	900	
Prometone (µg/L)	179	<0.1	<0.1	4.4				15	100	500	
Prometryne (µg/L)	179	<0.1	<0.1	<0.1							
Propachlor (µg/L)	179	<0.10	<0.10	<0.10				13	90	500	
Propazine (µg/L)	179	<0.10	<0.10	<0.10				20	10	700	
Simazine (µg/L)	179	<0.10	<0.10	<0.10	Pr1			2	1	60	
Simetryne (µg/L)	179	<0.1	<0.1	<0.1							
Terbacil (µg/L)	179	<0.10	<0.10	<0.10				13	90	400	
Trifluralin (µg/L)	179	<0.10	<0.10	<0.10				7.5	5	260	500
Vernolate (µg/L)	179	<0.10	<0.10	<0.10							

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*

[*µg/L, micrograms per liter; (**), indicates the concentration is less than the minimum reporting level; (—), indicates no data are available; all samples analyzed by the National Water Quality Laboratory of the U.S. Geological Survey*]

Sample type	Date	Time	Benzene, total (µg/L)	Bromo-benzene, whole water total (µg/L)	Chloro-benzene, total (µg/L)	1,2-Dichloro-benzene, total (µg/L)	1,3-Dichloro-benzene total (µg/L)	1,4-Dichloro-benzene total (µg/L)	Ethyl benzene total (µg/L)
Matrix	04-19-88	0900	**	**	**	**	**	**	**
Spiking Solution	04-19-88	0907	15	—	15	15	15	15	15
Field Spike A	04-19-88	0907	12	**	13	10	15	15	11
Matrix	06-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	06-22-88	0947	20	—	20	20	20	20	20
Field Spike A	06-22-88	0947	48	**	55	44	43	49	59
Field Spike B	06-22-88	0948	15	**	12	11	10	11	12
Matrix	07-06-88	1000	**	**	**	**	**	**	**
Spiking Solution	07-06-88	1007	17	—	17	17	17	17	17
Field Spike A	07-06-88	1007	11	**	13	13	11	11	16
Field Spike B	07-06-88	1008	**	**	**	**	**	**	**
Matrix	07-08-88	1145	**	**	**	**	**	**	**
Spiking Solution	07-08-88	1147	—	—	—	—	—	—	—
Field Spike A	07-08-88	1147	—	—	—	—	—	—	—
Field Spike B	07-08-88	1148	—	—	—	—	—	—	—
Matrix	07-13-88	0915	**	**	**	**	**	**	**
Spiking Solution	07-13-88	0917	—	—	—	—	—	—	—
Field Spike A	07-13-88	0917	—	—	—	—	—	—	—
Field Spike B	07-13-88	0918	—	—	—	—	—	—	—

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date		Bromoform, total (µg/L)	Carbon tetrachloride, total (µg/L)	Chloroform, total (µg/L)	1,2-Dichloroethane, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, whole water, recoverable (µg/L)	1,1-Dichloroethylene, total (µg/L)
Matrix	04-19-88	0900	**	**	**	**	**	**	**
Spiking Solution	04-19-88	0907	—	—	—	—	—	—	—
Field Spike A	04-19-88	0907	**	**	**	**	**	**	**
Matrix	06-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	06-22-88	0947	—	—	—	—	—	—	—
Field Spike A	06-22-88	0947	**	**	**	**	**	**	**
Field Spike B	06-22-88	0948	**	**	**	**	**	**	**
Matrix	07-06-88	1000	**	**	**	**	**	**	**
Spiking Solution	07-06-88	1007	—	—	—	—	—	—	—
Field Spike A	07-06-88	1007	**	**	**	**	**	**	**
Field Spike B	07-06-88	1008	**	**	**	**	**	**	**
Matrix	07-08-88	1145	**	**	**	**	**	**	**
Spiking Solution	07-08-88	1147	—	—	—	—	—	—	—
Field Spike A	07-08-88	1147	—	—	—	—	—	—	—
Field Spike B	07-08-88	1148	—	—	—	—	—	—	—
Matrix	07-13-88	0915	**	**	**	**	**	**	**
Spiking Solution	07-13-88	0917	—	—	—	—	—	—	—
Field Spike A	07-13-88	0917	—	—	—	—	—	—	—
Field Spike B	07-13-88	0918	—	—	—	—	—	—	—

Table 10.—*Concentrations of organic constituents reported in in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Trichloro-ethylene, total (µg/L)	Chloro-dibromo-methane, total (µg/L)	Dichloro-bromo-methane, total (µg/L)	Trichloro-fluoro-methane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)	Toluene, total (µg/L)
Matrix	04-19-88	0900	**	**	**	**	**	**	**
Spiking Solution	04-19-88	0907	—	—	—	—	—	—	15
Field Spike A	04-19-88	0907	**	**	**	0.3	**	**	12
Matrix	06-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	06-22-88	0947	—	—	—	—	—	—	20
Field Spike A	06-22-88	0947	**	**	**	**	**	**	59
Field Spike B	06-22-88	0948	**	**	**	1.7	**	**	13
Matrix	07-06-88	1000	**	**	**	**	**	** MCO	0.2
Spiking Solution	07-06-88	1007	—	—	—	—	—	—	17
Field Spike A	07-06-88	1007	**	**	**	**	**	**	12
Field Spike B	07-06-88	1008	**	**	**	**	**	**	**
Matrix	07-08-88	1145	**	**	**	**	**	**	**
Spiking Solution	07-08-88	1147	—	—	—	—	—	—	—
Field Spike A	07-08-88	1147	—	—	—	—	—	—	—
Field Spike B	07-08-88	1148	—	—	—	—	—	—	—
Matrix	07-13-88	0915	**	**	**	**	**	**	**
Spiking Solution	07-13-88	0917	—	—	—	—	—	—	—
Field Spike A	07-13-88	0917	—	—	—	—	—	—	—
Field Spike B	07-13-88	0918	—	—	—	—	—	—	—

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Vinyl chloride, total (µg/L)	Methomyl, total (µg/L)	Sevin, total (µg/L)	DDT, total (µg/L)	Dieldrin, total (µg/L)	Lindane, total (µg/L)	Dicamba, total (µg/L)	Picloram, total (µg/L)
Matrix	04-19-88	0900	**	—	—	—	—	—	—	—
Spiking Solution	04-19-88	0907	—	—	—	—	—	—	—	—
Field Spike A	04-19-88	0907	**	—	—	—	—	—	—	—
Matrix	06-22-88	0945	**	**	**	**	**	**	—	—
Spiking Solution	06-22-88	0947	—	—	—	—	—	—	—	—
Field Spike A	06-22-88	0947	**	—	—	—	—	—	—	—
Field Spike B	06-22-88	0948	**	—	—	—	—	—	—	—
Matrix	07-06-88	1000	**	—	—	—	—	—	—	—
Spiking Solution	07-06-88	1007	—	—	—	—	—	—	—	—
Field Spike A	07-06-88	1007	**	—	—	—	—	—	—	—
Field Spike B	07-06-88	1008	**	—	—	—	—	—	—	—
Matrix	07-08-88	1145	**	**	**	**	**	**	—	—
Spiking Solution	07-08-88	1147	—	1	1.0	—	—	—	—	—
Field Spike A	07-08-88	1147	—	0.7	0.7	—	—	—	—	—
Field Spike B	07-08-88	1148	—	0.9	1.0	—	—	—	—	—
Matrix	07-13-88	0915	**	**	**	**	**	**	—	—
Spiking Solution	07-13-88	0917	—	1	1.0	—	—	—	—	—
Field Spike A	07-13-88	0917	—	0.9	0.9	—	—	—	—	—
Field Spike B	07-13-88	0918	—	**	**	—	—	—	—	—

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Silvex, total (µg/L)	2,4-D, total (µg/L)	2,4,5-T, total (µg/L)	Diazinon, total (µg/L)	Malathion, total (µg/L)	Parathion, total (µg/L)	Alachlor, total recoverable (µg/L)
Matrix	04-19-88	0900	—	—	—	—	—	—	—
Spiking Solution	04-19-88	0907	—	—	—	—	—	—	—
Field Spike A	04-19-88	0907	—	—	—	—	—	—	—
Matrix	06-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	06-22-88	0947	—	—	—	—	—	—	—
Field Spike A	06-22-88	0947	—	—	—	—	—	—	—
Field Spike B	06-22-88	0948	—	—	—	—	—	—	—
Matrix	07-06-88	1000	—	—	—	—	—	—	—
Spiking Solution	07-06-88	1007	—	—	—	—	—	—	—
Field Spike A	07-06-88	1007	—	—	—	—	—	—	—
Field Spike B	07-06-88	1008	—	—	—	—	—	—	—
Matrix	07-08-88	1145	**	**	**	**	**	**	**
Spiking Solution	07-08-88	1147	—	—	—	—	—	—	1.4
Field Spike A	07-08-88	1147	—	—	—	—	—	—	1.2
Field Spike B	07-08-88	1148	—	—	—	—	—	—	1.3
Matrix	07-13-88	0915	**	**	**	**	**	**	**
Spiking Solution	07-13-88	0917	—	—	—	—	—	—	1.4
Field Spike A	07-13-88	0917	—	—	—	—	—	—	1.2
Field Spike B	07-13-88	0918	—	—	—	—	—	—	1.2

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Atrazine, total (µg/L)	Metolachlor, whole water, total recoverable (µg/L)	Metribuzin, whole water, total recoverable (µg/L)	Prometone, total (µg/L)	Prometryne, total (µg/L)	Simazine, total (µg/L)	Trifluralin, total recoverable (µg/L)
Matrix	04-19-88	0900	—	—	—	—	—	—	—
Spiking Solution	04-19-88	0907	—	—	—	—	—	—	—
Field Spike A	04-19-88	0907	—	—	—	—	—	—	—
Matrix	06-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	06-22-88	0947	—	—	—	—	—	—	—
Field Spike A	06-22-88	0947	—	—	—	—	—	—	—
Field Spike B	06-22-88	0948	—	—	—	—	—	—	—
Matrix	07-06-88	1000	—	—	—	—	—	—	—
Spiking Solution	07-06-88	1007	—	—	—	—	—	—	—
Field Spike A	07-06-88	1007	—	—	—	—	—	—	—
Field Spike B	07-06-88	1008	—	—	—	—	—	—	—
Matrix	07-08-88	1145	**	**	**	**	**	**	**
Spiking Solution	07-08-88	1147	1.0	0.99	0.97	—	—	1.0	1.0
Field Spike A	07-08-88	1147	1.1	0.90	0.90	**	**	1.1	0.80
Field Spike B	07-08-88	1148	0.90	1.0	0.90	**	**	1.6	0.80
Matrix	07-13-88	0915	**	**	**	**	**	**	**
Spiking Solution	07-13-88	0917	1.0	0.99	0.97	—	—	1.0	1.0
Field Spike A	07-13-88	0917	1.1	0.90	0.90	**	**	1.1	0.80
Field Spike B	07-13-88	0918	0.80	1.0	0.90	**	**	1.2	0.80

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Benzene, total (µg/L)	Bromo-benzene, whole water total (µg/L)	Chloro-benzene, total (µg/L)	1,2-Dichloro-benzene, total (µg/L)	1,3-Dichloro-benzene total (µg/L)	1,4-Dichloro-benzene total (µg/L)	Ethyl benzene total (µg/L)
Matrix	11-10-88	0945	**	**	**	**	**	**	**
Spiking Solution	11-10-88	0947	15	—	15	15	15	15	15
Field Spike A	11-10-88	0947	12	**	13	12	13	13	16
Field Spike B	11-10-88	0948	12	**	15	22	15	17	15
Matrix	11-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	11-22-88	0947	5.0	—	5.0	5.0	5.0	5.0	5.0
Field Spike A	11-22-88	0947	0.9	0.3	7.7	5.3	3.5	5.1	**
Field Spike B	11-22-88	0948	0.4	0.3	6.3	5.2	3.3	6.1	**
Matrix	07-05-89	1030	**	**	**	**	**	**	**
Spiking Solution	07-05-89	1037	2.5	—	—	—	—	2.5	—
Field Spike A	07-05-89	1037	1.3	**	**	**	**	1.3	**
Field Spike B	07-05-89	1038	1.2	**	**	**	**	1.2	**
Laboratory Spike	07-05-89	1039	1.5	**	**	**	**	1.6	**
Matrix	07-24-89	1000	**	**	**	**	**	**	**
Spiking Solution	07-24-89	1007	2.5	—	—	—	—	2.5	—
Field Spike A	07-24-89	1007	1.3	**	**	**	**	1.5	**
Field Spike B	07-24-89	1008	1.1	**	**	**	**	1.4	**
Laboratory Spike	07-24-89	1009	1.6	**	**	**	**	1.8	**

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date		Bromoform, total (µg/L)	Carbon tetrachloride, total (µg/L)	Chloroform, total (µg/L)	1,2-Dichloroethane, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, whole water, recoverable (µg/L)	1,1-Dichloroethylene, total (µg/L)
Matrix	11-10-88	0945	**	**	**	0.4	**	0.3	**
Spiking Solution	11-10-88	0947	—	—	—	—	—	—	—
Field Spike A	11-10-88	0947	**	**	**	0.5	**	0.3	**
Field Spike B	11-10-88	0948	**	**	**	<0.7	**	0.2	**
Matrix	11-22-88	0945	**	**	0.3	**	**	**	**
Spiking Solution	11-22-88	0947	—	—	—	—	—	—	—
Field Spike A	11-22-88	0947	0.5	**	4.6	**	**	**	**
Field Spike B	11-22-88	0948	0.5	**	2.5	**	**	**	**
Matrix	07-05-89	1030	**	**	**	**	**	**	**
Spiking Solution	07-05-89	1037	2.5	—	2.5	2.5	2.5	—	2.5
Field Spike A	07-05-89	1037	1.6	1.0	1.4	1.8	1.1	**	0.9
Field Spike B	07-05-89	1038	1.5	0.9	1.2	1.5	1.0	**	0.9
Laboratory Spike	07-05-89	1039	1.6	1.2	1.6	1.7	1.4	**	1.3
Matrix	07-24-89	1000	**	**	**	**	**	**	**
Spiking Solution	07-24-89	1007	2.5	—	2.5	2.5	2.5	—	2.5
Field Spike A	07-24-89	1007	1.9	1.0	1.3	1.6	1.1	**	1.0
Field Spike B	07-24-89	1008	1.7	0.9	1.2	1.5	1.0	**	0.9
Laboratory Spike	07-24-89	1009	2.1	1.4	1.6	2.0	1.4	**	1.4

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Trichloroethylene, total (µg/L)	Chlorodibromomethane, total (µg/L)	Dichlorobromomethane, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)	Toluene, total (µg/L)
Matrix	11-10-88	0945	2.0	**	**	**	**	**	**
Spiking Solution	11-10-88	0947	—	—	—	—	—	—	15
Field Spike A	11-10-88	0947	1.9	**	**	**	**	**	13
Field Spike B	11-10-88	0948	2.4	**	**	**	**	**	15
Matrix	11-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	11-22-88	0947	—	—	—	—	—	—	5.0
Field Spike A	11-22-88	0947	**	2.8	3.2	**	0.4	**	**
Field Spike B	11-22-88	0948	**	2.5	2.9	**	**	**	**
Matrix	07-05-89	1030	**	**	**	**	**	**	**
Spiking Solution	07-05-89	1037	2.5	2.5	2.5	—	—	—	—
Field Spike A	07-05-89	1037	1.3	1.5	1.4	**	**	0.3	0.9
Field Spike B	07-05-89	1038	1.1	1.3	1.3	**	**	0.4	0.9
Laboratory Spike	07-05-89	1039	1.5	1.7	1.5	**	**	0.3	1.1
Matrix	07-24-89	1000	**	**	**	**	**	**	**
Spiking Solution	07-24-89	1007	2.5	2.5	2.5	—	—	—	—
Field Spike A	07-24-89	1007	1.3	2.1	1.9	**	**	0.3	0.8
Field Spike B	07-24-89	1008	1.1	1.9	1.7	**	**	0.4	0.8
Laboratory Spike	07-24-89	1009	1.6	2.4	2.2	**	**	0.4	1.0

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Vinyl chloride, total (µg/L)	Methomyl, total (µg/L)	Sevin, total (µg/L)	DDT, total (µg/L)	Dieldrin, total (µg/L)	Lindane, total (µg/L)	Dicamba, total (µg/L)	Picloram, total (µg/L)
Matrix	11-10-88	0945	**	**	**	**	**	**	—	—
Spiking Solution	11-10-88	0947	—	1	1.0	—	—	—	—	—
Field Spike A	11-10-88	0947	**	0.7	0.8	—	—	—	—	—
Field Spike B	11-10-88	0948	**	0.7	0.8	—	—	—	—	—
Matrix	11-22-88	0945	**	**	**	**	0.18	**	—	—
Spiking Solution	11-22-88	0947	—	1	1.0	—	—	—	—	—
Field Spike A	11-22-88	0947	**	**	**	—	—	—	—	—
Field Spike B	11-22-88	0948	**	**	**	—	—	—	—	—
Matrix	07-05-89	1030	**	**	**	**	**	**	**	**
Spiking Solution	07-05-89	1037	2.5	1.0	1.0	0.050	0.050	0.050	0.10	0.10
Field Spike A	07-05-89	1037	0.7	0.6	0.8	0.060	0.050	0.060	0.06	0.03
Field Spike B	07-05-89	1038	0.6	0.6	0.9	0.040	0.040	0.050	0.03	0.02
Laboratory Spike	07-05-89	1039	1.0	0.6	0.9	0.050	0.040	0.050	0.06	0.04
Matrix	07-24-89	1000	**	**	**	**	**	**	**	**
Spiking Solution	07-24-89	1007	2.5	1.0	1.0	0.050	0.050	0.050	0.10	0.10
Field Spike A	07-24-89	1007	0.7	0.7	0.8	0.050	0.050	0.060	0.06	0.02
Field Spike B	07-24-89	1008	0.6	0.8	0.9	0.040	0.040	0.050	0.05	0.01
Laboratory Spike	07-24-89	1009	0.8	0.8	1.0	0.050	0.050	0.050	0.05	0.01

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Silvex, total (µg/L)	2,4-D, total (µg/L)	2,4,5-T, total (µg/L)	Diazinon, total (µg/L)	Malathion, total (µg/L)	Parathion, total (µg/L)	Alachlor, total recoverable (µg/L)
Matrix	11-10-88	0945	**	**	**	**	**	**	**
Spiking Solution	11-10-88	0947	—	—	—	—	—	—	1.4
Field Spike A	11-10-88	0947	—	—	—	—	—	—	1.3
Field Spike B	11-10-88	0948	—	—	—	—	—	—	1.4
Matrix	11-22-88	0945	**	**	**	**	**	**	**
Spiking Solution	11-22-88	0947	—	—	—	—	—	—	1.4
Field Spike A	11-22-88	0947	—	—	—	—	—	—	1.4
Field Spike B	11-22-88	0948	—	—	—	—	—	—	1.1
Matrix	07-05-89	1030	**	**	**	**	**	**	**
Spiking Solution	07-05-89	1037	0.10	0.10	0.10	0.10	0.10	0.10	1.0
Field Spike A	07-05-89	1037	0.07	0.05	0.06	0.07	0.03	0.09	1.2
Field Spike B	07-05-89	1038	0.04	0.02	0.04	0.08	0.05	0.09	1.0
Laboratory Spike	07-05-89	1039	0.07	0.05	0.07	0.06	0.03	0.07	0.90
Matrix	07-24-89	1000	**	**	**	**	**	**	**
Spiking Solution	07-24-89	1007	0.10	0.10	0.10	0.10	0.10	0.10	1.0
Field Spike A	07-24-89	1007	0.05	0.03	0.05	0.09	0.08	0.09	0.80
Field Spike B	07-24-89	1008	0.06	0.05	0.06	0.06	0.06	0.08	1.0
Laboratory Spike	07-24-89	1009	0.05	0.04	0.05	0.09	0.06	0.10	0.90

Table 10.—*Concentrations of organic constituents reported in quality-assurance spiked samples*—Continued

Sample type	Date	Time	Atrazine, total (µg/L)	Metolachlor, whole water, total recoverable (µg/L)	Metribuzin, whole water, total recoverable (µg/L)	Prometone, total (µg/L)	Prometryne, total (µg/L)	Simazine, total (µg/L)	Trifluralin, total recoverable (µg/L)
Matrix	11-10-88	0945	**	**	**	**	**	**	**
Spiking Solution	11-10-88	0947	1.0	0.99	0.97	—	—	1.0	1.0
Field Spike A	11-10-88	0947	0.80	1.0	0.90	**	**	0.90	0.80
Field Spike B	11-10-88	0948	1.0	0.60	0.80	**	**	1.0	0.60
Matrix	11-22-88	0945	**	**	**	3.5	**	**	**
Spiking Solution	11-22-88	0947	1.0	0.99	0.97	—	—	1.0	1.0
Field Spike A	11-22-88	0947	0.80	1.0	**	4.2	**	0.90	0.60
Field Spike B	11-22-88	0948	0.50	0.90	**	4.5	**	0.30	0.30
Matrix	07-05-89	1030	**	**	**	**	**	**	**
Spiking Solution	07-05-89	1037	1.0	1.0	—	—	1.0	1.0	1.0
Field Spike A	07-05-89	1037	0.90	1.2	**	**	0.90	1.0	0.90
Field Spike B	07-05-89	1038	1.0	1.3	**	**	1.0	1.1	1.0
Laboratory Spike	07-05-89	1039	0.80	1.0	**	**	0.70	0.90	0.80
Matrix	07-24-89	1000	0.10	**	**	**	**	**	**
Spiking Solution	07-24-89	1007	1.0	1.0	—	—	1.0	1.0	1.0
Field Spike A	07-24-89	1007	1.0	1.0	**	**	1.0	0.90	1.0
Field Spike B	07-24-89	1008	1.1	1.1	**	**	1.0	1.0	1.0
Laboratory Spike	07-24-89	1009	1.0	1.0	**	**	0.90	0.90	0.90

Table 11.—*Physical properties and concentrations of major ions, nutrients, trace substances, concentrations of radionuclides and radioactivities, and reported organic constituents in quality-assurance sampler blanks*

[°C, *degrees Celsius;* µS/cm, *microsiemens per centimeter at 25°C;* mg/L, *milligrams per liter;* mg/L as $CaCO_3$, *milligrams per liter as calcium carbonate;* (—), *indicates no data are available;* mg/L as N, *milligrams per liter as nitrogen;* mg/L as P, *milligrams per liter as phosphorus;* µg/L, *micrograms per liter;* U-nat, *uranium, natural;* 2SPE, *two standard precision estimates;* pCi/L, *picocuries per liter;* ^{137}Cs, ^{137}*cesium;* $^{90}Sr/^{90}Y$, ^{90}*strontium/*^{90}*yttrium;* ^{226}Ra, ^{226}*radium;* ^{228}Ra, ^{228}*radium;* ^{222}Rn, ^{222}*radon;* ^{234}U, ^{234}*uranium;* ^{235}U, ^{235}*uranium;* ^{238}U, ^{238}*uranium;* U-natural, *u natural (a calculated value, computed from* ^{235}U *and* ^{238}U *data); all samples analyzed by the National Water Quality Laboratory of the U.S. Geologica Survey*]

Date	Time	Specific conductance (uS/cm)	pH, laboratory (standard units)	Alkalinity, total (mg/L as $CaCO_3$)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Potassium, dissolved (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)
08-03-87	800	8	8.1	—	0.26	0.06	1.2	0.40	0.60	0.20
10-13-87	1313	9	8.4	—	0.10	0.05	<0.20	<0.10	0.30	0.60
04-19-88	1400	—	—	—	—	—	—	—	—	—
04-27-88	1430	4	6.8	2.0	0.13	0.07	<0.20	0.10	<0.20	0.20
06-30-88	1000	4	6.8	5.0	0.06	<0.01	<0.20	0.10	0.60	0.30
07-15-88	1000	5	5.9	2.0	0.04	0.01	0.30	0.10	<0.20	0.90
11-16-88	1400	4	8.1	2.0	0.03	<0.01	<0.20	0.10	<0.20	0.10
06-21-89	1400	—	—	—	—	—	—	—	—	—

Date	Fluoride, dissolved (mg/L)	Bromide, dissolved (mg/L)	Silica, dissolved (mg/L)	Nitrite, dissolved (mg/L as N)	Nitrite plus nitrate, dissolved (mg/L as N)	Ammonia, dissolved (mg/L as N)	Ammonia plus organic nitrogen, dissolved (mg/L as N)	Phosphorus, ortho-phosphate, dissolved (mg/L as P)	Carbon, organic dissolved (mg/L)	Aluminum, dissolved (µg/L)
08-03-87	0.10	0.096	0.09	<0.010	<0.100	<0.010	—	<0.010	—	<10
10-13-87	0.10	<0.010	0.12	<0.010	<0.100	0.490	—	<0.010	0.5	<10
04-19-88	—	—	—	—	—	—	—	—	—	—
04-27-88	0.10	<0.010	0.07	<0.010	<0.100	0.470	0.40	<0.010	0.8	<10
06-30-88	0.20	0.028	0.04	<0.010	<0.100	0.500	0.60	<0.010	2.7	<10
07-15-88	0.20	—	0.09	<0.010	<0.100	0.410	1.6	0.010	0.7	<10
11-16-88	<0.10	<0.010	0.09	<0.010	<0.100	0.350	0.80	<0.010	—	<10
06-21-89	—	—	—	—	—	—	—	—	—	—

Table 11.—*Physical properties and concentrations of major ions, nutrients, trace substances, concentrations of radionuclides and radioactivities, and reported organic constituents in quality-assurance sampler blanks*—Continued

Date	Antimony, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Beryllium, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)	Chromium, hexavalent, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)
08-03-87	—	<1	5	<0.5	20	<1.0	<5	<1	<3	<10
10-13-87	—	<1	<2	<0.5	<10	<1.0	<5	<1	<3	<10
04-19-88	—	—	—	—	—	—	—	—	—	—
04-27-88	<1	<1	<2	<0.5	<10	<1.0	<5	<1	<3	<10
06-30-88	<1	<1	<2	<0.5	<10	<1.0	<5	1	<3	<10
07-15-88	<1	<1	<2	<0.5	<10	<1.0	<5	<1	<3	20
11-16-88	<1	<1	<2	<0.5	<10	<1.0	<5	—	<3	<10
06-21-89	—	—	—	—	—	—	—	—	—	—

Date	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)
08-03-87	8	<10	62	<1	—	<10	<10	2	1.0	5
10-13-87	15	<10	<4	<1	—	<10	<10	<1	<1.0	87
04-19-88	—	—	—	—	—	—	—	—	—	—
04-27-88	<3	<10	<4	1	<0.1	<10	<10	<1	<1.0	5
06-30-88	<3	<10	<4	<1	<0.1	<10	<10	<1	1.0	1
07-15-88	3	10	<4	<1	<0.1	<10	<10	<1	2.0	<1
11-16-88	<3	<10	<4	<1	<0.1	<10	<10	<1	<1.0	2
06-21-89	—	—	—	—	—	—	—	—	—	—

Table 11.—*Physical properties and concentrations of major ions, nutrients, trace substances, concentrations of radionuclides and radioactivities, and reported organic constituents in quality-assurance sampler blanks*—Continued

Date	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)	Gross alpha, dissolved (µg/L as U-Nat ± 2SPE)	Gross beta, dissolved (pCi/L as ^{137}Cs ± 2SPE)	Gross beta, dissolved (pCi/L as ^{90}Sr/^{90}Y ± 2SPE)	^{226}Ra, dissolved (pCi/L ± 2SPE)
08-03-87	<6	<3	—	—	—	0.03 ± 0.011
10-13-87	<6	44	—	—	—	0.02 ± 0.012
04-19-88	—	—	—	—	—	—
04-27-88	<6	<3	0.4 ± 0.53	<0.4 ± 0.39	<0.4 ± 0.41	—
06-30-88	<6	<3	<0.4 ± 0.61	<0.4 ± 0.39	<0.4 ± 0.37	—
07-15-88	<6	9	<0.4 ± 0.45	<0.4 ± 0.38	<0.4 ± 0.36	—
11-16-88	<6	7	<0.4 ± 0.28	4.0 ± 1.2	3.1 ± 0.90	—
06-21-89	—	—	—	—	—	—

Date	^{228}Ra, dissolved (pCi/L ± 2SPE)	^{222}Rn, dissolved (pCi/L ± 2SPE)	^{234}U, dissolved (pCi/L ± 2SPE)	^{235}U, dissolved (pCi/L ± 2SPE)	^{238}U, dissolved (pCi/L ± 2SPE)	U-natural, dissolved (µg/L ± 2SPE)
08-03-87	2.0 ± 2.1	—	0.1 ± 0.06	<0.1 ± 0.02	<0.1 ± 0.02	<0.1 ± 0.07
10-13-87	1.0 ± 1.5	—	<0.1 ± 0.02	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.03
04-19-88	—	—	—	—	—	—
04-27-88	—	<80 ± 29	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.04
06-30-88	—	<80 ± 31	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.04
07-15-88	—	<80 ± 57	<0.1 ± 0.02	<0.1 ± 0.00	<0.1 ± 0.01	<0.1 ± 0.04
11-16-88	—	<80 ± 29	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.01	<0.1 ± 0.03
06-21-89	—	—	—	—	—	—

Table 11.—*Physical properties and concentrations of major ions, nutrients, trace substances, concentrations of radionuclides and radioactivities, and reported organic constituents in quality-assurance sampler blanks*—Continued

Date	Chloroform, total (µg/L)	Chloro-ethane, total (µg/L)	Dichloro-difluoro-methane, total (µg/L)	Methyl bromide, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
08-03-87	—	—	—	—	—	—
10-13-87	—	—	—	—	—	—
04-19-88	<0.2	<0.2	<0.2	<0.2	<0.2	0.7
04-27-88	—	—	—	—	—	—
06-30-88	2.4	<0.2	<0.2	<0.2	<0.2	<0.2
07-15-88	0.2	<1.0	<0.2	<1.0	<1.0	<0.7
11-16-88	<0.2	<0.2	<0.2	<0.2	<0.9	<0.3
06-21-89	<0.2	<0.2	3.5	<0.2	<0.2	0.8

Date	Toluene, total (µg/L)	Vinyl chloride, total (µg/L)	2,4-D, total (µg/L)	2,4-DP, total (µg/L)	Diazinon, total (µg/L)	Atrazine, total (µg/L)
08-03-87	—	—	—	—	—	—
10-13-87	—	—	—	—	—	—
04-19-88	<0.2	<0.2	—	—	—	—
04-27-88	—	—	—	—	—	—
06-30-88	0.3	<0.2	<0.01	<0.01	<0.01	<0.10
07-15-88	0.4	<1.0	<0.05	<0.05	<0.01	0.10
11-16-88	<0.2	<0.2	<0.01	<0.01	0.01	<0.10
06-21-89	<0.2	<0.2	—	—	—	—

Table 12.—*Concentrations of organic constituents reported in quality-assurance field and trip blanks*

[µg/L, *micrograms per liter;* (**), *indicates the concentration is less than the minimum reporting level; all samples analyzed by the National Water Quality Laboratory of the U.S. Geological Survey*]

Local identifier	Date	Time	Site identification number	Sample type	Well number	Benzene, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, total (µg/L)
			CLEVELAND COUNTY					
06N-01W-17 BBB 1	06-08-89	1401	345959097200301	Field	5	**	**	**
06N-01W-27 BBA 1	06-29-89	1246	345815097174901	Field	3	**	**	**
07N-01W-07 DCD 1	06-08-89	1016	350516097202601	Field	15	**	**	**
07N-01W-30 DDD 1	06-29-89	1001	350243097200901	Field	13	**	**	**
07N-02W-15 AAA 1	06-12-89	946	350514097232301	Field	14	**	**	**
08N-01E-09 AAB 1	07-11-88	1030	351118097114901	Trip	26	**	0.2	**
08N-01E-22 DDA 1	06-28-89	946	350851097103901	Field	21	**	**	**
09N-01E-01 CDD 1	06-23-89	1000	351632097090901	Trip	43	**	**	**
09N-01E-01 CDD 1	06-23-89	1001	351632097090901	Field	43	**	**	**
09N-01W-09 BDD 1	06-23-89	1301	351613097183501	Field	40	**	**	**
09N-03W-18 DDA 1	06-09-89	1331	351501097325301	Field	38	**	**	**
09N-03W-34 BCC 1	06-12-89	1331	351244097303601	Field	31	**	**	**
10N-03W-30 BAB 1	06-09-89	1001	351907097333001	Field	52	**	**	**
10N-04W-25 CBC 1	06-06-89	945	351832097345101	Trip	51	**	**	**
10N-04W-25 CBC 1	06-06-89	946	351832097345101	Field	51	**	**	**
			LINCOLN COUNTY					
12N-02E-29 CBC 1	06-19-89	1001	352854097072301	Field	97	**	**	**
12N-03E-10 BAB 1	07-25-89	946	353207096583301	Field	128	**	**	**
14N-04E-33 CAB 1	07-24-89	1101	353840096531101	Field	155	**	**	**
16N-03E-11 CCC 1	05-31-90	1130	355214096574801	Trip	198	**	**	**
			LOGAN COUNTY					
16N-01E-29 BCD 1	07-07-89	916	355005097133401	Field	190	**	**	**

Table 12.—*Concentrations of organic constituents reported in quality-assurance field and trip blanks*—Continued

Local identifier	Date	Time	1,1-Dichloroethylene, total (µg/L)	Trichloroethylene, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
			CLEVELAND COUNTY				
06N-01W-17 BBB 1	06-08-89	1401	**	**	**	**	0.4
06N-01W-27 BBA 1	06-29-89	1246	**	**	**	**	0.5
07N-01W-07 DCD 1	06-08-89	1016	**	**	**	**	0.7
07N-01W-30 DDD 1	06-29-89	1001	**	**	**	**	0.4
07N-02W-15 AAA 1	06-12-89	946	**	**	**	**	0.4
08N-01E-09 AAB 1	07-11-88	1030	**	**	**	**	**
08N-01E-22 DDA 1	06-28-89	946	**	**	**	**	0.5
09N-01E-01 CDD 1	06-23-89	1000	**	**	**	**	0.5
09N-01E-01 CDD 1	06-23-89	1001	**	**	5.3	**	0.7
09N-01W-09 BDD 1	06-23-89	1301	**	**	4.0	**	0.6
09N-03W-18 DDA 1	06-09-89	1331	**	**	21	**	0.8
09N-03W-34 BCC 1	06-12-89	1331	**	**	30	**	**
10N-03W-30 BAB 1	06-09-89	1001	**	**	2.7	**	0.8
10N-04W-25 CBC 1	06-06-89	945	**	**	**	**	0.6
10N-04W-25 CBC 1	06-06-89	946	**	**	19	**	0.6
			LINCOLN COUNTY				
12N-02E-29 CBC 1	06-19-89	1001	**	**	1.4	**	0.7
12N-03E-10 BAB 1	07-25-89	946	**	**	**	**	0.2
14N-04E-33 CAB 1	07-24-89	1101	**	**	**	**	0.3
16N-03E-11 CCC 1	05-31-90	1130	**	**	**	**	**
			LOGAN COUNTY				
16N-01E-29 BCD 1	07-07-89	916	**	**	**	**	0.5

Table 12.—*Concentrations of organic constituents reported in quality-assurance field and trip blanks*—Continued

Local identifier	Date	Time	Site identification number	Sample type	Well number	Benzene, total (µg/L)	1,1,1-Trichloroethane, total (µg/L)	1,2-Dichloroethene, total (µg/L)
			OKLAHOMA COUNTY					
11N-01E-11 CBC 1	07-08-88	1145	352622097103401	Trip	80	**	0.2	**
11N-02W-06 AAA 1	06-07-90	931	352750097263601	Field	88	**	**	**
11N-04W-29 CDC 1	06-30-89	931	352331097384901	Field	62	**	**	**
12N-01E-11 DDC 1	06-15-89	1301	353119097094101	Field	120	**	**	**
12N-01E-36 CBB 1	06-21-89	946	352810097092901	Field	91	**	**	**
12N-01W-20 DCC 1	06-13-89	1346	352941097193501	Field	103	**	**	**
12N-01W-22 AAA 1	06-15-89	930	353025097165901	Trip	109	**	**	**
12N-01W-22 AAA 1	06-15-89	931	353025097165901	Field	109	**	**	**
12N-02W-05 BDD 1	06-27-88	1030	353244097255801	Trip	136	**	**	**
12N-02W-29 DDC 1	06-13-89	1046	352844097254001	Field	94	**	**	**
12N-03W-16 CBD 1	11-03-88	1130	353042097313801	Trip	114	1.3	**	0.2
12N-03W-35 DBC 1	07-28-89	1001	352805097290101	Field	170	**	**	**
12N-04W-17 CDA 1	06-06-89	1401	353041097384301	Field	113	**	**	**
12N-04W-27 DBC 1	06-11-90	1301	352859097363501	Field	98	**	**	**
13N-01E-31 CBA 1	06-16-89	1031	353328097144101	Field	140	**	**	**
13N-01W-30 CBC 1	06-14-89	916	353403097210901	Field	142	**	6.0	**
13N-01W-30 CBC 1	06-22-89	1001	353403097210901	Field	142	**	**	**
13N-01W-30 CBC 1	06-22-89	1002	353403097210901	Field	142	**	**	**
13N-02W-23 DDA 1	06-14-89	1246	353513097222201	Field	144	**	**	**
14N-01W-28 BBA 1	06-27-89	1001	353958097185001	Field	163	**	**	**
			POTTAWATOMIE COUNTY					
06N-03E-28 BAA 1	07-05-89	1030	345814096593301	Trip	2	**	**	**
06N-03E-28 BAA 1	07-05-89	1031	345814096593301	Field	2	**	**	**
06N-03E-28 BAA 1	07-05-89	1131	345814096593301	Field	2	**	**	**
06N-04E-35 DDD 1	07-06-89	1016	345634096503901	Field	1	**	**	**
07N-03E-01 CBB 1	06-28-89	1316	350629096565401	Field	18	**	**	**
08N-02E-05 BBA 1	06-26-89	1001	351209097071701	Field	27	**	**	**
08N-03E-18 DAA 1	06-26-89	1316	350959097011301	Field	22	**	**	**
10N-03E-22 ABB 1	06-21-89	1246	351955096582501	Field	55	**	**	**
11N-02E-10 BBA 1	06-19-89	1301	352652097050501	Field	83	**	**	**
11N-02E-25 BBC 1	06-20-89	931	352410097031401	Field	206	**	**	**

Table 12.—*Concentrations of organic constituents reported in quality-assurance field and trip blanks*—Continued

Local identifier	Date	Time	1,1-Dichloroethylene, total (µg/L)	Trichloroethylene, total (µg/L)	Trichlorofluoromethane, total (µg/L)	Methyl chloride, total (µg/L)	Methylene chloride, total (µg/L)
			OKLAHOMA COUNTY				
11N-01E-11 CBC 1	07-08-88	1145	**	**	**	**	**
11N-02W-06 AAA 1	06-07-90	931	**	**	**	<0.6	**
11N-04W-29 CDC 1	06-30-89	931	**	**	**	**	0.5
12N-01E-11 DDC 1	06-15-89	1301	**	**	**	**	0.7
12N-01E-36 CBB 1	06-21-89	946	**	**	3.1	**	0.8
12N-01W-20 DCC 1	06-13-89	1346	**	**	**	**	0.4
12N-01W-22 AAA 1	06-15-89	930	**	**	**	**	0.4
12N-01W-22 AAA 1	06-15-89	931	**	**	3.2	**	0.5
12N-02W-05 BDD 1	06-27-88	1030	**	**	0.2	**	0.3
12N-02W-29 DDC 1	06-13-89	1046	**	**	**	**	0.5
12N-03W-16 CBD 1	11-03-88	1130	**	**	**	**	**
12N-03W-35 DBC 1	07-28-89	1001	**	**	**	**	0.2
12N-04W-17 CDA 1	06-06-89	1401	**	**	14	**	0.6
12N-04W-27 DBC 1	06-11-90	1301	**	**	**	0.2	**
13N-01E-31 CBA 1	06-16-89	1031	**	**	**	**	0.7
13N-01W-30 CBC 1	06-14-89	916	1.5	0.7	5.5	**	0.7
13N-01W-30 CBC 1	06-22-89	1001	**	**	2.2	**	0.5
13N-01W-30 CBC 1	06-22-89	1002	**	**	2.2	**	0.5
13N-02W-23 DDA 1	06-14-89	1246	**	**	9.1	**	0.6
14N-01W-28 BBA 1	06-27-89	1001	**	**	**	**	0.4
			POTTAWATOMIE COUNTY				
06N-03E-28 BAA 1	07-05-89	1030	**	**	**	**	0.4
06N-03E-28 BAA 1	07-05-89	1031	**	**	**	**	0.4
06N-03E-28 BAA 1	07-05-89	1131	**	**	**	**	0.4
06N-04E-35 DDD 1	07-06-89	1016	**	**	**	**	0.5
07N-03E-01 CBB 1	06-28-89	1316	**	**	**	**	0.6
08N-02E-05 BBA 1	06-26-89	1001	**	**	**	**	0.5
08N-03E-18 DAA 1	06-26-89	1316	**	**	**	**	0.5
10N-03E-22 ABB 1	06-21-89	1246	**	**	4.0	**	0.7
11N-02E-10 BBA 1	06-19-89	1301	**	**	11	**	0.5
11N-02E-25 BBC 1	06-20-89	931	**	**	12	**	0.9

Table 13.—*Physical properties and concentrations of major ions, nutrients, and trace substances in quality-assurance reference material and blind samples*

[µS/cm, *microsiemens per centimeter at 25°Celsius;* mg/L as $CaCO_3$, *milligrams per liter as calcium carbonate;* mg/L, *milligrams per liter;* µg/L, *micrograms per liter;* (—), *indicates no data are available;* S, *indicates most probable value;* mg/L as N, *milligrams per liter as nitrogen;* mg/L as P, *milligrams per liter as phosphorus; all samples analyzed by the National Water Quality Laboratory of the U.S. Geological Survey*]

Sample type	Date	Specific conductance, laboratory (uS/cm)	Alkalinity, laboratory (mg/L as $CaCO_3$)	Solids, sum of constituents, dissolved (mg/L)	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Potassium, dissolved (mg/L)	Sulfate, dissolved (mg/L)
Reference material	04-28-88	—	—	—	S56	S20	S73	S3.7	—
Blind sample	04-28-88	—	—	—	55	20	71	3.6	—
Reference material	07-12-88	—	—	—	S68	S29	S160	S4.4	—
Blind sample	07-12-88	—	—	—	67	30	160	4.1	—
Reference material	07-12-88	S476	S67	S363	S48	S18	S40	S1.7	S180
Blind sample	07-12-88	559	69	355	49	18	41	1.6	180
Reference material	11-09-88	S415	S37	S294	S35	S15	S21	S2.6	S140
Blind sample	11-09-88	431	33	278	37	16	22	2.4	150

Sample type	Date	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Nitrite, plus nitrate, dissolved (mg/L as N)	Phosphorus, dissolved (mg/L as P)	Aluminum, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)
Reference material	04-28-88	—	—	S7.2	—	—	S120	S10	S93
Blind sample	04-28-88	—	—	7.2	—	—	120	12	86
Reference material	07-12-88	—	—	S8.1	—	—	S50	S4	S61
Blind sample	07-12-88	—	—	7.7	—	—	60	4	54
Reference material	07-12-88	S12	S1.1	S5.9	S1.20	S0.170	—	—	—
Blind sample	07-12-88	11	0.80	6.1	1.20	0.160	—	—	—
Reference material	11-09-88	S11	S0.55	S12	—	S0.130	—	—	—
Blind sample	11-09-88	11	0.50	12	—	0.035	—	—	—

Table 13.—*Physical properties and concentrations of major ions, nutrients, and trace substances in quality-assurance reference material and blind samples*—Continued

Sample type	Date	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Chromium, dissolved (µg/L)	Cobalt, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)
Reference material	04-28-88	S440	S15	S20	S6	S16	S91	S14	S46
Blind sample	04-28-88	490	14	20	5	20	97	20	49
Reference material	07-12-88	S950	S4.4	S9	S3	S12	S33	S7	S34
Blind sample	07-12-88	920	4.0	8	<3	20	34	<10	36
Reference material	07-12-88	S50	—	—	—	—	—	—	—
Blind sample	07-12-88	60	—	—	—	—	—	—	—
Reference material	11-09-88	S140	—	—	—	—	—	—	—
Blind sample	11-09-88	140	—	—	—	—	—	—	—

Sample type	Date	Manganese, dissolved (µg/L)	Molybdenum, dissolved (µg/L)	Nickel, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Strontium, dissolved (mg/L)	Vanadium, dissolved (µg/L)	Zinc, dissolved (µg/L)
Reference material	04-28-88	S28	S33	S14	S20	S6.5	S550	S9	S140
Blind sample	04-28-88	28	40	20	23	5.0	540	6	130
Reference material	07-12-88	S11	S16	S6	S49	S3.0	S760	S21	S51
Blind sample	07-12-88	9	20	<10	56	4.0	750	<6	54
Reference material	07-12-88	—	—	—	—	—	S570	S2	—
Blind sample	07-12-88	—	—	—	—	—	570	<6	—
Reference material	11-09-88	—	—	—	—	—	S270	S17	—
Blind sample	11-09-88	—	—	—	—	—	280	15	—

*U.S. GOVERNMENT PRINTING OFFICE: 1992-769-211-No Program