Water Quality Status Report No. 118

Ground Water Study of the Lower Boise River Valley Ada and Canyon Counties, Idaho

Idaho Department of Health and Welfare
Division of Environmental Quality
May 1996

Ground Water Study of the Lower Boise River Valley, Ada and Canyon Counties, Idaho

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ABSTRACT

From July 24, 1995 through October 24, 1995 a total of 335 ground water samples in the Lower Boise River Area were collected by the U.S. Geological Survey and the Division of Environmental Quality, Southwest Idaho Regional Office. This study is a continuation from the 1993-1994 sampling in the Boise area.

Field parameters were measured at each site, prior to collecting samples. All samples were analyzed for basic nutrients, volatile organic compounds, bacteria, and some sites for pesticides. Nitrate, the most prevalent nutrient, exceeded of 10 mg/l in 3% of the wells sampled. Volatile organic compounds were found in 6.5% of the sampled wells (most common constituents were tetrachloroethylene and trichloroethylene). Total coliform was found in 8% of the sampled wells and fecal coliform was found in 0.6% of the wells sampled. Pesticide samples were collected at 21 sites, 71% of the wells were impacted by pesticides (most common constituents were atrazine and simazine).

Two areas of concern were found during this study. Both areas had high nitrate levels and low VOC levels, in addition to either bacteria or pesticides. These areas are located north of Eagle/Star and northeast of Meridian.

INTRODUCTION

Background

This is a continuation of the 1993-94 Boise area sampling project. The results of the first phase of the project can be found in the report "Determination of Nature and Extent of Ground Water Contamination in Boise City and Boise Urban Planning Areas, Ada County, Idaho" (Boyle 1995) at the Division of Environmental Quality, Southwest Regional Office. The figure on page 3 shows the location of the study area and the location of all the wells sampled to date.

The focus for this phase of the study is on the ground water quality within the Boise River drainage area. The project concentrates on the area west of the City of Boise. This area is changing from rural land use to suburban and urban land use.

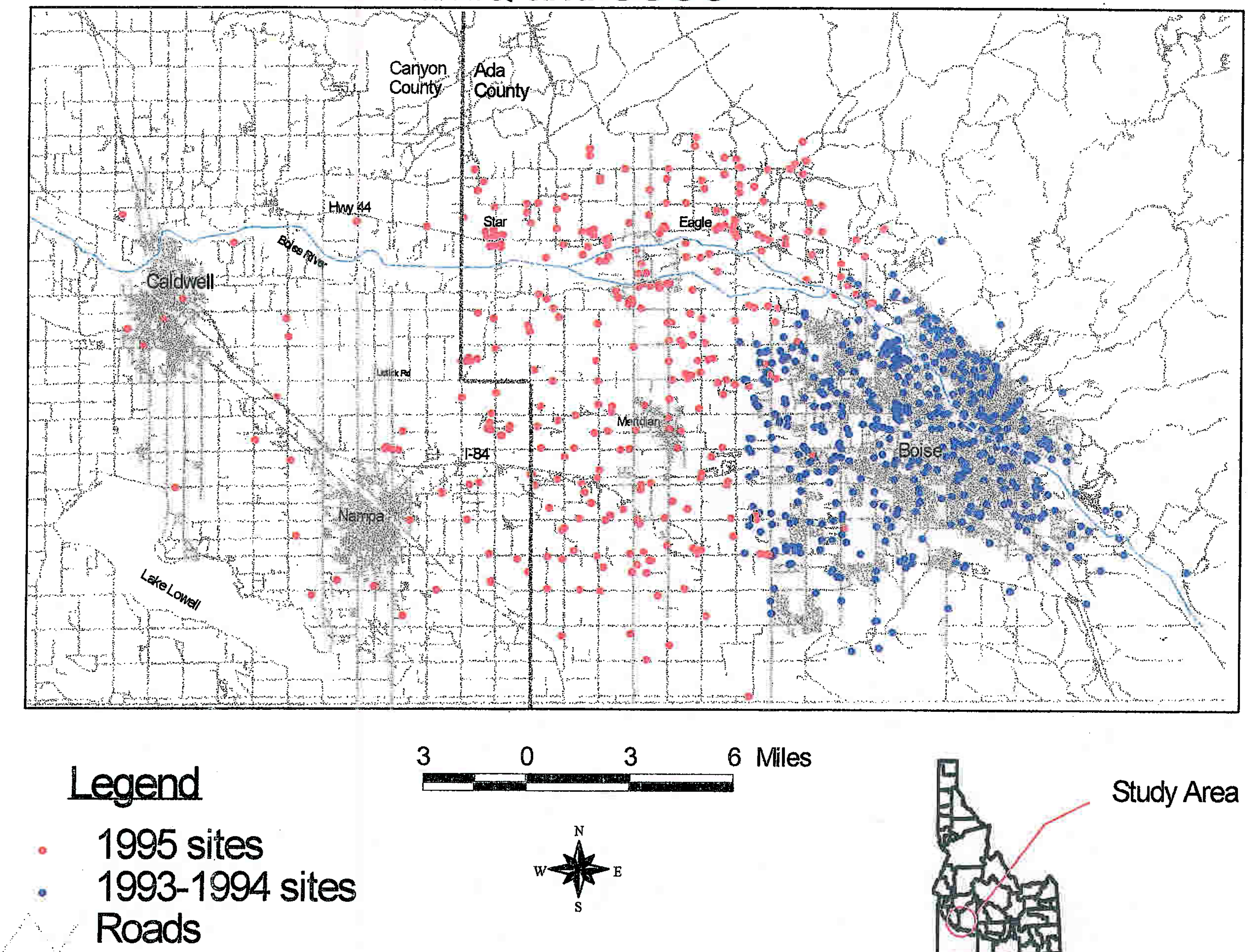
At least 90% of the drinking water in the Boise River drainage area is supplied from ground water sources (IDHW DEQ 1991). The urban, suburban, and rural areas have wells completed in a number of water-yielding zones (IDWR 1995). This report combines all the water-yielding zones into three groups; shallow is less than 150 feet below land surface, intermediate is 150-250 feet below land surface and regional is greater than 250 feet below land surface.

Shallow water zones, less than 150 feet below land surface, are the most vulnerable to contamination from industrial solvents, petroleum products, septic tank drainfield leachate, pesticides, fertilizers, and stormwater runoff. Leakage from unlined canals and ditches recharges the shallow water-yielding zones and causes substantial seasonal changes to the level of the water table. Rising water levels flush contaminants from previously unsaturated soils. Contaminants related to land and water use include nutrients, bacteria, pesticides, petroleum products, and solvents (Parliman 1993-1994).

Naturally occurring ground water contaminants include iron, manganese, fluoride, and radon (Crockett 1994). The regional cold water system is underlain by confined systems of geothermal water. Infiltration of geothermal water can elevate the levels of sulfur and fluoride in drinking water (Parliman 1993-1995).

Previous ground water studies in this area have mainly concentrated on site specific contamination, with a limited scope of information gathered. (See Collection of Historic Information and Data section under Methods and Materials for information on the site specific studies.) The purpose of this study is to document water quality on a regional scale. There are numerous benefits of

Figure 1. Sites Sampled by DEQ and USGS



a regional study for future use in the limited, or local, scale studies for private or agency use in identifying ambient water quality, water and land use, and the location of inventoried wells within the area.

Objectives

The objectives of this study are:

1. Complete a retrospective analysis of existing hydrogeologic information and data on ground water quality.

2. Document historic and current land and water use practices.

3. Analyze ground water samples to determine the nature and extent of contaminants in the shallow (<150 feet below land surface), intermediate (150-250 feet below land surface), and regional (>250 feet below land surface) water-yielding zones.

4. Publish a report on the results of the ground water study.

Project Area

The project boundaries are along the Boise foothills near the Ada County Landfill northwest to Beacon Light Road. West on Beacon Light Road to Ada/Canyon County line. Then south along the Ada/Canyon County line to Lake Hazel Road. East on Lake Hazel Road to Eagle Road. North on Eagle Road to the Boise River and back to the Ada County Landfill. In addition, approximately 50 additional samples were collected in the Nampa and Caldwell area.

Historic and Current Land and Water Use Practices

The Boise Valley has only known permanent settlers for approximately the last 160 years. Prior to 1834 the area was an important meeting place for Indians to conduct trading during their annual Sheewoki Fair (Wells, 1982). The trading would last for months along the rivers of the area.

The migratory life style of the area slowly changed with the fur traders moving into the valley in 1834. Within six years Boise's fur resources had been depleted. The main business for the few settlers that were able to eke out a living were providing supplies to the people passing through the area on the Oregon Trail.

The discovery of gold in the Clearwater-Idaho City area in 1860 quickly changed the shape of the Boise area and started rapid growth in the valley. The gold rush created booming business for the farmers and the loggers in the area.

Early farming was limited by the availability of water for the crops. By 1911 the valley had undergone significant changes with the construction of Diversion Dam and Arrowrock Reservoir, along with four major canals; the Ridenbaugh, Farmer's Union, New York and Phyllis canals to carry water miles away from the Boise River for farm use. Anderson Ranch Reservoir was started to provide an increase of irrigation water to the farms. The last dam to be built for irrigation storage was Lucky Peak Dam and was constructed by 1952.

Surface water is not been the only source of irrigation water in the valley. Ground water pumped from irrigation wells is used to supplement surface irrigation water where surface water is limited or can not be utilized. Such large amounts of irrigation water, surface and well water, being used in a semi-arid desert has significantly altered the water table level in the shallow zones of the aquifer in the valley. The use of surface water has raised the water table level in some areas considerably.

High water tables in some areas have created water logged soils, creating problems for farmers. Consequently, in these areas drains have been dug to allow drainage of the water logged soils.

During the 1950's there was a shift from septic fields to piping the waste to sewage treatment plants (Dion, 1972) in and near the cities. This also increased the development of rural land into urban use. The change of farm land to residential and business use continues today.

Farm land evolving to residential and business use is also changing the irrigation practices of the area. Residential homes and businesses use less surface irrigation water which lowers the amount of possible recharge water to the shallow zones of the artificially raised aquifer. Lowering of the ground water table may be compounded by residential and business properties using ground water for landscaping purposes, rather than surface water. The lower water table could impact the wells that have been drilled into the shallow zones of the aquifer.

The late 1970's brought the most recent change to the industrial picture with computer companies moving into the valley. Computer companies require large quantities of "clean" or uncontaminated water to manufacture computer components. The potential for problems with the increased pumping of ground water by business and residential use is being addressed on the southeast edge of Boise (Squires 1993).

Climate

The valley has a semi-arid, temperate climate characterized by cool, wet winters and warm, dry summers (Dion 1972). The mean annual temperature is 51 degrees fahrenheit. The mean annual winter and summer temperature is 33 degrees fahrenheit and 71 degrees fahrenheit, respectively. The mean annual precipitation is 11 inches; majority of the precipitation falls during the winter as snow.

Geology

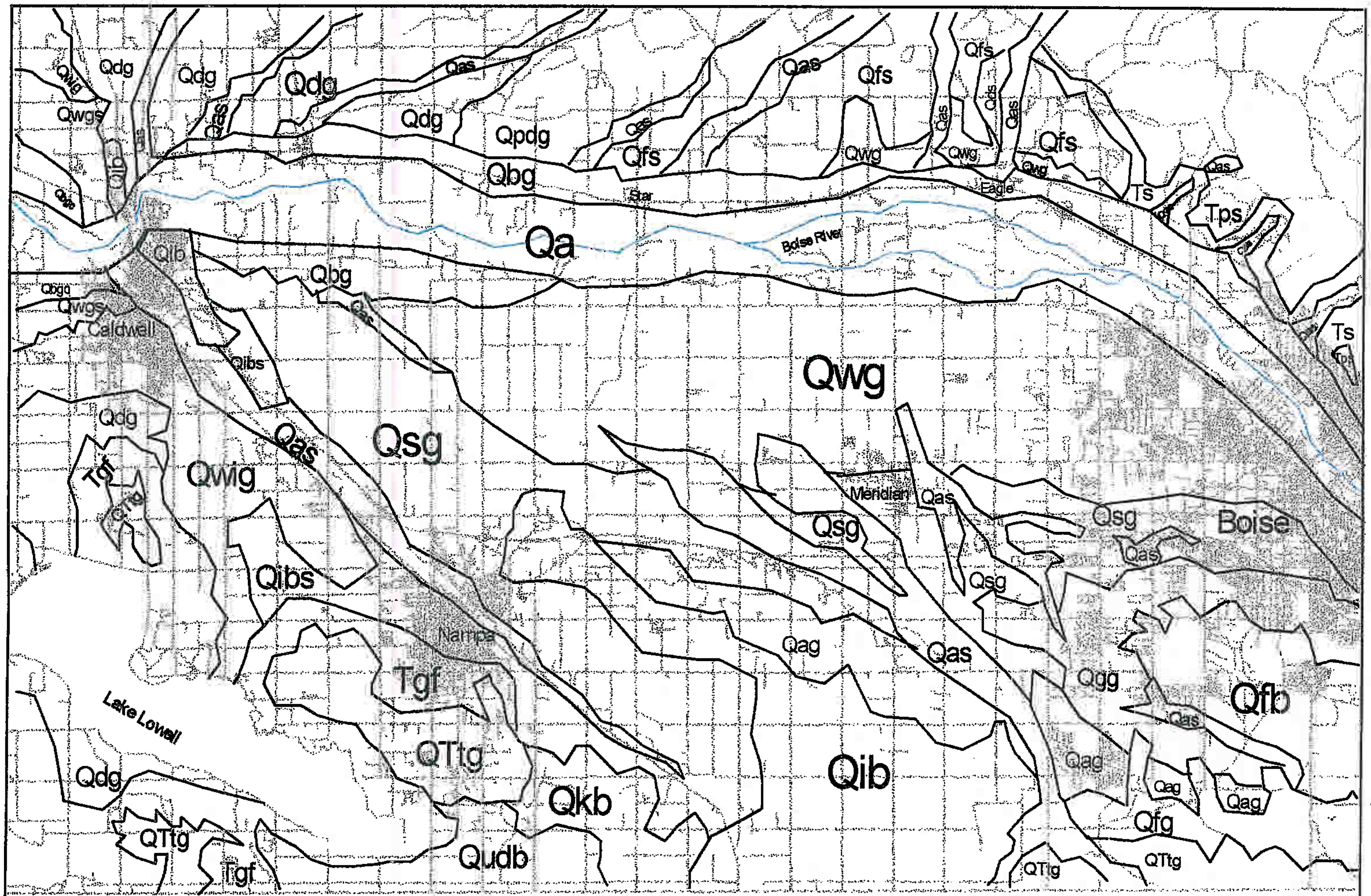
The valley has a complex geologic history of erosion, sedimentation, and intrusion. Consequently, an accurate determination of age relationships between lithologic units, especially the younger sands and gravels, is often difficult. Rock units ranging in age from Miocene to Holocene underlie the area (Dion 1972). See the figure on page 7 for a geologic map of the valley.

The Idaho batholith is the oldest rock unit that is exposed. It is composed of gray granite that weathers into rounded slopes. Rocks of the Idaho batholith probably underlie the entire area at depth and form a structural troughlike basin in which younger rocks were deposited (Dion 1972).

Columbia River basalt of Miocene and Pliocene age can be found unconformably in the valley. Overlying the Columbia River basalt are basalts of the Snake River Plain. The Snake River Plain basalts are of late Pliocene and early Pleistocene age. There is abundant evidence of minor faulting and tilting within the formation (Dion 1972).

The basalts and granitic rocks have undergone extensive weathering and erosion. As the glaciers of the Pleistocene epoch melted the valley saw torrential rivers until a basalt flow formed a dam causing the river to form a lake. The lakes lasted until a path through the basalt was created by the water. This repeated action of fast to slow moving water through the valley created from 0-5000 feet of sedimentary fill (Lindholm 1993). Finer sand and clay layers would be deposited in the slack waters of the lake conditions, then rock of sorted sizes were carried and deposited by the faster moving waters (Othberg 1994).

Larger rock deposits and isolated basalt remnants on the higher, outer edges of the moving water survived some or all the changes created by the water (Dion 1972). The rock deposits helped to build the terraces that can be found as one travels away from the Boise River floodplain.



(map adapted from
Othberg and Stanford 1992)

4 0 4 Miles

N

Figure 2. Geologic Map of the Lower Boise River Valley

Figure 3. Legend for the Geologic Map
(adapted from Othberg and Stanford 1992)

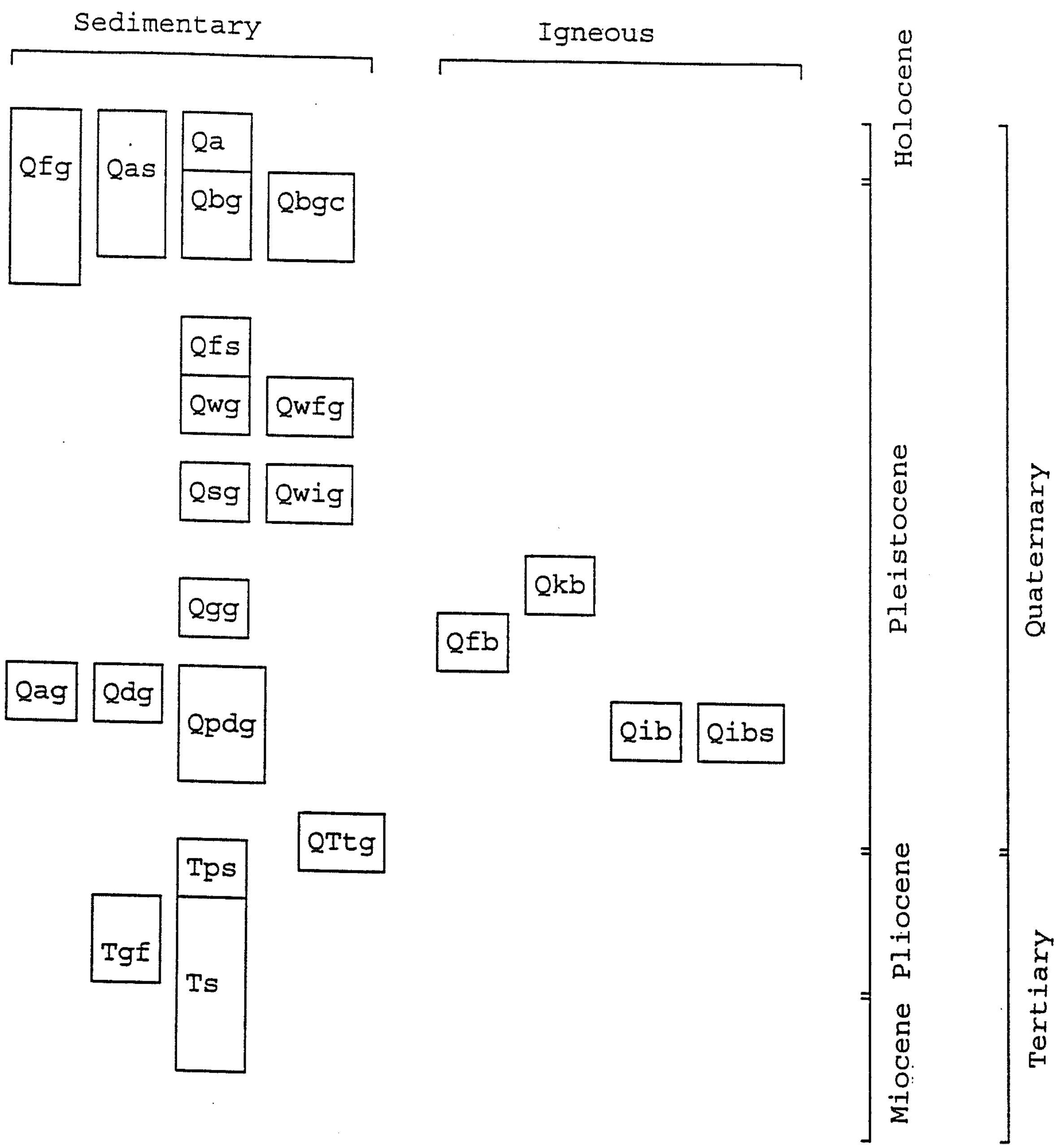


Figure 4. Map Units for the Geologic Map
(adapted from Othberg and Stanford 1992)

Sedimentary
Quaternary Sediments
Alluvium and Colluvium

Deposits of foodplains, alluvial fans, side-stream terraces, and landslides.

Qa — ALLUVIUM OF BOISE AND SNAKE RIVER - Sandy cobble gravel upstream grading to sandy pebble gravel downstream. Mostly channel alluvium of the Boise and Snake Rivers. Thickness 6-14 meters. No Pedogenic clay.

Qfg — ALLUVIUM FAN GRAVEL - Sandy pebble and cobble gravel where formed from reworked Tenmile gravel (QTtg) and sand and granule gravel where formed from weathered granite (g). Primarily formed by Pleistocene debris flows and local high-energy streams during times of greater runoff. Loess 1-2 meters thick discontinuously covers surface of gravel. Patterned ground present. Amount of pedogenic clay and presence of duripans varies.

Qas — SANDY ALLUVIUM OF SIDE-STREAM VALLEYS AND GULCHES - Medium to coarse sand interbedded with silty fine sand and silt. Sediment mostly derived from weathered granite and reworked Tertiary sediments. Thickness variable. Minor pedogenic clay and calcium carbonate.

Qfs — SAND OF INCISED ALLUVIAL FANS - Medium to coarse sand interbedded with silty fine sand and silt. Mostly reworkd Tertiary sediments deposited in local alluvial fans. Thickness 1-15 meters. Pedogenic clay 10-20%; duripans locally present.

Bonneville Flood Deposits

Consists primarily of fine-grained sediments of the Bonneville Flood slack water that inundated the Snake River Valley and the lower Boise River Valley. Includes gravels deposited in high-energy flood channels. The surface of sediments deposited by the Bonneville Flood show minor accumulations of pedogenic clay and calcium carbonate. Slack-water sediments bury loess and soils of older surfaces.

Qbgc — CLAY OF BONNEVILLE FLOOD SLACK WATER - Light tan silty clay 1-2 meters thick. Deposited by slack water of Bonneville Flood upstream from Parma. Buries gravel of Boise terrace.

Qgg	GRAVEL OF THE GOWEN TERRACE
Qag	GRAVEL OF THE AMITY TERRACE
Qdg	GRAVEL OF THE DEER FLAT TERRACE
Qpdg	GRAVEL OF THE DEER FLAT AND PRE-DEER FLAT TERRACES, UNDIVIDED
QTtg	TENMILE GRAVEL

Tertiary Sediments

Tps	SAND OF THE PIERCE GULCH FORMATION
Tgf	GLENNS FERRY FORMATION
Ts	SAND AND MUDSTONE OF STREAM AND LAKE SEDIMENTS

Igneous Rocks
Quaternary Basalts

Basalt lava flows primarily erupted from three sources during the Pleistocene: the northwest-southeast axis of the western Snake River Plain; Smith Prairie; and along the edge of the plain southeast of Boise. The basalts inundated ancestral valleys and plains. Their resistance to erosion helped preserve the terrace remnants they cap. The early Pleistocene basalt flows diverted the Boise River northward and the Snake River westward.

Qib	BASALT OF LUCKY PEAK
Qkb	BASALT OF KUNA BUTTE
Qfb	BASALT OF FIVEMILE CREEK
Qibs	BASALT FLOWS OF INDIAN CREEK BURIED BY LOESS AND STREAM SEDIMENTS

Hydrogeology

The Boise River valley ground water system is primarily within unconsolidated deposits of silt, sand, clay and fine gravel (Graham and Campbell 1981). Water quality within the Boise River valley ground water system varies by the strata within the sedimentary layers that the water flows through. The zones of the aquifer are interrelated, with clay layers functioning as limited divisions to the water bearing zones (IDWR 1995). The overall general direction of the ground water movement is to the northwest as shown in the figure on page 12.

This regional cold water system is underlain by confined systems of geothermal water (Wood 1983). The emphasis of this report is only on the regional cold water system.

METHODS AND MATERIALS

Collection of Historic Information and Data

A number of sites with impacted ground water were found during the previous stage of this project in the Boise area by DEQ and USGS. Sites with known ground water contamination where located in the files at the Division of Environmental Quality - Southwest Idaho Regional Office (DEQ-SWIRO). Some sites have been identified by the Statewide Ground Water Quality Monitoring Program. The figure on page 13 shows the location of all sites found with historic data.

The Statewide Ground Water Monitoring Program has identified domestic wells with elevated concentrations of nitrate and/or pesticides. (Safe drinking water levels are based upon U.S. EPA 1995 Drinking Water Regulations and Health Advisories.) One domestic well in northwest Boise was identified to have nitrate levels greater than the maximum contaminant level (MCL) of 10 milligrams per liter. An area north of the Eagle/Star area has two domestic wells that are impacted with nitrates above the MCL and a third just below the MCL for nitrate. In addition to nitrate these wells were found to have been impacted by 1,2-dichloropropane, 1,2,3-trichloropropane, and Dacthal.

Files at DEQ-SWIRO contain information with ground water impacted by tetrachloroethylene and petroleum products. Two files refer to the tetrachloroethylene contamination in northwest Boise and north

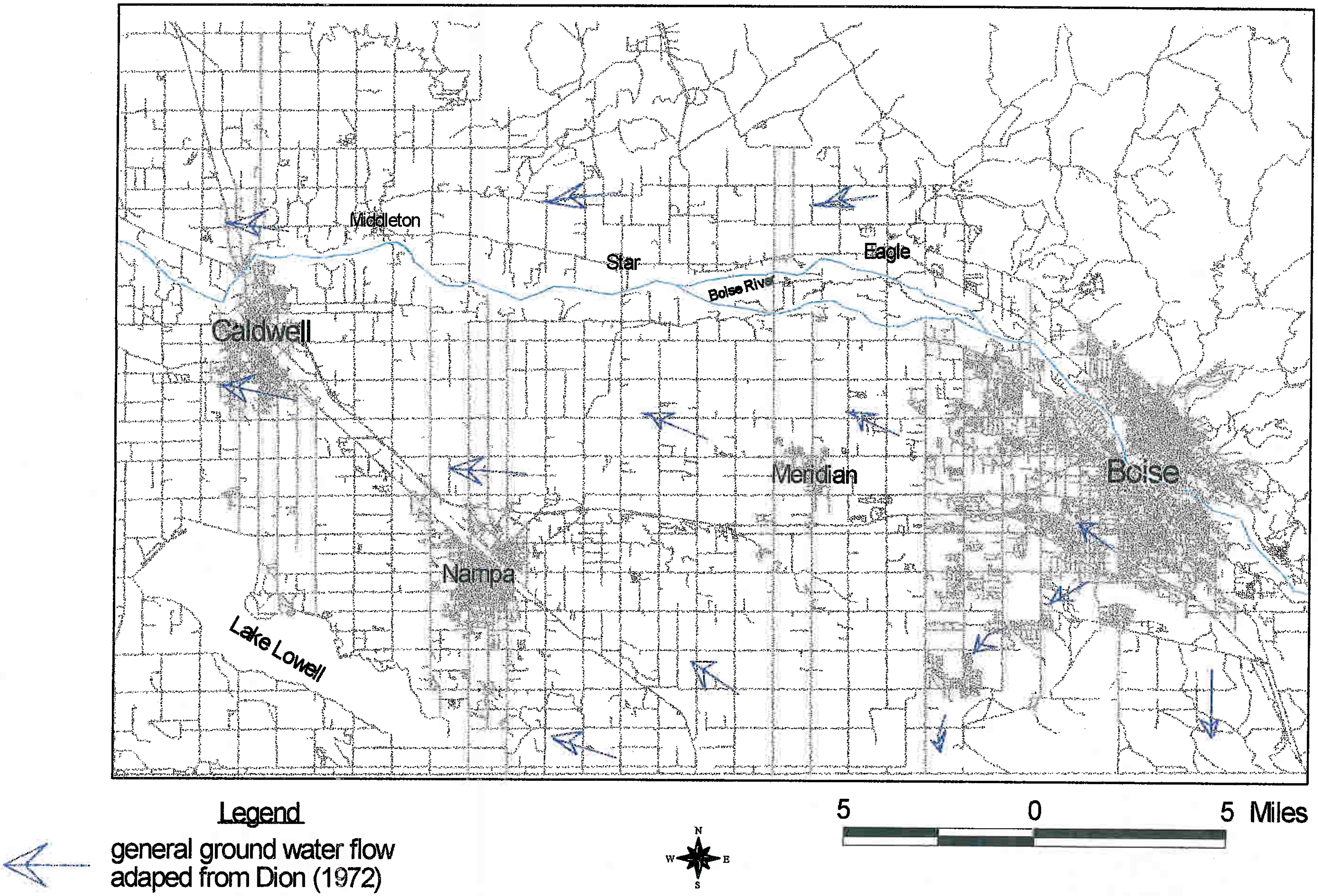


Figure 5. Ground Water Flow in the Lower Boise River Valley

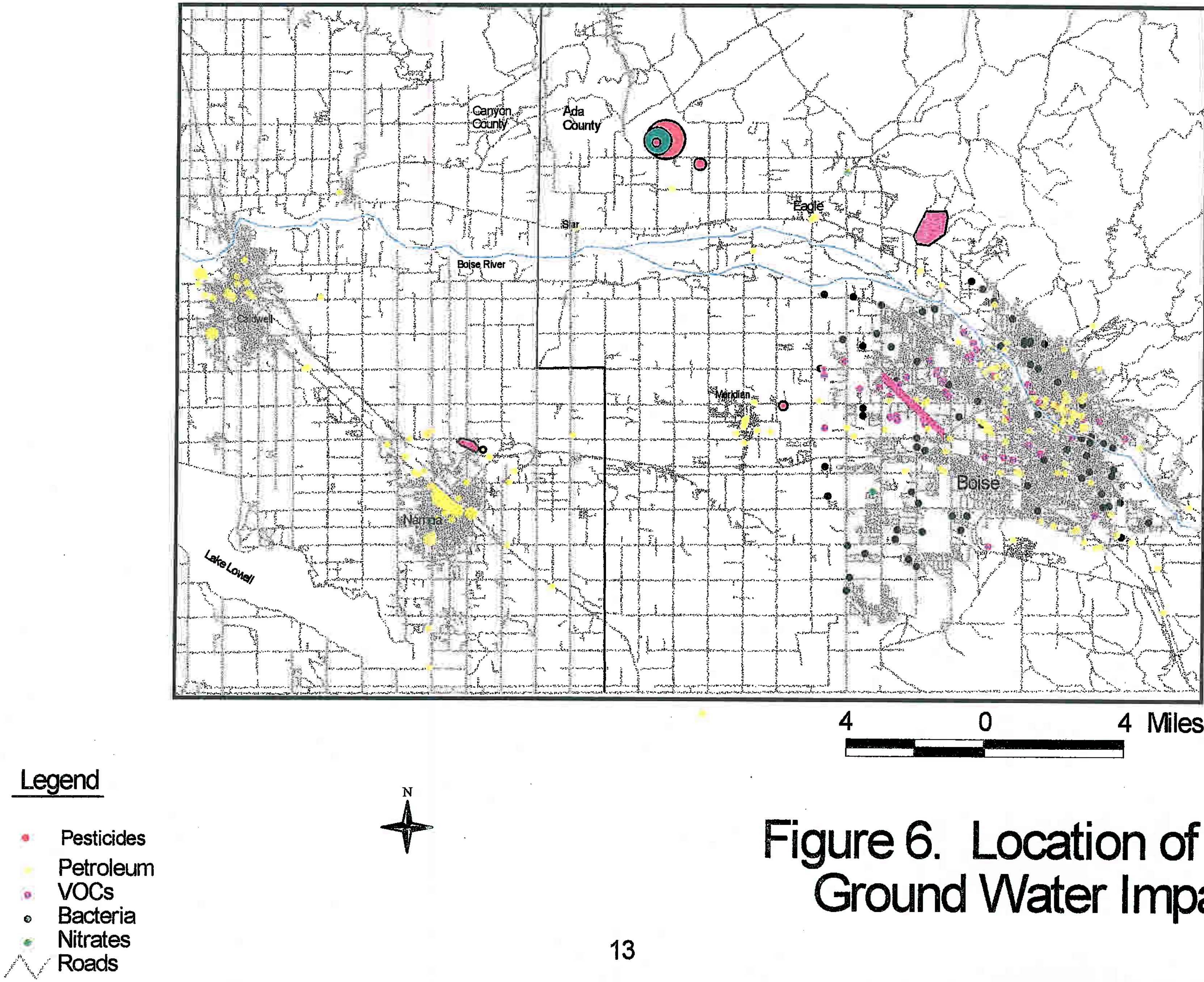


Figure 6. Location of Historic Ground Water Impacts

of Nampa, both sites have domestic wells that have been impacted. The petroleum contamination within the cities of the study area are site specific with contamination defined by monitoring wells installed for delineation and/or remediation purposes. Ongoing remediation is taking place at four sites in Eagle, seven sites in Meridian, sixteen sites in Nampa, thirty-nine sites in Boise, and twenty-two sites in Caldwell (DEQ 1996).

There are a number of well sites with VOCs and bacteria in the Boise area. These sites were identified from previous sampling conducted by DEQ and USGS. These results can be found in the report, "Determination of Nature and Extent of Ground Water Contamination in Boise City and Boise Urban Planning Areas, Ada County, Idaho" (Boyle 1995) at the Division of Environmental Quality, Southwest Regional Office.

Selection of Wells for Sampling

Wells that were selected for sampling had pumps installed in them to avoid the costly and time consuming process of decontamination between wells. Domestic and irrigation wells were prioritized to determine if they would be an adequate selection for the project objectives. First priority were wells that had historical data from previous sampling or studies. Second priority were the wells with a well driller's log available from the Idaho Department of Water Resources. Third priority were wells that were known in a crucial area that did not have an available well driller's log or had prior sampling results.

A diagram of each well was made by going to the area and sketching the well location. The final selection of wells was based on a thorough coverage of the sampling area, to eliminate clustering of wells. A map of well locations is shown in the figure on page 15.

A permission letter was sent to each owner of wells selected for sampling. Additional wells in a given area were chosen if a permission letter for that area was not returned or permission was not granted.

Parameter Selection and Rationale

Field Parameters

Specific conductance, pH, water temperature, and dissolved oxygen were utilized to determine when the well had been adequately purged prior to sampling, these measurements were taken approximately every five minutes. After all field parameters had stabilized for

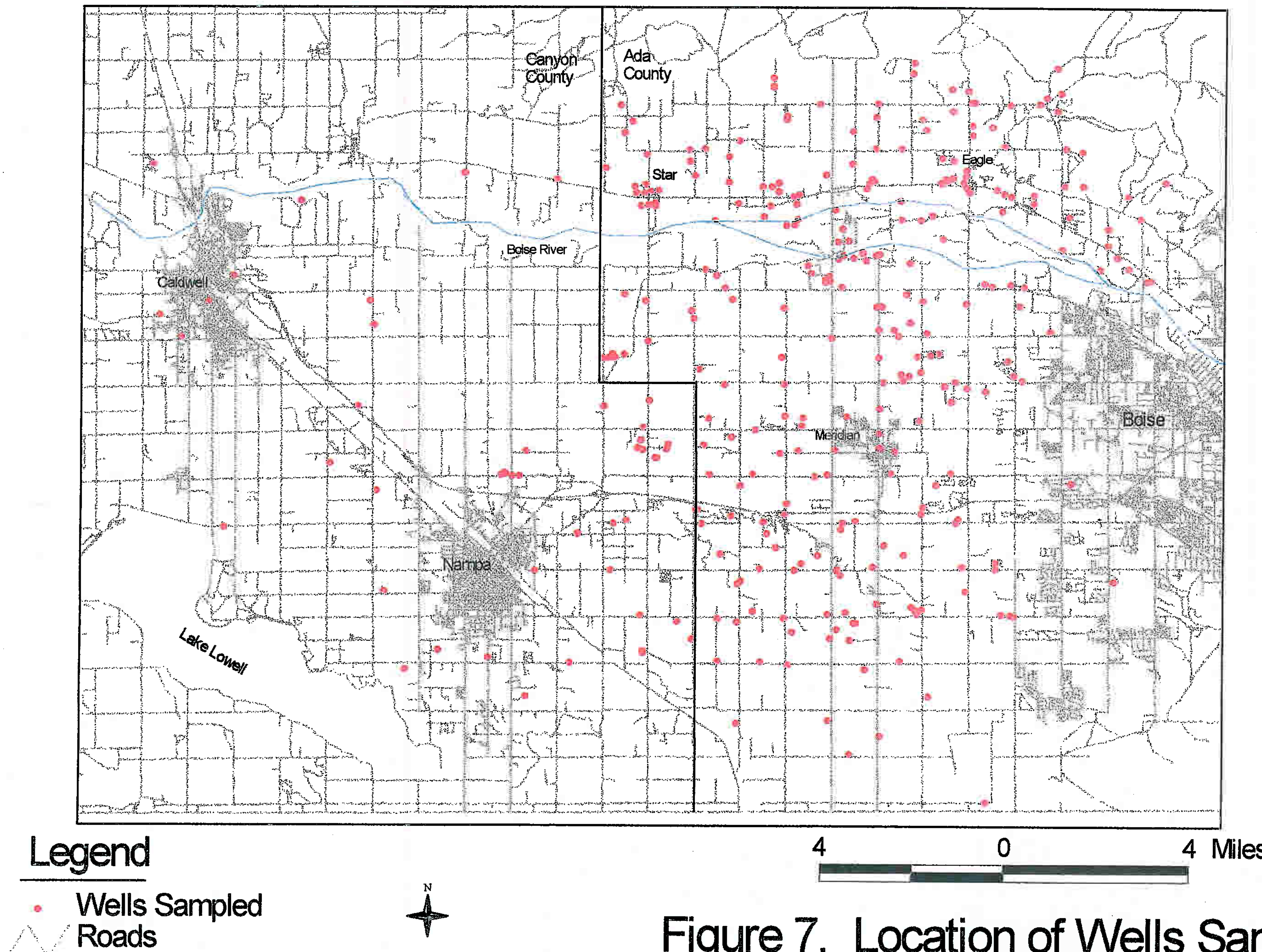


Figure 7. Location of Wells Sampled

at least two measurements the samples were collected.

Total Coliform and Fecal Coliform

Bacteriological analyses are the principle tests used to assess the sanitary quality of water and the potential health risk from waterborne disease (Sylvester 1990). Total and fecal coliform can show a possible impact from land and water use, failing septic systems, and/or stormwater.

Volatile Organic Compounds

Volatile Organic Compounds (VOCs) analyses can show a potential impact to ground water from human made and human introduced compounds. Water Quality Standards and Wastewater Treatment Requirements (IDAPA 1993) state a potential health hazard with drinking water with small amounts of VOCs, in the parts per billion range.

Metals

Metals are sampled in some of the wells in the project to address the possible differences of metal concentration in the different water-yielding zones of the aquifer. Samples are also taken where there is a suspected potential problem from human impact, such as at former landfill sites.

Ions

Ions are sampled in some of the wells in the project to address the possible differences of ionic concentration in the different zones of the aquifer.

Nutrients

Nutrients are found naturally in ground water, different areas and zones of the aquifer have different concentrations of nutrient constituents. Increased levels can show human land and water use impact.

Radon

Radon was selected to obtain a view of the radon concentration in the Boise valley in the different zones of the aquifer. Radon is being considered to be regulated by EPA for public water supply systems. The Boise valley has shown significant concentrations of naturally occurring radon.

Pesticides

Pesticides in ground water show an impact from agricultural land use. The Boise valley has historically had the residential growth taking place in the former agricultural areas.

Sampling/Collection Methods

At each site, the outside faucet or hydrant located closest to the well was chosen as the sampling location. A hose was connected to the faucet or hydrant with a splitter and a short section (approximately 5 feet) of hose placed at the end. The faucet or hydrant was then turned on the full amount possible. The longer or main hose was given the majority flow of water with a controlled amount of water flowing into a bucket from the shorter hose.

A bucket was used to best imitate a flow through chamber in order to best represent the zone or zones of the aquifer in which the well was installed. The meters used to collect the field parameter data were placed in the bucket. The meters used were for measuring temperature, pH, specific conductance, and dissolved oxygen.

Measurements with the meters were taken about every five minutes and recorded on a field sheet. Sampling time was determined when the meters had stabilized for at least two measurements. The stabilized field parameter measurements indicate chemical stability of the ground water entering the well and directly being pumped out. This was important in order to sample for aquifer characteristics versus the water that was allowed to sit in the well casing and possibly being altered by the materials of the well casing and the atmosphere.

After the chemical stability of the ground water has been determined, the hoses were removed. The faucet or hydrant was allowed to run for 10-15 seconds prior to the samples being collected. Latex gloves were put on in order to eliminate cross contamination from the hands. An in-line filter, with 0.45 micron filter was attached to the faucet or hydrant. Water was allowed to run through the filter for 10-15 seconds. Then samples were collected for nutrients and ions, each in a separate triple field rinsed 125 ml polyethylene bottle filled to the neck of the bottle and tightly capped.

The in-line filter was then removed and a small stream of water was allowed to run from the faucet in order to collect the remaining samples. A bacteria sample was collected in a sterile 250 ml polyethylene bottle, the bottle was filled to the neck and tightly capped. Care was taken to not touch the faucet or hydrant with the sample bottle for all samples collected.

A 500 ml polyethylene bottle was triple rinsed in the field and filled the neck and tightly capped. This sample was used to run a HACH nitrate test at the USGS Laboratory.

Three 40 ml glass bottles were used for collecting VOC samples. Two of the bottles were preserved in the field with HCl. The third bottle was not preserved since it was ran through the portable gas chromatogram at the regional USGS Laboratory in Boise, Idaho. All bottles were filled to the top, with meniscus at the lip of the bottles and then tightly capped with a teflon-lined cap. The bottles are checked for air bubbles, if there was a bubble more water was added to remove the air and then tightly resealed.

Radon was collected with a syringe. The syringe was triple rinsed with the flowing water. The needle of the syringe was then placed directly into the water stream. A few volumes of water was collected and pushed through the syringe. A full syringe volume was collected, making sure that no air bubbles were present. All but 15 ml are removed as the lid of a 25 ml glass bottle with 10 ml of mineral oil was carefully removed and 10 ml of the water in the syringe was put into the bottle with the needle placed at the bottom of the bottle so that the ground water sample was placed below the mineral oil, the remaining 5 ml in the syringe was not used for the sample. The bottle was vigorously shaken after tightly replacing the cap.

All samples were labeled with site identification number, project number, type of analysis, date, and time. These are then placed in a cooler with ice, until arriving at the USGS Laboratory at the end of the day.

At the site, a clean beaker and graduated cylinder was triple rinsed with the flowing water. Then 50 ml of water was measured with the graduated cylinder and placed in the beaker. This water was then titrated with H2SO4 to calculate alkalinity and bicarbonate.

The field sheet was filled out to note all necessary information of the sampling procedure at every site, any comments relevant to the site and a chain of custody sheet was filled out for the VOC samples. A copy of the field sheet and chain of custody sheet can be found on page 20 and 22, respectively. All equipment used at each site was triple rinsed with deionized water then carefully packed to be re-used at the next site.

At the regional USGS Laboratory in Boise, Idaho all samples, except the 500 ml and 125 ml polyethylene bottle and the unpreserved VOC sample, were placed in the sample refrigerator until they were packed on ice and shipped to the USGS Laboratory in Arvada, Colorado. The sample in the 500 ml polyethylene bottle was used to run the HACH NO2/NO3 at the USGS Laboratory. The sample collected in the 125 ml polyethylene bottle was used to plate for total bacteria and fecal bacteria. The unpreserved VOC bottle was analyzed with a Photovac 10-S Portable Gas Chromatograph to determine presence or absence of VOCs. If VOCs were present, the duplicates are shipped to Alpha Analytical Laboratory in Sparks, Nevada.

Frequency

Sampling started in July 1995 and continued until the end of October 1995. 335 domestic and irrigation wells were sampled one time for this project.

RESULTS

Well Depths

Well depths were grouped into three ranges for this project. Wells that were less than 150 feet below ground surface are considered shallow. Wells greater than 150 feet and less than 250 feet below ground surface are considered intermediate. Wells greater than 250 feet below ground surface are considered regional. These ranges are an arbitrary choice and not dependant on geology. See the geology section of this report for more information on the geology. The breakdown of the depths of the wells sampled are listed in Table 1 on page 23.

Figure 8. Field Sheets

U.S. GEOLOGICAL SURVEY, WRD, GROUND WATER QUALITY FIELD NOTES

Project :Lower Boise River Valley -- 4716-18400

Loc. Well No. ____________________

Site I.D. ____________________

Date ____________________ 1995

Time ____________________

Owner ____________________

Address ____________________

Sampled by-- LINDA BOYLE, IdH&W,DEQ (SWIRO)_

Time Pumped before sampling ______________ (minutes)

Record Number QWDATA ____________________

FIELD MEASUREMENTS

Temp. Water (00010) __________ °C

Temp. Air (00020) __________ °C

pH (00400) __________ units

Sp. Cond. (00095) __________ µS/cm25°C

Dis. Oxy. (00300) __________ mg/L

Bar. Press. (00025) __________ mm Hg

Alkalinity (00410) __________ mg/L

Bicarbonate (00440) __________ mg/L

Carbonate (00445) __________ mg/L

E. Coli (31648) __________ col./100 mL

FS (31673) __________ col./100 mL

FC (31625) __________ col./100 mL

TC (31501) __________ col./100 mL

Other ____________________

Other ____________________

HACH NITRATE = ____________________

Standard = ____________________

pH

pH Buffer	PH Buffer Temp °C	Auto Adjusted Reading
__.____		
__.____		
__.____		

Serial No. ______________ METER Make/Model *Orion/230A*

electrode type ______________

Orion 250A: calibration slope __________

(Auto temp. compensating)
(Measurement in bucket)

FIELD pH = __________

SPECIFIC CONDUCTANCE

standard value	Temp Std °C	Initial Reading	Probe Adj.	Final Meas.

Serial no. ______________

METER Make/Model *Orion/122*

(Auto temp. compensating)
(Measurement in bucket)

FIELD CONDUCTANCE = __________

DISSOLVED OXYGEN

Serial no. ______________ METER Make/Model *Orion/810*

Orion 820: calibration slope __________

____ Air calibration Chamber in Air

H2O Temp. __________ °C

Bar. Press __________ mm Hg (mm = In. X 25.4)

GROUND WATER D.O. = __________

REMARKS

Sample Point: ____________________

Color - Odor? ____________________

Other: ____________________

GROUND WATER STABILIZATION MONITORING TABLE

Time	T °C	pH	Sp. Cond.	D.O.	Comments
H20 on:					

ALKALINITY

Volume titrated	Sample Temp. °C	pH

Acid 1.6N. 0.1600N. 0.01629N. Other____

Acid Lot No. ____________________

Sample Volume ____________________mL

Sample stirred:

_______magnetically _______manually

Fixed endpoint

Date ____________________ Time ____________________

A = DC or mLs acid from initial pH to endpoint near 8.3 ____________

B = DC or mLs acid from initial pH to endpoint near 4.5 ____________

CALCULATION:

$$CO_3 = A \times \frac{F_1}{ml\ sample} \times CF = \_\_\_\_\_\_ (00445)$$

$$HCO_3^- = [B - 2(A)] \times \frac{F_2}{ml\ sample} \times CF = \_\_\_\_\_\_ (00440)$$

$$ALKALINITY\ as\ CaCO_3 = B \times \frac{F_3}{ml\ sample} \times CF = \_\_\_\_\_\_ (00410)$$

FACTORS	DIGITAL COUNT TITRATION (DC)	
	Using 0.1600 normal	Using 1.60 normal
F1	12.0	120
F2	12.2	122
F3	10.0	100

TOTAL COLIFORM (31501)

Time collected: ____________

Time In @ 35 °C__________ Date: ____________

Time in @ 44.5 °C ____________

Time out: Date:

Vol (ml)	Count	cal?	Remarks*
Blank			
Blank			

*Remarks 1=Less than 2=Greater than 0=Est. ct. K=non ideal ct.

Incub. Time 2 hrs. @ 35 °C followed by:

filt. size __________ 20-24 hrs @ 44.5°C

Ideal count 20-80 col.

E. COLI COUNT /100 mL__________

Note: col. count = (count x 100) ÷ mL sample

FECAL STREPTOCOCCI (31673)

Time collected: ____________

Time In: __________ Date: ____________

Time out: Date:

Vol (ml)	Count	cal?	Remarks*
Blank			
Blank			

*Remarks 1=Less than 2=Greater than 0=Est. ct. K=non ideal ct.

Incub. Time 46-50 hrs filt. size ________

Ideal count 20-100 col. Incub. Temp 35 °C

FS COUNT /100 mL__________

Note: col. count = (count x 100) ÷ mL sample

FECAL COLIFORM (31625)

Time collected: ____________

Time In: __________ Date: ____________

Time out: Date:

Vol (ml)	Count	cal?	Remarks*
Blank			
Blank			

*Remarks 1=Less than 2=Greater than 0=Est. ct. K=non ideal ct.

Incub. Time 22-26 hrs filt. size ________

Ideal count 20-60 col. Incub. Temp 44.5 °C

FC COUNT /100 mL__________

Note: col. count = (count x 100) ÷ mL sample

U.S. Geological Survey
230 Collins Road
Boise, Idaho 83702

Page_____of _____ pages.

CHAIN OF CUSTODY RECORD

Project Number: 4716-18400 LOWER BOISE RIVER VALLEY STUDIES--1995-1996
Samplers: (Signatures)

Site I.D. Number	Location/Well Number	Date	Time	Type	# of bottles	Remarks

Relinquished by: (Signature) ________________ Date _______ Time _______ Received by: (Signature) ________________
Relinquished by: (Signature) ________________ Date _______ Time _______ Received by: (Signature) ________________
Relinquished by: (Signature) ________________ Date _______ Time _______
Received for Laboratory by:

Table 1. Number of Wells Sampled by Well Depth			
Well Depth	Number of Wells	Domestic Use	Irrigation Use
Shallow - <150 feet	223	182	41
Intermediate - 150-250 feet	82	78	3
Regional - >250 feet	30	25	5

Field Parameters

At every site meters were used to measure temperature, specific conductance, pH, and dissolved oxygen. Alkalinity was calculated at every site by an acid titration method. A list of the field parameter ranges found in the study area can be found in the following table.

Table 2. Selected Water Quality Statistics					
Field Parameters	Number of Samples	Median	Mean	Range	
				Minimum	Maximum
Temperature (°C)	342	14	14.28	11.5	24.5
Specific Conductance (uS/cm at 25°C)	342	487	478	104	1050
pH (standard units)	342	7.3	7.2	5.6	8.8
Alkalinity (mg/l as CaCO3)	342	193	187	35	427
Dissolved Oxygen (mg/l, >7 considered saturated)	225	5.3	4.8	0	>7

Nitrate

Agriculture is the major land use in the study area. There is the potential for nitrate to impact ground water from agricultural practices such as confined animal feeding operations and fertilizers. Septic tanks, decaying organic matter, and storm water have the potential to elevate the nitrate concentration in the ground water.

There was a low percentage of wells (3%) with nitrate results greater than 10 mg/l; the drinking water regulatory level (U.S. EPA 1995). All of these samples were collected from shallow wells. Ten wells were sampled and found to have nitrates greater than the MCL of 10 mg/l. Six of these wells had other constituents of concern in their results. Three wells were impacted by VOCs and/or pesticides in addition to the elevated nitrates. Three wells had total coliform in addition to the elevates nitrates.

Table 3 displays the number of wells with the range of nitrate results by the depth of the well. See the figure on page 25 for the location of the wells listed in Table 2.

Table 3. Nitrate Ranges by Well Depth

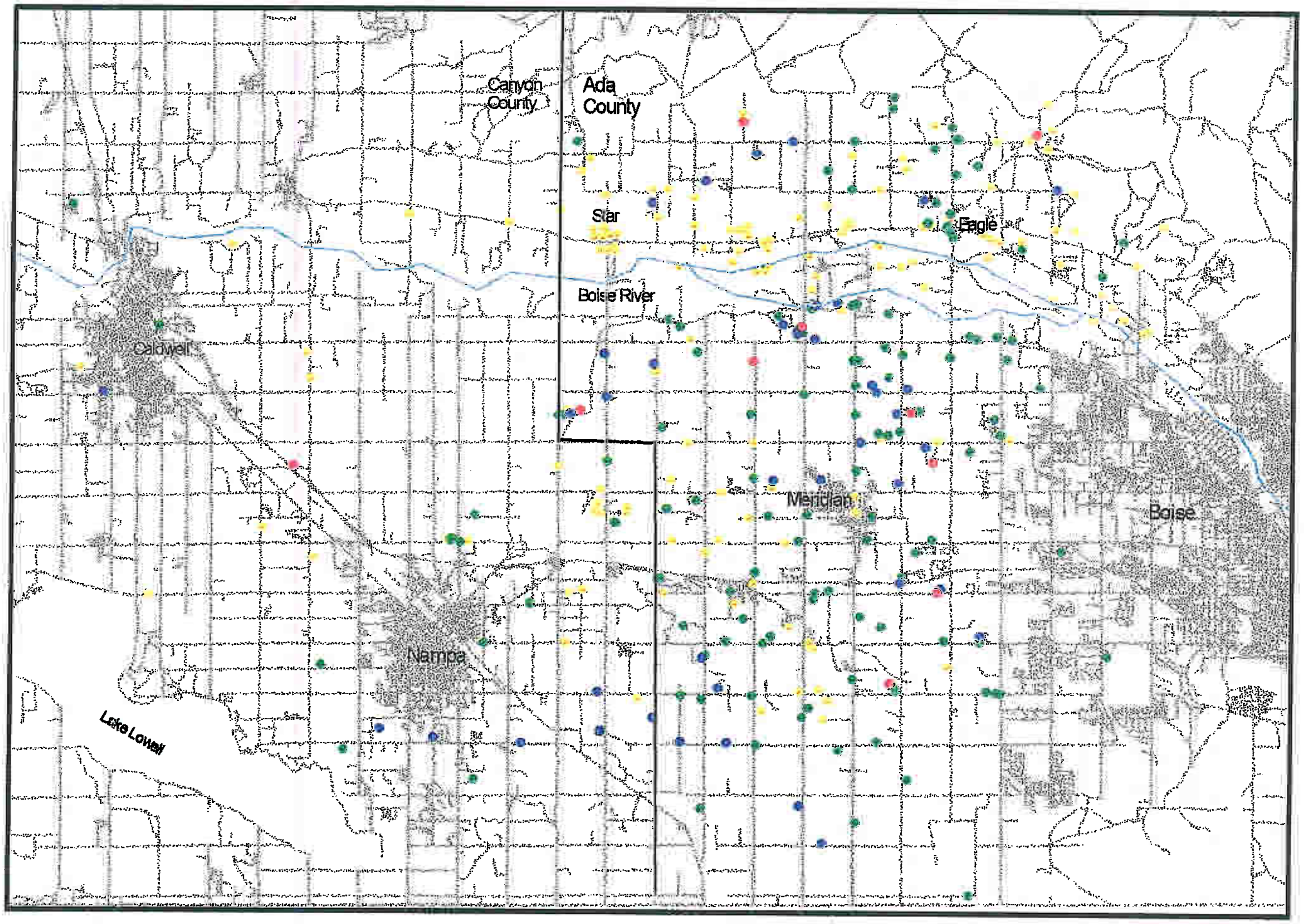
A total of 335 nitrate samples collected

Well Depth	Ranges of Nitrate Levels			
	<2 mg/l	>2-<5 mg/l	>5-<10 mg/l	>10 mg/l
<150'	86	89	38	10
150'-250'	41	35	6	0
>250'	21	9	0	0

Volatile Organic Compounds (VOCs)

There were 7% of the wells sampled with positive results for VOCs in the study area. See the figure on page 26 for location of wells impacted by VOCs.

Tetrachloroethylene was still the most common VOC constituent found



Legend

- NO3 (>10 mg/l)
- NO3 (5-10 mg/l)
- NO3 (2-5 mg/l)
- NO3 (<2 mg/l)
- Roads

4 0 4 Miles

N

Figure 10. Ranges of Nitrates in Wells

2 wells with
VOCs >5 ug/l
and 3 wells with
VOCs <5 ug/l

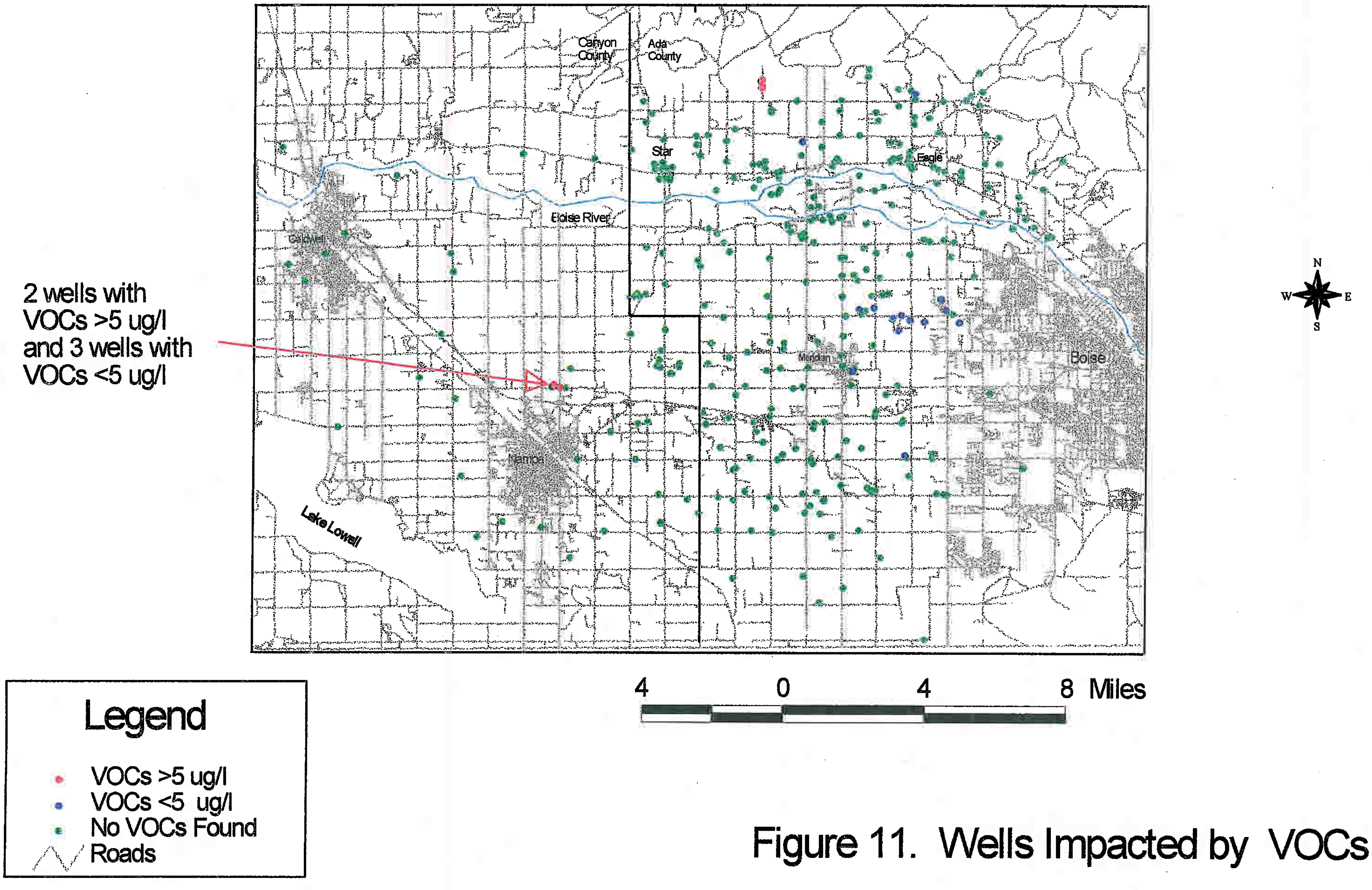


Figure 11. Wells Impacted by VOCs

throughout the study area, similar to the Boise area study results conducted in 1993-1994. 1,2,3-trichloropropane was found in three wells a short distance from each other in the Eagle/Star area. Other VOCs found were trichloroethane, 1,2-dichloropropane, 1,1,1-trichloroethane, chloroform, bromoform, dibromochloromethane, bromodichloromethane, 1,1,2,2-tetrachloroethane, sec-butylbenzene, isopropyl benzene, and 1,2,4-trimethyl benzene.

Twenty-two wells showed impacts from VOCs. Nineteen of the wells were shallow, the remaining three wells were intermediate. The following table displays the number of wells with the range of VOC results by the depth of the well:

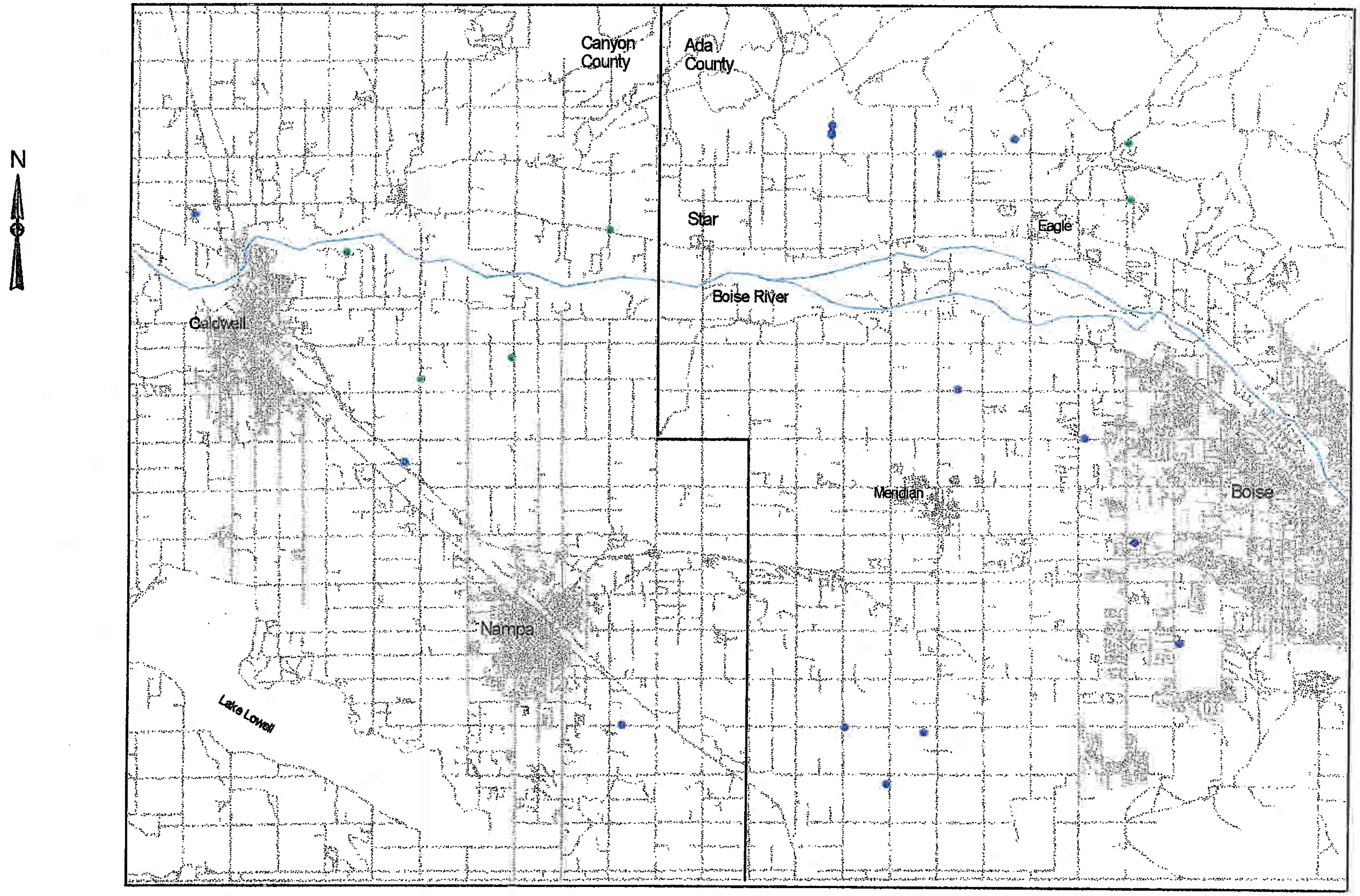
Table 4. VOC Ranges by Well Depth

A total of 335 VOC samples collected

Well Depth	Ranges of VOC Levels			
	<2 ug/l	>2-<5 ug/l	>5-<10 ug/l	>10 ug/l
<150'	217	1	1	4
150'-250'	82	0	0	0
>250'	30	0	0	0

Pesticides

The listed pesticide samples were collected by USGS for the Statewide Ground Water Monitoring Program in this study area have been included in this report. A were total of twenty-one pesticide samples were collected in this project area. Pesticide levels were found in fifteen of the twenty-one samples. High levels of dacthal (38 and 110 ug/l) were found in two wells in close proximity to each other, in the Eagle/Star area. The other thirteen wells had low levels of mainly atrazine and simazine, these thirteen wells are distributed throughout the study area. See the figure on page 28 for the location of wells with positive pesticide results. Table 5 shows the number of positive pesticide



Legend

- No Pesticides Detected
- Pesticides Detected
- Roads

4 0 4 Miles

Figure 12. Wells Sampled for Pesticides

results by well depth:

Table 5. Number of Positive Pesticide Results by Well Depth			
A total of 21 pesticide samples collected			
Well Depth	Wells Impacted by Pesticides	Domestic Use	Irrigation Use
<150'	11	12	2
150'-250'	4	5	2
>250'	0	0	0

Bacteria

A total of 26 wells, from 310 sampled, had total coliform colonies growing on the agar plates. Two of the 26 wells with total coliform also had fecal coliform in the sampled well water (both of these wells were used for irrigation purposes). The figure on page 30 shows the location of the wells impacted by bacteria. The following table lists the wells with bacteria by depth and use:

Table 6. Bacteria Results by Well Depth and Water Use				
Well Depth	Total Coliform	Fecal Coliform	Irrigation Use	Domestic Use
	Total of 310 Samples Collected	Total of 331 samples collected		
	Positive Results			
<150'	22	2	13	9
150'-250'	2	0	0	2
>250'	1 (stock use)	0	0	0

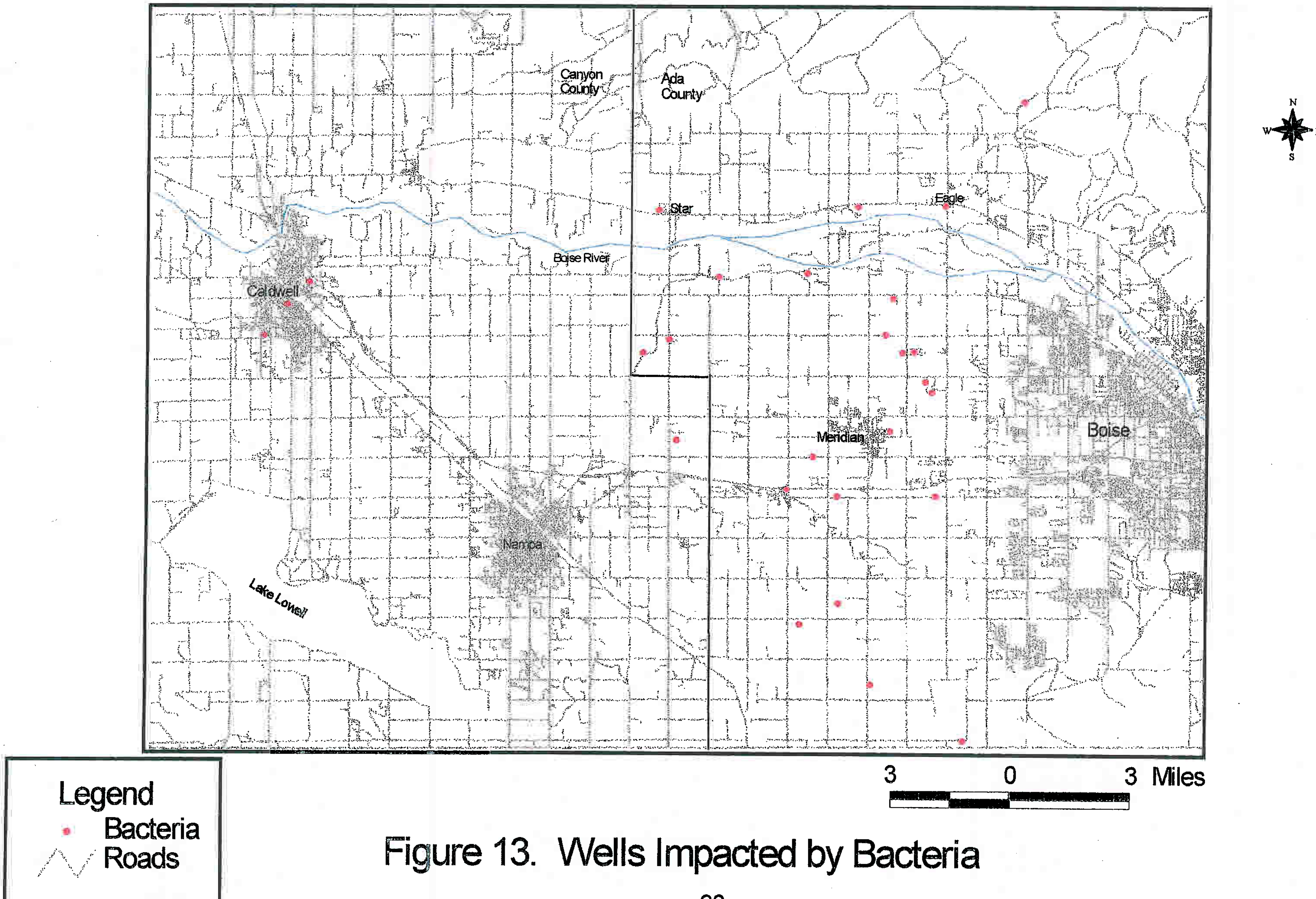


Figure 13. Wells Impacted by Bacteria

DISCUSSION

Similar to the Boise area study (Boyle 1995), the emphasis of this study was on the ground water quality in the shallow wells. From the total number of wells sampled, 67% were shallow. Wells in the intermediate and regional depths were also represented in this study to understand the ground water quality at all depths. Of the 335 wells sampled 24% were at the intermediate depth and 9% were at the regional depth. The distribution of all wells by their depths can be found in figure 14 on page 32.

The results show that the shallow wells have the most impacted ground water quality. Nitrate concentrations greater than the MCL of 10 mg/l were found in ten wells, all less than 150 feet deep. As stated in the results section, high levels of nitrate are indicators that VOCs, pesticides, and/or bacteria could also be found. 50% of all the wells sampled had nitrate concentrations at 2 to 10 mg/l and were wells at shallow or intermediate depths. In the deep wells, 30% had nitrate concentrations from 2 to less than 5 mg/l. This may be an indication of future problems with the nitrate concentrations in the deep wells greater than ambient concentrations established by the Statewide Monitoring Program for nitrate at less than 2 mg/l.

The VOC results show that tetrachloroethylene with concentrations greater than the MCL 5 ug/l were found in two wells north of Nampa; both were shallow wells. Wells in close proximity to these wells were impacted by low levels of tetrachloroethylene, these were also shallow wells. A site specific study is currently being conducted in this area by DEQ to find the party responsible for the contamination.

There were twenty additional wells with low concentrations of VOCs. These twenty wells were grouped in two areas, north of Eagle/Star and northeast of Meridian; almost all are shallow wells. The area northeast of Meridian, on the Whitney Terrace (Othberg 1994), also had a number of positive bacteria results. The Whitney Terrace is composed of sandy pebble and cobble gravel. This residential area has a large number of new homes being built around the few existing farm homes. The common practice in this area was to drill shallow wells. This may be an area where the benefits of deeper wells needs to be addressed.

Two wells in the area north of Eagle and Star had elevated concentrations of a pesticide "Dacthal", along with elevated concentrations of nitrate and VOCs (1,2-dichloropropane and 1,2,3-trichloroethylene). This area is a mix of farms and stock yards, with a change toward ranchettes (i.e. homes with 5-10 acres) steadily changing the land use. The stock yards are located to the south and cross-gradient of the ground water flow to these wells.

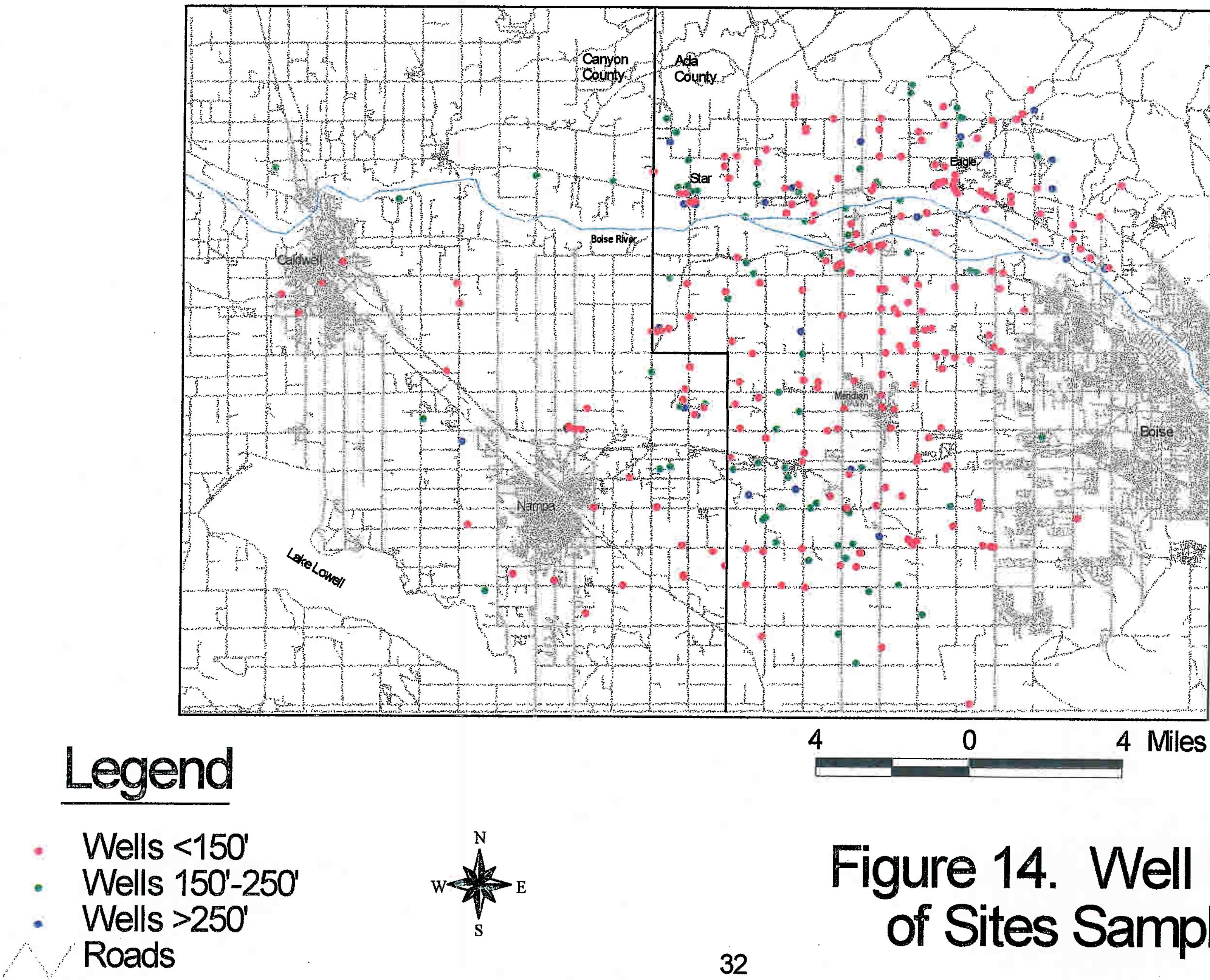


Figure 14. Well Depths of Sites Sampled

The soils are a thick blue clay with an alluvial fan on top that is medium to coarse sand interbedded with silty fine sand and silt (Othberg 1994) that is approximately 100 feet deep. The majority of the wells are drilled into the alluvial fan soils. This is also an area where the benefits of deeper wells needs to be addressed.

The intermediate and regional wells did not show impacts greater than the MCL for nitrate or VOCs, but this changes when looking at the results for bacteria. A greater percentage of shallow wells (10%) were impacted by bacteria than the deeper wells (2% in intermediate and 3% in regional), but there were wells of all depths with positive bacteria results. These wells were of different ages, drilled by different well drillers with no obvious reason to suspect problems at the site.

When looking at the results for pesticides there is a cause for concern, pesticide detections were found throughout the study area. The results show a high percentage of shallow wells, 52%, that have low concentrations of pesticides. 19% of the wells at the intermediate depth are also impacted by low concentrations of pesticides. The wells greater than 250 feet, sampled for this study, did not have any detections of pesticides. The most common pesticides found were atrazine and simazine. The 21 samples collected provided a limited, but alarming, picture of pesticide concentrations frequently found.

The benefits of deeper wells in order to obtain better quality of water may be an existing solution at this time. There are no guarantees that this will always be the solution in the future. The geology of the valley does not show, conclusively, that the impermeable clay levels uniformly separate the perceived shallow and deep aquifer. The impacts to the water quality in the shallow wells may be an indication of future impacts in deeper wells.

QUALITY ASSURANCE / QUALITY CONTROL

All probes used for measuring field parameters were inspected every morning before leaving the office. Any necessary repairs or cleaning was conducted at the DEQ-SWIRO laboratory or regional USGS laboratory in Boise, Idaho before going to the sampling sites. The condition and number of all necessary sample containers was checked before leaving for the sampling sites.

In the office each morning the Orion dissolved oxygen meter was calibrated for the day of sampling. Once calibrated the meter would remain on for the entire day of sampling to retain the same calibration for the day. The YSI dissolved oxygen meter was calibrated at each site.

At every site the Orion pH meter was calibrated with a daily filled small plastic container of fresh pH standard of 4 SU and 7 SU, prior to use at each site. If the ground water had a pH of greater than 7.8 SU the pH meter was re-calibrated to a pH standard of 7 SU and 10 SU.

Temperature was checked with three different instruments at each site with a non-mercury thermometer, the pH meter and the conductivity meter. The recorded ground water temperature for the field sheets were taken from the conductivity meter. The recorded air temperature on the field sheets was taken from the non-mercury thermometer.

The Orion conductivity meter was calibrated at each site with a conductivity standard as close as possible to the measurement at each site. A small plastic container of the fresh standard was placed in the bucket with the meter probes and allowed to equilibrate to the temperature of the ground water being sampled. After the samples were collected, the conductivity probe was placed into the conductivity standard to determine the correction factor.

The bucket, all hoses and splitters were kept (physically) clean. The hoses were drained at each site. The bucket, splitter and short hose were rinsed with deionized water at every site prior to packing back into the vehicle (Nielson 1991).

The in-line filter was triple rinsed with (liberal amounts of) deionized water after use at each site and then packaged into a clean zip lock bag. Latex gloves were worn, at all times, when handling the in-line filter.

Latex gloves were worn when collecting all samples. They were also worn at the regional USGS Laboratory in Boise, Idaho when running the samples through the HACH kits and the portable gas chromatograph. Every sample was ran through the HACH kits for nitrate the same day the sample was collected. Every non-preserved VOC sample was ran through the portable gas chromatograph within seven days.

All sample containers were labeled with the site identification number, date, time of sample collection, project number, and type of analysis. This information was also recorded on the field sheets, along with the field parameters and notable site conditions. All necessary laboratory forms were filled out for all samples collected. Samples were packed in ice and promptly shipped to the USGS Laboratory in Arvada, Colorado (nutrient samples) or Alpha Analytical in Sparks, Nevada (VOC samples) within the necessary time frames.

This entire project followed the guidelines for the collection, treatment, and analysis of ground water samples as used by the U.S. Geological Survey in the Statewide Monitoring Program. Copies of the Standard Operating Procedures for the collection, handling and analyses of samples for this project can be found in Appendix F.

Pesticide and metals results, included in this report, were collected by USGS for the Statewide Monitoring Program. Sample collection and HACH kit analyses were conducted by Deb Parliman, USGS; Sabrina Nicholls, USGS; and Linda Boyle, DEQ-SWIRO. Agar plate preparation and bacteria plating was conducted by Deb Parliman and Sabrina Nicholls. VOC analyses with the portable gas chromatograph was conducted by Deb Parliman.

ACKNOWLEDGEMENT

I want to express a sincere thank you to all the well owners who granted permission enter their property and sample their well water. Thanks, also, for the assistance from the Department of Water Resources with the collection of well driller's logs; Ada County Planning Association for current subdivision maps; personnel at the Ada County Landfill for well locations at the landfill; State of Idaho Bureau of Laboratories with the analysis of some bacteria samples; and to the U.S. Department of Agriculture for historic sampling information. To my colleagues Deb Parliman, USGS; Sabrina Nicholls, USGS; Ron Lane, DEQ-SWIRO; Mike Ingham, DEQ-SWIRO; A.J. Cude, DEQ-SWIRO; Rob Howarth, DEQ-SWIRO; Joe Baldwin, DEQ; Dean Yashan, DEQ; and Tom Schmalz, CDHD for their helpful comments regarding this report.

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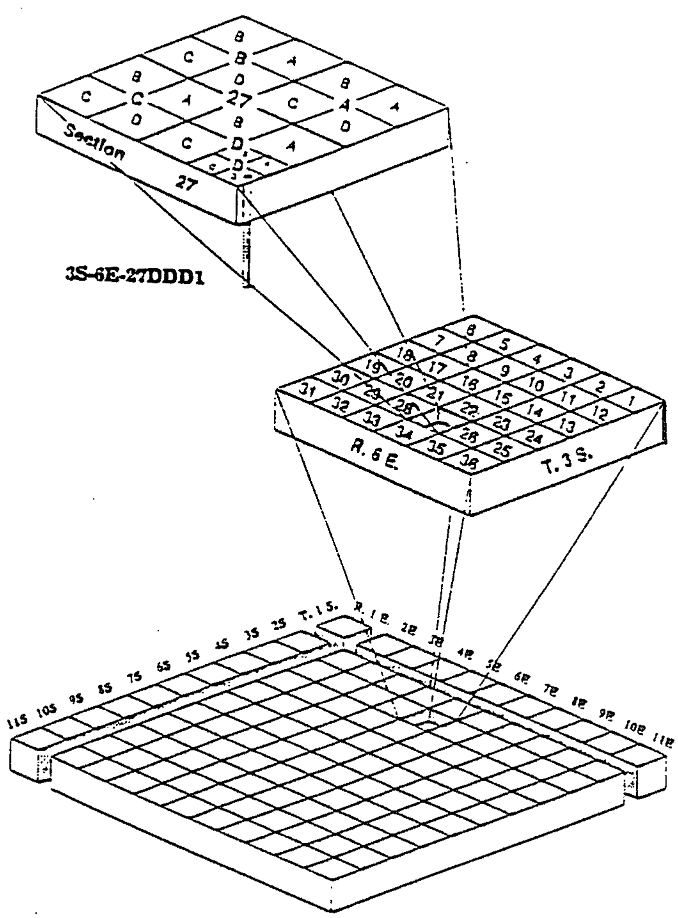
APPENDICES

Well Numbering System

The well numbering system used by the U.S. Geological Survey in Idaho indicated the location of wells within the official rectangular subdivision of public land, with reference to the Boise base line and Meridian. The first two segments of the number designate the township (north or South) and range (east or west). The third segment gives the sectional number; four letters, which indicate the 1/4 section (160-acre tract), 1/4-1/4 section (40-acre tract), 1/4-1/4-1/4 section (10-acre tract), and serial number of the well within the tract. Some locations also include a 1/4-1/4-1/4-1/4 section (2 1/2-acre tract) letter within the section number. Quarter sections are designated by the letters A, B, C, and D in counterclockwise order from the northeast quarter of each section. Forty-acre, 10-acre, and 2 1/2-acre tracts within each quarter section are lettered in the same manner. Well 3S-6E-27DDD1 (following figure) is in the SE 1/4 SE 1/4 SE 1/4 sec. 27, T. 3 S., R. 6 E., and was the first well inventoried in that tract.



Well- and spring-numbering system.

APPENDIX A

Table 7

Well Construction

Headnotes for Table 7

Well Location: well location in latitude and longitude or township, range and section

Primary Use of Water:

H domestic
I irrigation
P public supply
C commercial
D dewater
S stock
F fire

Source of Well Data:

D driller
O owner
R other reported
L logs

Type of Opening

X open hole
P perforated casing
O open end
S screen
R wire wound

Depth to First Reported Water:

S reported to be within a few feet of land surface (description not specific)

Depth to First Reported Clay or Silt:

N no clay or silt reported on well driller's log
S reported to be within a few feet of land surface (description not specific)

Empty Box: no information available

Units of Measure continued:

UG/L as PB	micrograms per liter as lead
UG/L as MN	micrograms per liter as manganese
UG/L as ZN	micrograms per liter as zinc
UG/L as SE	micrograms per liter as selenium

Empty Box: no information available

Volatile Organic Compounds (VOCs) were analyzed at every site with a portable gas chromatograph for presence or absence. Sites with VOCs present had duplicates sent to Alpha Analytical Laboratory in Sparks, Nevada, those results can be found in Table 9.

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°32'09"	116°22'15"	02N 01E 05CBDC1	242	H	D	04-06-94	136	O	160	2	2735
43°31'25"	116°23'30"	02N 01E 07CBBC1	145	H	D	10-23-93	140	S	38	2	2670
43°30'09"	116°20'46"	02N 01E 21BABA1		H							2751
43°32'40"	116°23'54"	02N 01W 01ABD1	200	H	D	10-17-69	200	X	110	8	2727
43°32'46"	116°25'54"	02N 01W 02BBA1	104	H	D	03-30-65	100	O	40	83	2658
43°31'40"	116°27'14"	02N 01W 09ADA1	37	H	O						2600
43°31'43"	116°24'51"	02N 01W 11ADA1	190	I	D	05-01-64	67	P	75	117	2685
43°31'04"	116°24'18"	02N 01W 12CDD1	175	H	D	05-11-92	165	S	86	2	2680
43°32'11"	116°32'44"	02N 02W 02CACC1	73	H	D	07-11-68	20	O		N	2550
43°32'42"	116°35'53"	02N 02W 05ABA1	180	H	D	03-20-59	178	O	65	48	2555
43°38'02"	116°19'48"	03N 01E 03BBA1	117	H	D	08-21-68	90	P	6	35	2644
43°37'51"	116°20'45"	03N 01E 04BAD1	68	H	O						2627
43°37'54"	116°21'14"	03N 01E 05AADA1	86	H	D	09-30-75	76	S	5	22	2620
43°38'01"	116°21'32"	03N 01E 05ABAA1	63	H	D	04-25-89	62	O	25	40	2615
43°37'39"	116°21'38"	03N 01E 05ACDB1	97	H	D	12-18-77	97	X	45	30	2617
43°37'56"	116°21'49"	03N 01E 05BAAD1	28	H	D	04-16-86	29	X	18	N	2610
43°37'57"	116°21'49"	03N 01E 05BAAD2	162	H	D	07-08-92	155	S	36		2610
43°38'01"	116°23'24"	03N 01E 06BBAB1	64	H	D	11-11-74	63	O	6	19	2590
43°37'32"	116°23'30"	03N 01E 06CBBA1	71	H	D	09-27-93	67	O	5	31	2587
43°37'18"	116°22'29"	03N 01E 06DDAD1	30	I	D	05-06-87	25	P	6	1	2603
43°37'04"	116°23'32"	03N 01E 07BBBD1	36	H	D	02-17-87	28	S	8	2	2593
43°36'48"	116°23'31"	03N 01E 07BCCA1	35	I	D	05-30-90	35	X	22	1	2600
43°36'47"	116°23'29"	03N 01E 07BCCA2	35	I	D	05-24-90	35	X	20	15	2600
43°36'44"	116°23'07"	03N 01E 07BDDC2	30	I	D	04-11-89	30	X	16	2	2605
43°36'19"	116°23'14"	03N 01E 07CDCC1	40	I	D	08-08-78	23	P	3	18	2605
43°36'19"	116°21'40"	03N 01E 08DCDC1	67	H	D	11-17-69	67	X	60	29	2650
43°36'07"	116°18'33"	03N 01E 14BBD1	183	H	D	03-19-70	183	X			2710
43°36'06"	116°22'03"	03N 01E 17BACC2	65	H	D	08-12-77	59	O	8	55	2625
43°35'41"	116°22'23"	03N 01E 17CBCC1	144	H	D	05-29-78	139	O	56	2	2641
43°35'28"	116°21'28"	03N 01E 17DDCC1	59	H	D	10-11-90	50	S	20	2	2650
43°35'34"	116°22'26"	03N 01E 18DDAD1	118	H	D	01- -71	102	O	32	100	2640
43°34'59"	116°23'24"	03N 01E 19BCDC1	80	H	D	06-28-75	80	X	S	70	2638
43°34'48"	116°22'53"	03N 01E 19DBCD1	65	H	D	08-05-77	62	O	10	2	2640
43°35'24"	116°21'32"	03N 01E 20ABAA1		H							2650
43°34'34"	116°21'22"	03N 01E 20DDCD1	170	H	D	01-08-93	160	S	20	111	2689
43°34'39"	116°20'30"	03N 01E 21DCCA1	84	H	D	05-04-76	78	S			2685
43°34'17"	116°17'27"	03N 01E 25BCB1	117	H	D	04-16-74	103	S	86	17	2751
43°34'32"	116°20'30"	03N 01E 28ABBA1	120	H	D	05-30-92	119	O	43	29	2687
43°33'41"	116°20'21"	03N 01E 28DCDD2	125	H	D	06-16-91	115	S	37	14	2695
43°34'07"	116°21'17"	03N 01E 29DAAA1	70	H	D	10-16-81	70	X	4	N	2670

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°33'50"	116°22'41"	03N 01E 30DDBC2	142	H	D	10-17-92	136	S	50	45	2700
43°33'46"	116°22'35"	03N 01E 30DDCA1	140	H	D	09-13-94	130	S		75	2690
43°33'47"	116°22'25"	03N 01E 30DDD1	132	H	D	11-20-69	84	P	52	15	2667
43°33'42"	116°22'32"	03N 01E 30DDDC1	99	H	D	08-24-93	94	S	60	50	2690
43°32'49"	116°22'59"	03N 01E 31CDD1	196	H	D	04-21-68	189	S	120	40	2733
43°33'39"	116°20'01"	03N 01E 33AAAA1	111	H	D	06-08-82	111	X	13	92	2705
43°33'40"	116°20'07"	03N 01E 33AAAB1	112	H	D	03-24-79	111	O	5	N	2700
43°37'23"	116°24'22"	03N 01W 01CACC1	57.5	I	D	06-18-70	65			37.5	2578
43°37'22"	116°25'30"	03N 01W 02CDBA1	26	H	D	09-19-90	25	O	20	5	2560
43°37'13"	116°25'32"	03N 01W 02CDCD1	31	I	D	05-16-86	31	X	8	N	2560
43°38'00"	116°25'59"	03N 01W 03AAAA1	156	H	D	10-01-92	145	S	40	95	2555
43°37'24"	116°25'58"	03N 01W 03DADD1	72	H	D	06-24-69	64.5	O	12	51	2560
43°38'00"	116°27'33"	03N 01W 04ABAB1	78	H	D	10-04-79	69	O	4	33	2538
43°38'00"	116°27'33"	03N 01W 04ABAB2		H							2538
43°37'22"	116°27'58"	03N 01W 04CDBB1	76.7	H	D	05-24-83	71.5	S	68	2	3535
43°37'42"	116°29'31"	03N 01W 05BCCB1	120	H	D	08-23-91	118	O	10	2	2518
43°37'36"	116°30'42"	03N 01W 06CBBB1	175	H	D	02-03-93	173	O	8	2	2495
43°37'12"	116°29'40"	03N 01W 06DDDC1	80	H	D	06-01-89	69	S	4	35	2510
43°36'58"	116°29'44"	03N 01W 07ADBA1	78	H	D	10-20-93	71	S		3	2510
43°36'49"	116°29'49"	03N 01W 07ADCB1	170	H	D	11-06-93	165	S	5	40	2505
43°36'47"	116°29'41"	03N 01W 07ADDC1	260	H	D	09-20-93	250	O	3	77	2505
43°36'53"	116°29'02"	03N 01W 08BDAC1	160	H	D	07-15-92	150	S	6	36	2520
43°36'48"	116°29'04"	03N 01W 08BDDB1	148	H	D	10-04-93	143	S	4	40	2515
43°36'38"	116°29'21"	03N 01W 08CBAC1	80	H	D	09-14-87	75	O	8	60	2510
43°36'38"	116°29'19"	03N 01W 08CBAD1	300	S	O	- -35					2510
43°37'01"	116°27'22"	03N 01W 09AACB1	102	H	D	03-12-71	94	S	92	9	2539
43°36'52"	116°28'05"	03N 01W 09BCAD1	86.3	H	D	06-24-80	80	S	17	S	2530
43°36'19"	116°27'57"	03N 01W 09CDCD1	65	H	D	10-24-93	55	S	12	55	2535
43°37'09"	116°26'45"	03N 01W 10BAB1	157	H	D	11-04-69	152	S	5	69	2553
43°36'19"	116°26'49"	03N 01W 10CDCC1	152	H	D	10-05-89	145	S	10	30	2550
43°36'42"	116°26'06"	03N 01W 10DAAB1	210	H	D	09-02-93	206	S	4	7	2565
43°36'45"	116°25'38"	03N 01W 11BDCC1	150	H	D	09-08-93	145	S	40	3	2572
43°36'18"	116°24'53"	03N 01W 11DDDC1	83	H	D	05-04-93	70	O	52	37	2585
43°36'46"	116°24'41"	03N 01W 12CBBB1	36	I	D	07-29-86	37	X	10	2	2595
43°35'26"	116°24'09"	03N 01W 13DCCC2	185	H	D	07-01-75	176	O	6	124	2625
43°36'16"	116°25'12"	03N 01W 14ABAB2	252	H	D	06-08-93	252	X	32	7	2585
43°36'16"	116°25'12"	03N 01W 14ABAB3	14	I	O		14				2585
43°35'46"	116°25'56"	03N 01W 14CBB1	100	H	D	05-05-70	96	O	6	57	2569
43°36'06"	116°27'08"	03N 01W 15BBCC1	103	H	D	08-08-79	100	O	6	90	2550
43°35'26"	116°26'32"	03N 01W 15DCCC1	189	H	D	04-29-85	184	O	125	2	2665

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°35'34"	116°26'00"	03N 01W 15DDAD1	90	H	D	09-22-92	50	O	10	N	2580
43°35'40"	116°28'18"	03N 01W 16CBCC1		H		- -79					2608
43°35'40"	116°28'15"	03N 01W 16CBCD1	140	H	D	12-12-77	136	S	40	27	2598
43°35'33"	116°27'23"	03N 01W 16DDBC1	204	H	D	09-30-71	199	S	190	35	2672
43°35'28"	116°30'07"	03N 01W 18DCCC1	174	H	O	07- -92					2603
43°35'25"	116°30'27"	03N 01W 19BBAA1	170	H	D	09-26-92	167	O	121	15	2590
43°35'24"	116°28'09"	03N 01W 21BBAB1	218	H	D	04-15-90	208	S	40	153	2660
43°34'50"	116°27'40"	03N 01W 21DBCA1	295	H	D	06-04-79	293	O	270	41	2620
43°35'13"	116°26'27"	03N 01W 22ABCD1	192	H	D	02-16-71	150	P	76	4	2675
43°34'34"	116°26'38"	03N 01W 22CDD1	170	H	D	11-07-69	166	O	130	166	2655
43°34'57"	116°26'13"	03N 01W 22DABB1	274	H	D	02-14-94	269	O	150	140	2675
43°34'39"	116°25'33"	03N 01W 23CBDB1	210	H	D	12-10-92	208	O	160	76	2695
43°34'48"	116°25'07"	03N 01W 23DBD1	132	H	D	11-10-75	132	X	132	82	2685
43°35'24"	116°24'29"	03N 01W 24BABB2	275	H	D	09-15-73	274	O	184	58	2620
43°35'17"	116°24'31"	03N 01W 24BBDA1	60	H	D	09-11-80	55	S	10	26	2612
43°34'35"	116°23'41"	03N 01W 24DDDC1	149	H	D	09-21-93	142	S	42	30	2655
43°34'26"	116°24'32"	03N 01W 25BBAD1	197	H	D	11-26-91	190	S	80	2	2705
43°34'31"	116°24'38"	03N 01W 25BBBA1	253	H	D	01-03-88	247	S	95	193	2700
43°34'32"	116°24'37"	03N 01W 25BBBA2		I							2700
43°33'44"	116°24'24"	03N 01W 25CDCA1	245	H	D	10-26-94	244	O	169	5	2720
43°33'54"	116°23'35"	03N 01W 25DAD1	330	H	D	12-06-65	327	S		27	2712
43°34'32"	116°25'44"	03N 01W 26BBAA1	168	H	D	08-29-90	158	O	104	88	2695
43°33'42"	116°24'52"	03N 01W 26DDDC1	213	H	D	04-08-70	202	O	87	28.5	2700
43°34'20"	116°27'08"	03N 01W 27BBCC1	196	H	D	07-10-80	195	O	57	193	2660
43°33'46"	116°26'49"	03N 01W 27CDCB1	200	H	D	10- -77	200	X	50	50	2455
43°34'17"	116°27'13"	03N 01W 28ADAA1	158	H	D	07-14-92	155	O	35	84	2665
43°34'33"	116°30'32"	03N 01W 30BBAB1	50	H	D	03-26-92	19	O	48	43	2540
43°33'42"	116°29'45"	03N 01W 30DDCD1	70	H	D	11-03-93	19	O	16	4	2545
43°33'00"	116°29'40"	03N 01W 31DDA1	67	H	D	11-07-69	31	O	54	4	2542
43°33'02"	116°29'41"	03N 01W 31DDA2	130	H	D	05-03-94	130	X		27	2542
43°33'35"	116°28'47"	03N 01W 32ABAC1	60	H	D	09-02-92	21	O	53	N	2560
43°33'15"	116°28'24"	03N 01W 32DAAA1	107	H	D	07-15-93	97	S	18	5	2570
43°33'34"	116°27'13"	03N 01W 33AADA1	135	H	D	10-06-87	131.5	O	121	125	2630
43°33'38"	116°27'44"	03N 01W 33ABBB1	126	H	D	12-07-87	121	S	58	110	2615
43°32'50"	116°27'44"	03N 01W 33DCCC1	85	H	D	05-18-93	20	P	18	N	2590
43°33'38"	116°26'00"	03N 01W 34AAA1		H							2700
43°32'49"	116°26'37"	03N 01W 34CDDD1	100	H	D	03-17-89	98.5	O	76	75	2645
43°33'15"	116°24'48"	03N 01W 35ADDD1		H		- -70					2725
43°33'22"	116°25'47"	03N 01W 35BCAC1	185	H	D	06-15-72	180	O		172	2688
43°33'32"	116°24'09"	03N 01W 36ABCB1		I		- -94					2740

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°33'32"	116°24'08"	03N 01W 36ABCB2	257	H	D	12-13-94	255	O	50	3	2740
43°33'32"	116°24'11"	03N 01W 36BADA1		H							2735
43°33'25"	116°24'38"	03N 01W 36BCBA1	190	H	D	10-07-91	185	S	130	5	2710
43°33'13"	116°24'17"	03N 01W 36CAAB1		H		- -94					2740
43°37'37"	116°37'07"	03N 02W 06ACD1	87	I	D	06- -50	80	O		7	2441
43°36'33"	116°37'51"	03N 02W 07CBC1	196	H	D	07-14-69	185	P	18	82	2436
43°36'19"	116°33'23"	03N 02W 10DDCC1	213	H	D	11-18-63	208.5	O		19	2470
43°36'20"	116°33'18"	03N 02W 10DDCD1	70	H	O						2465
43°36'22"	116°33'18"	03N 02W 10DDCD2	60	H	D	02-18-92	58	O	28	13	2465
43°36'21"	116°33'16"	03N 02W 10DDDC1	75	H	D	07-10-90	68	S	30	2	2465
43°36'46"	116°32'44"	03N 02W 11BDCD1	112	H	D	02-22-93	105	S	19	2	2475
43°36'18"	116°32'54"	03N 02W 14BBAB2	82	H	D	01-14-92	79	O	16	12	2475
43°36'18"	116°33'06"	03N 02W 14BBBB1	80	H	D	10-23-92	78	O	18	27	2470
43°36'02"	116°36'38"	03N 02W 17BCB1	461	P	D	02-08-77	408	S	74	6	2450
43°35'14"	116°31'23"	03N 02W 24BAD1	174	H	D	02-01-64	174	X	57	119	2544
43°35'13"	116°31'23"	03N 02W 24BAD2	71	H	O	06-18-82	71	X	53	9	2544
43°34'33"	116°32'30"	03N 02W 26BAA1	83	H	L	04-17-70	34	O	30	24	2505
43°34'10"	116°36'26"	03N 02W 29BCD1	116	H	D	08-09-62	115	O	31	34	2467
43°33'04"	116°35'01"	03N 02W 33CAD1	63	H	D	05-05-70			18	4	2495
43°32'55"	116°33'43"	03N 02W 34CDA1	146	H	D	08-18-68	67	O	23	7	2506
43°32'49"	116°31'35"	03N 02W 36CDC1	90	H	D	01-10-69	45	O	90	S	2531
43°35'22"	116°40'36"	03N 03W 22ABB1	250	I	D	06-28-74	190	S	65	46	2560
43°43'06"	116°18'52"	04N 01E 03AADC1	150	H	O	- -77					2700
43°43'14"	116°19'18"	04N 01E 03ABBA1	105	H	D	03-30-94	80	P	33	55	2645
43°43'14"	116°19'20"	04N 01E 03ABBB1	74	H	D	06-06-94	74	X	20	10	2640
43°43'13"	116°20'05"	04N 01E 04AAAC1	64	H	D	03-09-73	62	O	63	2	2630
43°42'50"	116°21'04"	04N 01E 04BCCD1	470	H	D	05-07-93	387	S	10	45	2600
43°42'39"	116°21'04"	04N 01E 04CBCD1	199	H	D	04-20-92	187	S	40	4	2600
43°42'48"	116°20'33"	04N 01E 04DBBB1	104	H	D	05-04-92	92	S	28	45	2600
43°42'26"	116°20'14"	04N 01E 04DDCC1	285	H	D	10-20-72	276	O		8	2635
43°43'06"	116°21'35"	04N 01E 05ABD1	138	H	D	05-01-91	131	S	34	2	2605
43°42'57"	116°22'22"	04N 01E 05BCBC1	39	I	D	08-18-86	39	X	35	5	2593
43°42'57"	116°22'22"	04N 01E 05BCBC2		H	O						2593
43°42'45"	116°22'17"	04N 01E 05CBBD1	30.2	H	D	08-09-74	30.2	X	19	1	2590
43°43'15"	116°23'32"	04N 01E 06BBB1	67	H	D	02-06-68	67	X	20	10	2601
43°42'24"	116°22'55"	04N 01E 06DCCC2	120	H	O						2560
43°42'10"	116°21'34"	04N 01E 08ACAB1	97	H	D	06-08-92	92	S	39	5	2600
43°41'59"	116°21'13"	04N 01E 08ADDD1	32	F	D	- -56	24	O			2595
43°42'13"	116°21'52"	04N 01E 08BADC1	70	H	D	08-21-74	70	X	70	2	2592
43°41'45"	116°21'53"	04N 01E 08CAD1	462	I	D	02-09-60	420	O	4	65	2562

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43°41'44"	116°21'52"	04N 01E 08CAD2	100	I	D	06-10-63	97	O	4	10	2562
43°41'52"	116°21'14"	04N 01E 08DAAD1	35	H	D	04-13-90	30	S	19	12	2566
43°41'45"	116°21'18"	04N 01E 08DADC1	89	H	D	11-24-92	85	O	18	3	2565
43°41'49"	116°21'46"	04N 01E 08DBCB1	145	I	D	06-09-67	140	O	50	130	2562
43°41'47"	116°21'43"	04N 01E 08DBCC1	100	H	D	07-24-85	96.5	O	7	2	2563
43°41'50"	116°21'35"	04N 01E 08DBDB1	101	H	D	07-21-72	97.6	O		3	2564
43°41'44"	116°21'18"	04N 01E 08DDAB1	87	H	D	06- -67	60	O	6	45	2564
43°41'39"	116°21'12"	04N 01E 08DDAD2	55	H	D	06-26-71	53	O	S	45	2555
43°41'39"	116°21'13"	04N 01E 08DDAD3	100	H	O						2555
43°41'38"	116°21'12"	04N 01E 08DDDA2	60	H	O						2555
43°41'34"	116°21'09"	04N 01E 09CCCC1	65	H	D	05-21-92	64	O	3	39	2555
43°41'37"	116°20'26"	04N 01E 09DCCA1	113	C	D	07-20-79	102	S	3	35	2560
43°41'33"	116°20'18"	04N 01E 09DCDD1	82	H	D	03-23-68	82	X	3	69	2563
43°41'32"	116°20'15"	04N 01E 09DDCC1	127	I	D	03-10-91	120	S			2565
43°42'18"	116°18'14"	04N 01E 11BAAD1	305	H	D	08-10-86	289	S		S	2800
43°42'23"	116°18'39"	04N 01E 11BBB1	203	H	D	12-11-62	120	P	119	15	2690
43°41'41"	116°18'41"	04N 01E 11CCBD1		H							2640
43°41'40"	116°18'12"	04N 01E 11DCBC1	310	I	D	05-10-71	145	P		S	2700
43°41'28"	116°17'02"	04N 01E 13BAAA1	150	P	D	05-01-72	65	P	12	29	2715
43°40'52"	116°17'33"	04N 01E 13CBCC1	25	H	R	07-31-93	25	X	8	2	2596
43°41'03"	116°16'43"	04N 01E 13DBAA1	85	H	D	11-08-77	72.8	O	38	35	2600
43°41'06"	116°18'34"	04N 01E 14BCDD1	31.5	H	D	03-15-61	28.5	O	9	3	2585
43°41'30"	116°19'29"	04N 01E 15BAAB1	59	H	D	06-10-92	59	X	5	35	2568
43°41'21"	116°19'29"	04N 01E 15BADC1	103	P	D	03-16-70	103	X		S	2575
43°41'29"	116°20'03"	04N 01E 16AAA1	88	H	D	11-27-63	87.5	X	27	26	2565
43°41'08"	116°22'07"	04N 01E 17BCDD1	95	H	D	10-30-87	75	S	1	63	2542
43°41'03"	116°22'25"	04N 01E 17CBBC1	300	H	O	- -25					2540
43°40'42"	116°21'50"	04N 01E 17CDDD1	115	H	D	06-04-77	115	X	15	38	2546
43°41'25"	116°22'56"	04N 01E 18ABCB1	190	C	D	12-16-83	171	S		36	2530
43°41'04"	116°22'55"	04N 01E 18DBBA1	100	H	D	08-13-91	98.5	O	4	45	2530
43°40'15"	116°22'42"	04N 01E 19ADCC1	233	H	D	06-15-94	222	P	76	53	2595
43°40'25"	116°23'29"	04N 01E 19BCBA1	63	H	D	10-07-76	49	S	5	30	2585
43°39'51"	116°20'45"	04N 01E 21CDCA1	180	H	O						2621
43°39'48"	116°20'34"	04N 01E 21DCCC1	106	H	D	08-15-93	99	S	54	52	2605
43°39'50"	116°20'05"	04N 01E 21DDDC2	100	I	D	07-27-66	85	S	80	60	2630
43°40'29"	116°18'45"	04N 01E 23BBCB1	124	H	D	06-26-92	118	S	4	54	2580
43°40'06"	116°17'46"	04N 01E 23DAC1	403	P	D	07-31-90	327	S	S	32	2698
43°40'33"	116°17'34"	04N 01E 24BBBC1	60	H	D	03-30-76	57.5	O	28	42	2599
43°40'20"	116°17'19"	04N 01E 24BCA1	70	H	D	08-30-68	50	O	45	35	2602
43°40'07"	116°17'02"	04N 01E 24CAAD1	54	H	D	08-20-65	40	O	10	30	2605

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°39'54"	116°16'27"	04N 01E 24DDAD1	104	I	D	02-27-70	99	O	90	6	2615
43°39'53"	116°16'34"	04N 01E 24DDB1	328	P	D	09-13-78	203	S	186	35	2610
43°39'47"	116°19'44"	04N 01E 27BBAA1	120	H	D	05-20-80	100	S	100	70	2622
43°39'26"	116°19'51"	04N 01E 27BCCA1	119	H	D	03-10-83	112	S	45	93	2637
43°38'57"	116°19'04"	04N 01E 27DDC1	104	H	D	10-04-75	94	S	75	38	2655
43°39'29"	116°21'14"	04N 01E 29ADDD1	114	H	D	07-05-93	101	S	58	40	2615
43°39'32"	116°22'22"	04N 01E 29BCBB1	80	H	D	08-20-92	75	S	10	2	2602
43°38'56"	116°22'16"	04N 01E 29CCCD1	90	H	D	04-30-80	83.8	S	17	53	2605
43°39'40"	116°22'47"	04N 01E 30ABAD2	90	H	D	09-27-79	85	O	7	49	2595
43°39'26"	116°23'26"	04N 01E 30BCDB1	118	H	D	06-27-86	108	S	42	S	2585
43°39'00"	116°23'31"	04N 01E 30CCCA1	87	H	O	FALL '84					2588
43°39'00"	116°23'07"	04N 01E 30CDCA1	103	I	D	11-12-87	20	R	9	40	2595
43°39'08"	116°22'42"	04N 01E 30DACC1	93	H	D	02-21-91	86	S	33		2595
43°38'53"	116°23'01"	04N 01E 31ABBB1	36	I	D	06-15-87	40	X	33	S	2595
43°38'53"	116°23'01"	04N 01E 31ABBB2	84	H	D	09-01-79	58.6	O	8	55	2595
43°38'30"	116°22'31"	04N 01E 31ADDC1	40	I	D	05-03-91	38	O	11	3	2605
43°38'30"	116°22'31"	04N 01E 31ADDC2		H		- -78					2605
43°38'29"	116°23'31"	04N 01E 31BCCD1	130	H	D	06-21-91	123	S	109	28	2590
43°38'08"	116°22'44"	04N 01E 31DCAD1	250	H	D	08-05-92	247	O	8	5	2600
43°38'10"	116°22'57"	04N 01E 31DCBC1	56	H	D	04-04-77	50	O	16	15	2595
43°38'03"	116°22'53"	04N 01E 31DCCD1	82	H	D	12-04-93	74	S	7	2	2598
43°38'12"	116°22'26"	04N 01E 31DDAA1	86	H	D	02-24-92	77	S	18	3	2605
43°38'31"	116°22'10"	04N 01E 32BCDD1	60	H	D	04-10-92	40	P	17	37	2608
43°38'33"	116°21'58"	04N 01E 32BDCA2	50	H	D	11-13-90	38	O	S	34	2610
43°38'24"	116°20'10"	04N 01E 33DABD1	97.3	H	D	09-11-80	92	S	35	43	2635
43°38'08"	116°20'01"	04N 01E 33DDDA1	97	H	D	07-22-91	89	S	37	40	2639
43°43'00"	116°23'35"	04N 01W 01ADAA1	127	H	D	11-22-86	120	S	82	3	2587
43°42'44"	116°24'11"	04N 01W 01CAA1	260	H	D	02-20-67	230	O	250	235	2552
43°42'24"	116°23'36"	04N 01W 01DDDD1	68	H	O	- -48					2558
43°43'15"	116°25'02"	04N 01W 02AAB1	68	H	D	11-20-68	38	O	8	2	2552
43°42'58"	116°25'54"	04N 01W 02BCBC1	92	H	D	07-19-72	31.5	O	29	14	2550
43°42'25"	116°28'03"	04N 01W 04CCDD1	102	H	D	04-23-63	95.5	O	10	90	2500
43°42'24"	116°28'27"	04N 01W 05DDDC1	140	H	D	01-16-81	140	X	7	50	2485
43°42'57"	116°29'57"	04N 01W 06ACAC1	165	H	D	02-27-94	150	P	68	38	2485
43°43'15"	116°30'15"	04N 01W 06BAAB1	177	H	D	06-17-91	175	O	119	25	2530
43°42'44"	116°30'09"	04N 01W 06CAAD1	500	H	R	- 60					2470
43°42'19"	116°29'34"	04N 01W 07AAAD1	172	H	D	07-23-94	162	S	83	43	2465
43°42'04"	116°30'39"	04N 01W 07BCC1	115	H	D	06-01-64	97	X	4	26	2455
43°41'45"	116°29'36"	04N 01W 07DADD1	182	H	D	10-01-79	171	O	1	32	2465
43°41'43"	116°29'53"	04N 01W 07DCAA1	157	H	D	04-25-92	152	O	6	2	2465

Well Construction of Sites Sampled by DEQ and USGS in 1995

Table 7

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°41'35"	116°29'50"	04N 01W 07DDCB2	30	I	D	02-06-88	20	P	10	N	2465
43°41'35"	116°29'50"	04N 01W 07DDCB3	80	H	O						2465
43°41'35"	116°29'38"	04N 01W 07DDDB1	132	H	D	06-01-89	127	O	2	37	2465
43°42'11"	116°28'26"	04N 01W 08AADC1	84	H	D	01-06-93	78	O	4	30	2478
43°41'38"	116°29'16"	04N 01W 08CCAD1	154	H	D	09-17-92	143	S	2	48	2470
43°41'37"	116°29'28"	04N 01W 08CCCA1	167	H	D	10-28-90	160	S	6	2	2468
43°42'16"	116°27'25"	04N 01W 09AACB1	300	H	R						2490
43°41'55"	116°28'18"	04N 01W 09CBBB1	72	H	D	08-11-73	65	S	3.5	58	2479
43°41'47"	116°27'25"	04N 01W 09DACC1	185	H	O	- -38					2483
43°41'46"	116°26'07"	04N 01W 10DACD2	71	H	D	05-15-90	64	S	10	2	2503
43°41'44"	116°26'04"	04N 01W 10DADC1	95	H	D	05-06-86	89	S	26	6	2505
43°41'42"	116°26'18"	04N 01W 10DCA1	259	H	D	03-08-79	245	O	21	2	2503
43°41'42"	116°26'32"	04N 01W 10DCBB1	70	H	O	- -45					2495
43°41'36"	116°26'07"	04N 01W 10DDCA1	230	H	D	11-18-91	225	O	3	30	2502
43°41'32"	116°25'35"	04N 01W 11CDCD1	150	H	D	05-07-76	143	O	30	100	2506
43°41'55"	116°24'53"	04N 01W 11DAAB1	84	H	D	11-16-90	69	S	2	40	2517
43°42'07"	116°24'12"	04N 01W 12BDAD1	230	H	D	03-28-90	209	O	8	2	2523
43°41'45"	116°23'45"	04N 01W 12DACD1	98	H	D	07-23-91	98	X	2	29	2534
43°41'50"	116°23'41"	04N 01W 12DADB1	191	H	D	09-01-91	186	S	11	4	2535
43°41'47"	116°23'38"	04N 01W 12DADD1	209	H	D	09-11-90	202	S	2	163	2535
43°41'39"	116°23'50"	04N 01W 12DDB1	81	H	D	09-26-67	80	O	10	70	2531
43°41'15"	116°24'38"	04N 01W 13BCBA1	160	H	O	- -83					2515
43°40'54"	116°24'28"	04N 01W 13CBD1	32	H	D	06-29-87	31	O	23	25	2515
43°40'40"	116°24'18"	04N 01W 13DCC5	128	N	D	02-01-46	128	X		22.5	2521.81
43°41'22"	116°25'39"	04N 01W 14BAC1		H							2505
43°41'30"	116°25'44"	04N 01W 14BBAB2	108	H	D	05-12-93	105	O		2	2505
43°41'05"	116°25'37"	04N 01W 14CAB1		I							2505
43°40'59"	116°25'42"	04N 01W 14CBA1		I							2505
43°40'58"	116°25'55"	04N 01W 14CBBC1	160	H	D	06-07-91	159	X	5	18	2500
43°41'20"	116°26'20"	04N 01W 15ABDC1	78	H	D	04-11-91	75	O	8	35	2500
43°41'08"	116°26'30"	04N 01W 15ACCB1	116	H	D	08-30-91	116	X	8	12	2490
43°41'23"	116°27'11"	04N 01W 16AADA1	261	H	D	01-26-78	261	X	24	110	2490
43°41'04"	116°27'47"	04N 01W 16CAAA1	160	H	D	04-23-94	150	O	8	36	2482
43°41'22"	116°29'31"	04N 01W 17BBCB1	125	H	D	09-20-88	119	O	8	2	2465
43°41'24"	116°29'21"	04N 01W 17BBDB1	149	H	D	06-18-91	140	O	4	33	2470
43°41'20"	116°29'21"	04N 01W 17BBDC1	424	H	D	04-17-63	381	O	10	50	2468
43°41'21"	116°29'43"	04N 01W 18AACD1	374	C	D	12-13-88	364	S	8	30	2465
43°40'09"	116°28'02"	04N 01W 21CABC1	105	H	D	11-05-82	100	S	35	2	2520
43°40'02"	116°27'45"	04N 01W 21DBCC1	168	H	D	06-18-79	162	S	51	2	2528
43°39'48"	116°27'31"	04N 01W 21DCDD1	243	H	D	08-22-92	236	S	32	42	2530

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°40'13"	116°25'22"	04N 01W 23ACCC2	155	H	D	01-20-81	150	S	60	31	2560
43°40'01"	116°24'48"	04N 01W 23DADD1	70.8	H	D	09-02-79	65.5	S	21	26	2560
43°40'04"	116°25'16"	04N 01W 23DBCA1	133	H	D	07-29-92	123	S	5	33	2560
43°39'57"	116°24'54"	04N 01W 23DDAB3	80	I	D	09-29-93	70	S	35	30	2565
43°39'54"	116°24'54"	04N 01W 23DDAC2	182	H	D	05-10-92	176	S	62	30	2565
43°39'55"	116°24'47"	04N 01W 23DDAD1	220	H	D	06-10-93	211	O	8	4	2570
43°40'26"	116°23'56"	04N 01W 24ACAB1	120	H	D	05-18-78	109	S	64	S	2570
43°40'27"	116°23'56"	04N 01W 24ACAB2	85	I	D	10-13-88	77	O	5	2	2540
43°40'18"	116°23'51"	04N 01W 24ACDA1	98	H	D	05-24-82	92.6	S	42	S	2580
43°40'24"	116°23'35"	04N 01W 24ADAA2	133	H	D	08-18-91	123	S	57	2	2585
43°40'39"	116°24'34"	04N 01W 24BBAB1	209	I	D	07-15-93	206	O	1	83	2515
43°40'20"	116°24'34"	04N 01W 24BCAC1	235	H	D	07-23-93	230	S	41	2	2575
43°40'21"	116°24'10"	04N 01W 24BDAD2	121	H	D	12-01-74	121	X	48	S	2575
43°40'24"	116°24'26"	04N 01W 24BDBB1	147	H	D	04-07-93	140	S	27	54	2575
43°39'48"	116°24'29"	04N 01W 24CCDD1	143	H	D	09-30-91	136	S	45	25	2574
43°39'26"	116°23'34"	04N 01W 25ADDA1	125	H	D	09-02-71	120	S	8		2585
43°39'25"	116°25'59"	04N 01W 27ADDA1	30	H	D	05-28-88	19	P	12	S	2555
43°39'35"	116°27'20"	04N 01W 28AADC1	120	H	D	03-21-75	120	X	80	50	2535
43°39'14"	116°28'20"	04N 01W 28CBCB2	200	H	O						2520
43°39'23"	116°28'24"	04N 01W 29ADDD1	100	H	D	09-22-88	94	S	17	35	2518
43°39'42"	116°30'09"	04N 01W 30ABBC1	237	H	D	07-15-94	230	O		2	2500
43°39'34"	116°29'36"	04N 01W 30ADAA2	99	H	D	03-12-90	89	S	40	5	2505
43°38'30"	116°30'43"	04N 01W 31BCCC1	67	H	R						2498
43°38'35"	116°30'28"	04N 01W 31BCDA1	312	F	D	09-29-87	132	S	8	S	2500
43°38'30"	116°30'34"	04N 01W 31BCDC1	126	F	D	04-23-74	87	S	60	24	2498
43°38'31"	116°30'24"	04N 01W 31BDCC1	120	H	D	10-22-73	57	S	14	35	2498
43°38'34"	116°30'10"	04N 01W 31BDDA1	78	D	L	01-18-74					2498
43°38'49"	116°29'32"	04N 01W 32BBBC1	65	H	D	09-10-92	60	S	58	20	2510
43°38'17"	116°28'12"	04N 01W 33CBDC2	119	H	O						2530
43°38'30"	116°26'03"	04N 01W 34ADDC1	355	H	D	07-15-83	335	X	6	1	2548
43°38'51"	116°24'45"	04N 01W 36BBBB2	170	H	O						2572
43°41'59"	116°34'19"	04N 02W 09ADD1	197	H	D	12-13-93	194	O	5	36	2420
43°41'59"	116°34'20"	04N 02W 09ADD2	200	H	D	12-09-93	196	O	5	38	2420
43°41'51"	116°31'55"	04N 02W 12CBC1	155	H	D	10-02-68	147	O			2448
43°39'05"	116°36'42"	04N 02W 29CCB1	130	H	D	05-17-66	101.5	P	30	120	2432
43°39'35"	116°36'47"	04N 02W 30ADA1	80	H	D	05-03-76	78.5	O	19	38	2426
43°42'10"	116°42'27"	04N 03W 09BBD1	200	P	O	04-27-67	113	S		95	2378
43°41'28"	116°38'36"	04N 03W 13BAA1	185	S	D	06-21-65	181	O	6	S	2370
43°40'04"	116°40'20"	04N 03W 22DADA1	140	I	D	03-11-92	118	O	57	8	2450
43°39'35"	116°41'00"	04N 03W 27BADD1	47	I	D	10-12-87	46	O	47	S	2385

Well Construction of Sites Sampled by DEQ and USGS in 1995

LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SOURCE OF WELL DATA	WELL CONST. DATE	DEPTH TO FIRST OPENING IN CASING (FEET)	TYPE OF OPENING	DEPTH TO FIRST REPORTED WATER (FEET)	DEPTH TO FIRST REPORTED CLAY OR SILT (FEET)	ALTITUDE OF LAND SURFACE (FEET)
43°39'20"	116°42'16"	04N 03W 28BDDC1	120	I	D	11-24-92	96	S	18	S	2362
43°38'55"	116°41'43"	04N 03W 28DDCD1	30	I	O						2392
43°44'01"	116°22'35"	05N 01E 31AACB1	185	H	D	07-21-88	180	O	99	2	2260
43°43'49"	116°22'37"	05N 01E 31ADCB2	229	H	D	11-20-92	217	S	80	2	2645
43°43'31"	116°21'36"	05N 01E 32DBD1	128	H	D	02-17-92	120	S	70	2	2660
43°43'29"	116°21'10"	05N 01E 33CBCC1	174	H	D	06-18-93	167	S	94	2	2655
43°43'16"	116°21'05"	05N 01E 33CCCD1	190	H	D	12-17-91	168	S	50	6	2632
43°43'16"	116°21'00"	05N 01E 33CCDC1	154	H	D	12-10-91	149	O	55	2	2632
43°43'54"	116°18'52"	05N 01E 34ADAA1	103	H	D	09-16-79	40	P	38	S	2705
43°43'21"	116°19'08"	05N 01E 34DCD1	54	H	D	11-14-56	8	P	8	21	2655
43°43'26"	116°18'46"	05N 01E 35CCBB1	363	H	D	04-21-79	20	O	17	S	2720
43°43'45"	116°26'15"	05N 01W 34ACDA1	120	H	O	- -45					2575
43°43'35"	116°26'15"	05N 01W 34DBAD1	74	H	D	04-07-81	75	X	55	2	2585
43°43'35"	116°26'15"	05N 01W 34DBAD2	72.6	I	D	05-29-61	69	O	55	N	2585
43°43'21"	116°25'53"	05N 01W 35CCC1	84	I	D	09-27-54	44	P		N	2582

APPENDIX B

Table 8

Nutrient, Bacteria and Radon Results

Headnotes for Tables 8, 9, 10, and 11

Well Location: well location in latitude and longitude or township, range and section

Primary Use of Water:

H	domestic
I	irrigation
P	public supply
C	commercial
D	dewater
S	stock
F	fire

Units of Measure:

°C	degrees celsius
US/CM	microsiemens per centimeter at 25 °C
<	less than
>	greater than
MG/L	milligrams per liter
STAND UNITS	standard units
MG/L as N	milligrams per liter as nitrogen
DISS	dissolved
MG/L as PO4	milligrams per liter as phosphate
MG/L as P	milligrams per liter as phosphorus
COL/100ML	colonies per 100 milliliters
PCI/L	picocuries per liter
UG/L	micrograms per liter
H2O	water
REC	recoverable
GF	glass fiber filter
FLT	filtered
U	micron (filter pore size)
ND	non-detect
*	results from Dept. of Ag study
MG/L as CACO3	milligrams per liter as calcium carbonate
MG/L as CA	milligrams per liter as calcium
MG/L as MG	milligrams per liter as magnesium
MG/L as NA	milligrams per liter as sodium
MG/L as K	milligrams per liter as potassium
MG/L as CL	milligrams per liter as chloride
MG/L as SO4	milligrams per liter as sulfate
MG/L as F	milligrams per liter as fluoride
MG/L as SIO2	milligrams per liter as silica
UG/L as AS	micrograms per liter as arsenic
UG/L as CD	micrograms per liter as cadmium
UG/L as CR	micrograms per liter as chromium
UG/L as FE	micrograms per liter as iron

Units of Measure continued:

UG/L as PB	micrograms per liter as lead
UG/L as MN	micrograms per liter as manganese
UG/L as ZN	micrograms per liter as zinc
UG/L as SE	micrograms per liter as selenium

Empty Box: no information available

Volatile Organic Compounds (VOCs) were analyzed at every site with a portable gas chromatograph for presence or absence. Sites with VOCs present had duplicates sent to Alpha Analytical Laboratory in Sparks, Nevada, those results can be found in Table 9.

	A	B	C	D	E	F	G	H	I	J	K	L
1–5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
6	43°32′09"	116°22′15"	02N 01E 05CBDC1	09-20-95	242	H	14.5	771		7.7	279	340
7	43°31′25"	116°23′30"	02N 01E 07CBBC1	10-05-95	145	H	13	288	>7	7.4	122	150
8	43°30′09"	116°20′46"	02N 01E 21BABA1	10-23-95		H						
9	43°32′40"	116°23′54"	02N 01W 01ABD1	08-23-95	200	H	15	594		7.8	235	290
10	43°32′46"	116°25′54"	02N 01W 02BBA1	07-13-95	104	H	14.5	649		7.1	292	360
11	43°31′40"	116°27′14"	02N 01W 09ADA1	10-03-95	37	H	14.5	460	>7	7.5	197	240
12	43°31′43"	116°24′51"	02N 01W 11ADA1	08-03-95	190	I	12.5	794		7.8	270	330
13	43°31′04"	116°24′18"	02N 01W 12CDD1	10-05-95	175	H	13	554	>7	7.6	238	290
14	43°32′11"	116°32′44"	02N 02W 02CACC1	08-10-95	73	H	15.5	590		7.7	212	260
15	43°32′42"	116°35′53"	02N 02W 05ABA1	07-22-95	180	H	16	694		7.7	136	170
16	43°38′02"	116°19′48"	03N 01E 03BBA1	08-18-95	117	H	21.5	352		7.3	157	190
17	43°37′51"	116°20′45"	03N 01E 04BAD1	08-01-95	68	H	14	380	4.4	7.5	182	220
18	43°37′54"	116°21′14"	03N 01E 05AADA1	09-14-95	86	H	13	415	3.3	7	201	250
19	43°38′01"	116°21′32"	03N 01E 05ABAA1	09-14-95	63	H	13.5	406	3.7	7.3	195	240
20	43°37′39"	116°21′38"	03N 01E 05ACDB1	09-25-95	97	H	13.5	877	4	7.2	340	410
21	43°37′56"	116°21′49"	03N 01E 05BAAD1	10-17-95	28	H	13.5	775	1.8	7.2	339	410
22	43°37′57"	116°21′49"	03N 01E 05BAAD2	10-17-95	162	H	12.5	414	0.9	6.7	184	230
23	43°38′01"	116°23′24"	03N 01E 06BBAB1	09-26-95	64	H	13	734	2.2	7.3	318	390
24	43°37′32"	116°23′30"	03N 01E 06CBBA1	09-25-95	71	H	12.5	794	>7	7.4	298	360
25	43°37′18"	116°22′29"	03N 01E 06DDAD1	09-26-95	30	I	13.5	771	1.6	7.3	325	400
26	43°37′04"	116°23′32"	03N 01E 07BBBD1	09-27-95	36	H	14.5	422	4.2	7.2	209	260
27	43°36′48"	116°23′31"	03N 01E 07BCCA1	09-27-95	35	I	15	583	4.2	7.3	241	290
28	43°36′47"	116°23′29"	03N 01E 07BCCA2	09-27-95	35	I	15.5	635	3.3	7.3	243	300
29	43°36′44"	116°23′07"	03N 01E 07BDDC2	08-10-95	30	I	13.5	695		7.8	295	360
30	43°36′19"	116°23′14"	03N 01E 07CDCC1	09-27-95	40	I	14	586	3.2	7.1	274	340
31	43°36′19"	116°21′40"	03N 01E 08DCDC1	09-28-95	67	H	13.5	470	>7	7.3	213	260
32	43°36′07"	116°18′33"	03N 01E 14BBD1	07-05-95	183		14.5	655		7.3	213	260
33	43°36′06"	116°22′03"	03N 01E 17BACC2	09-21-95	65	H	13	654	5.8	7.3	282	340
34	43°35′41"	116°22′23"	03N 01E 17CBCC1	09-28-95	144	H	13.5	505	5.8	7.5	182	220
35	43°35′28"	116°21′28"	03N 01E 17DDCC1	09-21-95	59	H	13	610	5.5	7.5	229	280
36	43°35′34"	116°22′26"	03N 01E 18DDAD1	09-28-95	118	H	13.5	702	6.9	7.3	253	310
37	43°34′59"	116°23′24"	03N 01E 19BCDC1	10-02-95	80	H	13	558	>7	7.1	268	330
38	43°34′48"	116°22′53"	03N 01E 19DBCD1	09-28-95	65	H	12.5	489	4.9	7	213	260
39	43°35′24"	116°21′32"	03N 01E 20ABAA1	09-28-95		H	13	604	>7	7.2	275	340
40	43°34′34"	116°21′22"	03N 01E 20DDCD1	10-24-95	170	H	12.5	808	7	7.5	294	360
41	43°34′39"	116°20′30"	03N 01E 21DCCA1	10-24-95	84	H	13.5	689	>7	7.4	271	330
42	43°34′17"	116°17′27"	03N 01E 25BCB1	08-06-95	117	D	13	568		7.6	252	310
43	43°34′32"	116°20′30"	03N 01E 28ABBA1	10-23-95	120	H	13	551		7.6	185	230
44	43°33′41"	116°20′21"	03N 01E 28DCDD2	10-23-95	125	H	13.5	502		7.5	217	260
45	43°34′07"	116°21′17"	03N 01E 29DAAA1	10-23-95	70	H	13	460		7.3	206	250
46	43°33′50"	116°22′41"	03N 01E 30DDBC2	10-23-95	142	H	13.5	626		7.3	270	330
47	43°33′46"	116°22′35"	03N 01E 30DDCA1	09-18-95	140	H	13.5	660	>7	7	260	320

Nutrients, bacteria and radon results

Table 8

	M	N	O	P	Q	R	S	T	U	V	W
1–5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
6	ND	ND		2.6	2.60	2.60		ND	0	0	
7	ND	ND		2.4	2.40	2.40	0.18	0.06	0	0	390
8									1		
9	ND	ND		4.8	4.80	4.80	0.06	0.02		0	480
10	ND	ND		4.4	4.40	4.40	0.09	0.03	0	0	670
11	ND	ND		3.3	3.30	3.30	0.21	0.07	0	0	
12	ND	ND		6.5	6.50	6.50	0.06	0.02	0	0	740
13	ND	ND		5.8	5.80	5.80	0.09	0.03	0	0	
14	ND	ND		2.5	2.50	2.50	0.12	0.04	0	0	
15	ND	ND		2.5	2.50	2.50	0.06	0.02	0	0	
16	0.28	ND		0.71	0.71	0.71		0.08		0	
17	ND	ND		2.2	2.20	2.20	0.52	0.17	0	0	2200
18	ND	ND		2	2.00	2.00	0.31	0.1	0	0	
19	ND	ND		1.3	1.30	1.30	0.67	0.22	0	0	
20	0.2	ND		18	18.00	18.00	0.31	0.1	4	0	
21	ND	ND		6.6	6.60	6.60	1.4	0.46	22	0	2400
22	ND	ND		2.6	2.60	2.60	0.09	0.03	0	0	540
23	ND	ND		5.7	5.70	5.70	0.28	0.09	0	0	
24	ND	ND		2.2	2.20	2.20	0.31	0.1	0	0	
25	ND	ND		8.8	8.80	8.80	0.46	0.15	0	0	2500
26	ND	ND		0.44	0.44	0.44	0.67	0.22	0	0	
27	ND	ND	1.59	1.59	1.60	1.60	0.4	0.13	22	0	
28	ND	ND		1.8	1.80	1.80	0.37	0.12	0	0	
29	ND	ND		3	3.00	3.00	0.49	0.16	0	0	
30	ND	ND		2.7	2.70	2.70	0.77	0.25	0	0	
31	ND	ND		2.9	2.90	2.90	0.15	0.05	0	0	
32	0.02	ND		2.8	2.8	2.8	0.12	0.04		0	340
33	ND	ND		3.2	3.20	3.20	0.15	0.05	0	0	
34	ND	ND		2.9	2.90	2.90	0.09	0.03	0	0	440
35	ND	ND		6.8	6.80	6.80	0.25	0.08	0	0	
36	ND	ND		8.2	8.20	8.20	0.21	0.07	0	0	
37	ND	ND		2.6	2.60	2.60	0.31	0.1	0	0	
38	ND	ND		3.4	3.40	3.40	0.18	0.06	0	0	
39	ND	ND		11	11.00	11.00	0.49	0.16	100	0	
40	0.03	ND		4.7	4.70	4.70	0.46	0.15	0	0	
41	ND	ND		5.3	5.30	5.30	0.15	0.05	0	0	
42	ND	ND		3	3.00	3.00	0.12	0.04		0	
43	ND	ND		4.1	4.10	4.10	0.09	0.03	0	0	
44	ND	ND		2.9	2.90	2.90	0.12	0.04	0	0	
45	ND	ND		1.8	1.80	1.80	0.37	0.12	0	0	2800
46	ND	ND		3.5	3.50	3.50	0.06	0.02	0	0	
47	ND	ND		4.2	4.20	4.20	0.18	0.06	0	0	

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
48	ND	ND		5	5.00	5.00	0.31	0.1	0	0	
49	ND	ND		2.5	2.50	2.50	0.09	0.03	0	0	
50	ND	ND		2.5	2.50	2.50	0.03	0.01	0	0	
51	ND	ND		2.2	2.20	2.20	0.12	0.04	0	0	
52	ND	ND		3.6	3.60	3.60	0.09	0.03	0	0	
53	0.03	ND		7.1	7.10	7.10	0.58	0.19	0	0	1800
54	0.02	ND		5.2	5.20	5.20	0.09	0.03	0	0	
55	ND	ND		1.8	1.80	1.80	0.8	0.26	0		
56	0.03	ND		0.99	0.99	0.99	0.03	0.01	0	0	
57	ND	ND		2.9	2.90	2.90	0.15	0.05	0	0	
58	ND	ND		1.9	1.90	1.90	0.31	0.1	0	0	
59	ND	ND		1.7	1.70	1.70		ND	0	0	
60	ND	ND		1.7	1.70	1.70	0.18	0.06	0	0	
61	ND	ND		2.1	2.10	2.1	0.18	0.06	0	0	
62	ND	ND		1.7	1.70	1.7	0.09	0.03	0	0	
63	ND	ND		1.2	1.20	1.2	0.25	0.08	0	0	490
64	ND	ND		1.3	1.30	1.3	0.18	0.06	0	0	
65	ND	ND		1.7	1.70	1.7	0.06	0.02	0	0	
66	0.57	ND			ND	ND		ND		0	
67	ND	ND		1.7	1.70	1.7	0.09	0.03		0	
68	ND	ND		1.7	1.70	1.7	0.09	0.03	0	0	
69	ND	ND		3.3	3.30	3.3	0.18	0.06		0	550
70	ND	ND		2.3	2.3	2.3	0.18	0.06	80	0	
71	0.02	ND		2.2	2.20	2.2	0.4	0.13	0	0	
72	0.02	ND		2.5	2.50	2.5	0.28	0.09	0	0	350
73	0.02	ND		1.8	1.80	1.8	0.34	0.11	0	0	
74	ND	ND		0.77	0.77	0.77	0.06	0.02	0	0	820
75	ND	ND		1.2	1.20	1.2	0.06	0.02	0	0	280
76	ND	ND		1.9	1.90	1.9	0.06	0.02	0	0	
77	ND	ND		3.4	3.40	3.4	0.09	0.03	0	0	
78	ND	ND		4.7	4.70	4.7	0.09	0.03	0	0	660
79	ND	ND		2.8	2.80	2.8	0.71	0.23	0	0	
80	ND	ND		2.8	2.80	2.8	0.06	0.02	0	0	
81	ND	ND		1.4	0.61	0.61	0.06	0.02	0	0	
82	ND	ND		0.61	0.61	0.61	0.43	0.14	80	0	
83	ND	ND		2.1	2.10	2.1	0.18	0.06	0	0	
84	ND	ND		1.9	1.90	1.9	0.12	0.04	0	0	
85	ND	ND		3.6	3.60	3.6	0.12	0.04	0	0	490
86	ND	ND		1.3	1.30	1.3	0.15	0.05	6	0	410
87	ND	ND		3.2	3.20	3.2	0.12	0.04	0	0	
88	ND	ND		2.7	2.70	2.7	0.09	0.03	0	0	
89	ND	ND		2	2.00	2	0.09	0.03	0	0	

	A	B	C	D	E	F	G	H	I	J	K	L
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
48	43°33'47"	116°22'25"	03N 01E 30DDD1	08-08-95	132	H	13.5	732		7.3	256	310
49	43°33'42"	116°22'32"	03N 01E 30DDDC1	09-07-95	99	H	14.5	616	6.6	7.1	257	310
50	43°32'49"	116°22'59"	03N 01E 31CDD1	10-23-95	196	H	14	650		7.5	207	250
51	43°33'39"	116°20'01"	03N 01E 33AAAA1	09-07-95	111	H	13.5	391	>7	7.7	157	190
52	43°33'40"	116°20'07"	03N 01E 33AAAB1	09-07-95	112	H	14	430	>7	7.6	167	210
53	43°37'23"	116°24'22"	03N 01W 01CACC1	08-21-95	57.5	I	14.5	990	5.6	7.6	346	420
54	43°37'22"	116°25'30"	03N 01W 02CDBA1	10-24-95	26	H	13.5	746	6.2	7.2	290	350
55	43°37'13"	116°25'32"	03N 01W 02CDCD1	09-14-95	31	I	13.5	362	2.9	7.1	148	180
56	43°38'00"	116°25'59"	03N 01W 03AAAA1	08-21-95	156	H	13.5	301		7.6	80	98
57	43°37'24"	116°25'58"	03N 01W 03DADD1	08-22-95	72	H	13	677		7	200	240
58	43°38'00"	116°27'33"	03N 01W 04ABAB1	08-23-95	78	H	12.5	425	3.8	7.5	156	190
59	43°38'00"	116°27'33"	03N 01W 04ABAB2	08-23-95		H	15.5	478		7.6	110	130
60	43°37'22"	116°27'58"	03N 01W 04CDBB1	08-22-95	76.7	H	14	725		7.2	126	150
61	43°37'42"	116°29'31"	03N 01W 05BCCB1	10-10-95	120	H	14	630	>7	6.9	152	180
62	43°37'36"	116°30'42"	03N 01W 06CBBB1	10-11-95	175	H	14	275	5.5	7.1	86	100
63	43°37'12"	116°29'40"	03N 01W 06DDDC1	10-11-95	80	H	14	509	5.4	6.9	141	170
64	43°36'58"	116°29'44"	03N 01W 07ADBA1	10-10-95	78	H	15	466	5.6	7	109	130
65	43°36'49"	116°29'49"	03N 01W 07ADCB1	10-10-95	170	H	16	596	>7	7.5	152	180
66	43°36'47"	116°29'41"	03N 01W 07ADDC1	10-04-95	260	H	17	476	0.6	7.8	124	150
67	43°36'53"	116°29'02"	03N 01W 08BDAC1	10-04-95	160	H	16.5	586	6.8	7.3	160	200
68	43°36'48"	116°29'04"	03N 01W 08BDDB1	10-04-95	148	H	15.5	585	>7	7.4	152	190
69	43°36'38"	116°29'21"	03N 01W 08CBAC1	10-04-95	80	H	14.5	962	5	7.1	315	390
70	43°36'38"	116°29'19"	03N 01W 08CBAD1	10-10-95	300	S	15.5	758		7.4	181	220
71	43°37'01"	116°27'22"	03N 01W 09AACB1	08-17-95	102	H	14.5	692		7.4	232	280
72	43°36'52"	116°28'05"	03N 01W 09BCAD1	08-17-95	86.5	H	14.5	679		7.3	209	260
73	43°36'19"	116°27'57"	03N 01W 09CDCD1	08-17-95	65	H	14.5	622		7.5	191	230
74	43°37'09"	116°26'45"	03N 01W 10BAB1	08-23-95	157	H	15	238		7.6	65	80
75	43°36'19"	116°26'49"	03N 01W 10CDCC1	08-22-95	152	H	15.5	366		7.5	94	120
76	43°36'42"	116°26'06"	03N 01W 10DAAB1	10-16-95	210	H	14	491	>7	7.3	130	160
77	43°36'45"	116°25'38"	03N 01W 11BDCC1	09-14-95	150	H	14.5	905	>7	7.3	254	310
78	43°36'18"	116°24'53"	03N 01W 11DDDC1	09-05-95	83	H	13.5	876	>7	7.4	328	400
79	43°36'46"	116°24'41"	03N 01W 12CBBB1	08-29-95	36	I	13.5	487	5	7.6	192	230
80	43°35'26"	116°24'09"	03N 01W 13DCCC2	08-23-95	195	H	14	511		7.4	209	250
81	43°36'16"	116°25'12"	03N 01W 14ABAB2	09-20-95	252	H	13.5	475	>7	7.3	129	160
82	43°36'16"	116°25'12"	03N 01W 14ABAB3	09-20-95	14	I	15	296	3	7.3	144	180
83	43°35'46"	116°25'56"	03N 01W 14CBB1	08-30-95	100	H	15	591		7.3	194	240
84	43°36'06"	116°27'08"	03N 01W 15BBCC1	09-05-95	103	H	15	610	>7	7.3	203	250
85	43°35'26"	116°26'32"	03N 01W 15DCCC1	10-05-95	189	H	13.5	686	7	7.5	279	340
86	43°35'34"	116°26'00"	03N 01W 15DDAD1	08-24-95	90	H	13.5	302		7.6	129	160
87	43°35'40"	116°28'18"	03N 01W 16CBCC1	08-28-95		H	14.5	468		7.5	182	220
88	43°35'40"	116°28'15"	03N 01W 16CBCD1	08-29-95	140	H	14.5	272		7.5	118	140
89	43°35'33"	116°27'23"	03N 01W 16DDBC1	08-31-95	204	H	14.5	513		7.7	184	220

	A	B	C	D	E	F	G	H	I	J	K	L
1–5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
90	43°35'28"	116°30'07"	03N 01W 18DCCC1	08-28-95	174	H	14.5	484		7.7	192	240
91	43°35'25"	116°30'27"	03N 01W 19BBAA1	10-11-95	170	H	14	554	>7	7.5	262	320
92	43°35'24"	116°28'09"	03N 01W 21BBAB1	08-30-95	218	H	15	917		7.4	232	280
93	43°34'50"	116°27'40"	03N 01W 21DBCA1	08-31-95	295	H	15	837		7.6	279	340
94	43°35'13"	116°26'27"	03N 01W 22ABCD1	08-30-95	192	H	14	312		7.7	115	140
95	43°34'34"	116°26'38"	03N 01W 22CDD1	08-30-95	170	H	14	784		7.7	299	370
96	43°34'57"	116°26'13"	03N 01W 22DABB1	08-03-95	274	H	15	689	5	7.7	266	320
97	43°34'39"	116°25'33"	03N 01W 23CBDB1	08-30-95	210	H	14.5	721		7.6	296	360
98	43°34'48"	116°25'07"	03N 01W 23DBD1	08-24-95	132	H	15	377		7.6	128	160
99	43°35'24"	116°24'29"	03N 01W 24BABB2	10-03-95	275	H	14.5	895	5	7.1	183	220
100	43°35'17"	116°24'31"	03N 01W 24BBDA1	10-03-95	60	H	13.5	634	>7	7.4	320	390
101	43°34'35"	116°23'41"	03N 01W 24DDDC1	08-21-95	149	H	14.5	808		7.3	283	350
102	43°34'26"	116°24'32"	03N 01W 25BBAD1	10-25-95	197	H	14	592	>7	7.5	231	280
103	43°34'31"	116°24'38"	03N 01W 25BBBA1	10-25-95	253	H	13.5	337	6.5	7.5	146	180
104	43°34'32"	116°24'37"	03N 01W 25BBBA2	10-25-95		I	13	445	>7	7.6	165	200
105	43°33'44"	116°24'24"	03N 01W 25CDCA1	10-02-95	245	H	15.5	619	6.7	7.6	157	190
106	43°33'54"	116°23'35"	03N 01W 25DAD1	10-19-95	330	H	14.5	728	>7	7.3	300	370
107	43°34'32"	116°25'44"	03N 01W 26BBAA1	08-29-95	168	H	13.5	647		7.6	294	360
108	43°33'42"	116°24'52"	03N 01W 26DDDC1	08-31-95	213	H	18	673	1.1	7.7	151	180
109	43°33'42"	116°24'52"	03N 01W 26DDDC1	09-18-95	213	H	18	668	1.9	7.6		
110	43°34'20"	116°27'08"	03N 01W 27BBCC1	09-18-95	196	H	15.5	878	>7	7.6	316	390
111	43°33'46"	116°26'49"	03N 01W 27CDCB1	08-31-95	200	H	14.5	718		7.5	289	350
112	43°34'17"	116°27'13"	03N 01W 28ADAA1	09-05-95	158	H	15	785	7	7.4	326	400
113	43°34'33"	116°30'32"	03N 01W 30BBAB1	10-11-95	50	H	14	581	>7	7.4	278	340
114	43°33'42"	116°29'45"	03N 01W 30DDCD1	10-16-95	70	H	14.5	734	5.9	7.4	313	380
115	43°33'00"	116°29'40"	03N 01W 31DDA1	10-19-95	67	H	16.5	937	6.7	7.5	283	350
116	43°33'02"	116°29'41"	03N 01W 31DDA2	10-19-95	130	H	16	741	>7	7.7	253	310
117	43°33'35"	116°28'47"	03N 01W 32ABAC1	10-16-95	60	H	13.5	466	6.6	7.4	162	200
118	43°33'15"	116°28'24"	03N 01W 32DAAA1	09-20-95	107	H	14.5	638	>7	7.6	259	320
119	43°33'34"	116°27'13"	03N 01W 33AADA1	09-11-95	135	H	14	654	6.9	7.6	264	320
120	43°33'38"	116°27'44"	03N 01W 33ABBB1	09-18-95	126	H	14.5	624	>7	7.8	247	300
121	43°32'50"	116°27'44"	03N 01W 33DCCC1	10-19-95	85	H	14	680	>7	7.5	258	320
122	43°33'38"	116°26'00"	03N 01W 34AAA1	10-16-95		H	14.5	600	>7	7.6	246	300
123	43°32'49"	116°26'37"	03N 01W 34CDDD1	09-18-95	100	H	14.5	632	>7	7.4	276	240
124	43°33'15"	116°24'48"	03N 01W 35ADDD1	09-05-95		H	16	640	>7	7.8	202	250
125	43°33'22"	116°25'47"	03N 01W 35BCAC1	09-11-95	185	H	14.5	513	>7	7.7	186	230
126	43°33'32"	116°24'09"	03N 01W 36ABCB1	09-19-95		I	19	929	0	7.7	194	240
127	43°33'32"	116°24'08"	03N 01W 36ABCB2	09-19-95	255	H	17.5	812	0	7.6	203	250
128	43°33'32"	116°24'11"	03N 01W 36BADA1	09-19-95		H	18.5	780	0	7.6	181	220
129	43°33'25"	116°24'38"	03N 01W 36BCBA1	09-11-95	190	H	15	677	>7	7.6	255	310
130	43°33'13"	116°24'17"	03N 01W 36CAAB1	10-17-95		H	20.5	847	0	8	183	220
131	43°37'37"	116°37'07"	03N 02W 06ACD1	09-08-95	87	I	13.5	965		7.6	312	380

Nutrients, bacteria and radon results

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
90	ND	ND		1.5	1.50	1.5	0.12	0.04	0	0	
91	ND	ND		0.99	0.99	0.99	0.09	0.03	0	0	
92	ND	ND		3.4	3.40	3.4	0.06	0.02	0	0	
93	ND	ND		2.7	2.70	2.7	0.06	0.02	0	0	
94	ND	ND		1.5	1.50	1.5	0.12	0.04	0	0	360
95	ND	ND		4.9	4.90	4.9	0.06	0.02	0	0	
96	ND	ND		2.9	2.90	2.9	0.09	0.03	0	0	440
97	ND	ND		3	3.00	3	0.12	0.04	0	0	
98	ND	ND		1.4	1.40	1.4	0.06	0.02	0		
99	ND	ND		3	3.00	3		ND	1	0	
100	ND	ND		3.7	3.70	3.7	0.15	0.05	0	0	
101	0.02	ND		2.7	2.70	2.7	0.03	0.01	0	0	320
102	ND	ND		1.8	1.80	1.8	0.12	0.04	0	0	
103	ND	ND		1.6	1.60	1.6	0.09	0.03	0	0	
104	0.02	ND		1.8	1.80	1.8	0.06	0.02	0	0	
105	ND	ND		1.5	1.50	1.5	0.06	0.02	0	0	
106	ND	ND		2.3	2.30	2.3	0.06	0.02	0	0	
107	ND	ND		3.9	3.90	3.9	0.06	0.02	0	0	
108	ND	ND		0.84	0.84	0.84	0.03	0.01	0	0	500
109		ND									
110	ND	ND		3.7	3.70	3.7	0.06	0.02	0	0	
111	ND	ND		5.2	5.20	5.2	0.03	0.01	0	0	
112	ND	ND		5.4	5.40	5.4		ND	0	0	
113	ND	ND		1.6	1.60	1.6	0.21	0.07	0	0	
114	ND	ND		6.2	6.20	6.2	0.12	0.04	0	0	180
115	ND	ND		4.4	4.40	4.4	0.06	0.02	0	0	
116	ND	ND		5.3	5.30	5.3	0.12	0.04	0	0	
117	ND	ND		1.7	1.70	1.7	0.4	0.13	0	0	
118	ND	ND		6.8	6.80	6.8	0.09	0.03	0	0	
119	ND	ND		3.8	3.80	3.8	0.03	0.01	0	0	
120	ND	ND		3.5	3.50	3.5	0.06	0.02	0	0	
121	ND	ND		8.1	8.10	8.1	0.09	0.03	0	0	100
122	ND	ND		2.6	2.60	2.6		ND	0	0	
123	ND	ND		5.9	5.90	5.9	0.09	0.03	0	0	
124	ND	ND		3	3.00	3	0.03	0.01	0	0	
125	ND	ND		1.2	1.20	1.2	0.03	0.01	0	0	
126	0.72	ND						ND	0	0	280
127	ND	ND		0.6	0.60	0.6	0.03	0.01	0	0	
128	1.1	ND						ND	0	0	
129	ND	ND		2.7	2.70	2.7	0.03	0.01	0	0	
130	1.4	ND					0.03	0.01	0	0	
131	ND	ND		15	15.00	15	0.4	0.13		0	

	A	B	C	D	E	F	G	H	I	J	K	L
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
132	43°36'33"	116°37'51"	03N 02W 07CBC1	07-22-95	196	H	18.5	233		7.8	102	120
133	43°36'19"	116°33'23"	03N 02W 10DDCC1	09-06-95	213	H	16.5	713	>7	7.5	182	220
134	43°36'20"	116°33'18"	03N 02W 10DDCD1	09-06-95	70	H	15.5	770	>7	7.7	224	270
135	43°36'22"	116°33'18"	03N 02W 10DDCD2	09-06-95	60	H	15	609	6.3	7.6	200	240
136	43°36'21"	116°33'16"	03N 02W 10DDDC1	09-06-95	75	H	15.5	736	>7	7.7	224	270
137	43°36'46"	116°32'44"	03N 02W 11BDCD1	09-08-95	110	H	16.5	803	>7	7.3	227	280
138	43°36'18"	116°32'54"	03N 02W 14BBAB2	09-08-95	82	H	24.5	334	1.8	8	121	150
139	43°36'18"	116°33'06"	03N 02W 14BBBB1	09-08-95	80	H	14.5	469	3.1	7.6	197	240
140	43°36'02"	116°36'38"	03N 02W 17BCB1	08-16-95	461	P	24	245		7.8	120	150
141	43°35'14"	116°31'23"	03N 02W 24BAD1	08-16-95	174	H	14.5	681		7.9	220	270
142	43°35'13"	116°31'23"	03N 02W 24BAD2	08-16-95	71	H	14	559		7.7	254	310
143	43°34'33"	116°32'30"	03N 02W 26BAA1	08-09-95	83	H	15.5	584		7.8	242	300
144	43°34'10"	116°36'26"	03N 02W 29BCD1	08-09-95	115	H	16	727	6.8	7.6	212	260
145	43°33'04"	116°35'01"	03N 02W 33CAD1	08-10-95	63	H	14	681		7.7	217	270
146	43°32'55"	116°33'43"	03N 02W 34CDA1	08-10-95	146	H	15	874	4.5	7.6	292	360
147	43°32'49"	116°31'35"	03N 02W 36CDC1	07-25-95	90	H	15.5	812		7.8	233	280
148	43°35'22"	116°40'36"	03N 03W 22ABB1	08-16-95	250	I	13.5	340		8	149	180
149	43°43'06"	116°18'52"	04N 01E 03AADC1	10-04-95	150	H	16	329	0.9	7.5	138	170
150	43°43'14"	116°19'18"	04N 01E 03ABBA1	09-25-95	105	H	14.5	482	5.2	7.1	207	250
151	43°43'14"	116°19'20"	04N 01E 03ABBB1	10-04-95	74	H	14	600	6.3	7	237	290
152	43°43'13"	116°20'05"	04N 01E 04AAAC1	08-15-95	64	H	14.5	308		6.8	122	150
153	43°42'50"	116°21'04"	04N 01E 04BCCD1	08-16-95	470	H	22.5	308		7.3	123	150
154	43°42'39"	116°21'04"	04N 01E 04CBCD1	08-16-95	199	H	12.5	275		6.8	102	120
155	43°42'48"	116°20'33"	04N 01E 04DBBB1	08-16-95	104	H	14	293		6.8	119	150
156	43°42'26"	116°20'14"	04N 01E 04DDCC1	09-21-95	285	H	15	384	1.6	7.3	172	210
157	43°43'06"	116°21'35"	04N 01E 05ABD1	08-14-95	138	H	13	517		7.4	199	240
158	43°42'57"	116°22'22"	04N 01E 05BCBC1	09-13-95	39	I	14.5	286	>7	6.9	147	180
159	43°42'57"	116°22'22"	04N 01E 05BCBC2	09-13-95		H	14.5	297	>7	7	158	190
160	43°42'45"	116°22'17"	04N 01E 05CBBD1	10-05-95	30	H	14	397	2.1	7.3	173	210
161	43°43'15"	116°23'32"	04N 01E 06BBB1	07-17-95	67	H	15	414		8	191	230
162	43°42'24"	116°22'55"	04N 01E 06DCCC2	10-05-95	120	H	14	422	4.6	7.2	215	260
163	43°42'10"	116°21'34"	04N 01E 08ACAB1	08-16-95	97	H	12	444		7	204	250
164	43°41'59"	116°21'13"	04N 01E 08ADDD1	08-23-95	32	F	16.5	303		6.8	113	140
165	43°42'13"	116°21'52"	04N 01E 08BADC1	08-17-95	70	H	13	615		7	292	360
166	43°41'45"	116°21'53"	04N 01E 08CAD1	07-19-95	462	I	15	289	0	7.9	123	150
167	43°41'44"	116°21'52"	04N 01E 08CAD2	07-19-95	100	I	13	276	1.5	7.2	113	140
168	43°41'52"	116°21'14"	04N 01E 08DAAD1	08-17-95	35	H	14	188		6.7	86	100
169	43°41'45"	116°21'18"	04N 01E 08DADC1	08-17-95	98	H	15	327		6.8	136	170
170	43°41'49"	116°21'46"	04N 01E 08DBCB1	08-17-95	145	I	13	542		7.4	198	240
171	43°41'47"	116°21'43"	04N 01E 08DBCC1	08-17-95	100	H	14.5	323		7	142	170
172	43°41'50"	116°21'35"	04N 01E 08DBDB1	10-18-95	101	H	14.5	348		7	152	190
173	43°41'44"	116°21'18"	04N 01E 08DDAB1	08-22-95	87	H	14	387		7	165	200

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
132	ND	ND		0.47	0.47	0.47	0.12	0.04		0	
133	ND	ND		1.8	1.80	1.8		ND	0	0	
134	ND	ND		2.2	2.20	2.2		ND	0	0	
135	ND	ND		2.1	2.10	2.1	0.06	0.02	0	0	1100
136	ND	ND		2.1	2.10	2.1		ND	0	0	
137	ND	ND		2.1	2.10	2.1	0.06	0.02	0	0	
138	ND	ND		0.34	0.34	0.34	0.03	0.01	0	0	280
139	ND	ND		2.3	2.30	2.3	0.21	0.07	0	0	
140	ND	ND		0.38	0.38	0.38	0.06	0.02		0	260
141	ND	ND		2.9	2.90	2.9	0.06	0.02	0	0	
142	ND	ND		2.9	2.90	2.9	0.15	0.05	0	0	
143	ND	ND		2.3	2.30	2.3	0.12	0.04	0	0	
144	ND	ND		3.8	3.80	3.8	0.03	0.01	0	0	
145	0.02	ND		6.3	6.30	6.3	0.09	0.03	0	0	
146	ND	ND		6	6.00	6	0.12	0.04	0	0	
147	0.02	ND		5.2	5.20	5.2	0.09	0.03		0	500
148	ND	ND		0.68	0.68	0.68	0.06	0.02		0	
149	0.24	ND		0.57	0.57	0.57	0.31	0.1		0	470
150	0.11	ND			ND		0.28	0.09	0	0	
151	0.02	ND			ND		0.64	0.21		0	
152	0.02	ND		1.6	1.60	1.6	0.64	0.21	0	0	1100
153	ND	ND		2	2.00	2	0.12	0.04	0	0	
154	ND	ND		3.7	3.70	3.7	0.31	0.1	0	0	
155	ND	ND		2.6	2.60	2.6	0.43	0.14	0	0	
156	ND	ND		0.88	0.88	0.88	0.18	0.06	0	0	
157	0.03	ND		3.6	3.60	3.6	0.34	0.11	0	0	350
158	ND	ND		0.89	0.89	0.89	0.86	0.28	0	0	
159	ND	ND		0.8	0.80	0.8	0.86	0.28	8	0	
160	ND	ND		1.3	1.30	1.3	0.06	0.02	0	0	300
161	ND	ND		4.2	4.20	4.2	0.49	0.16	0	0	1500
162	ND	ND		1.8	1.80	1.8	0.74	0.24	0	0	380
163	ND	ND		3.8	3.80	3.80	0.34	0.11	0	0	
164	ND	ND		3.8	3.80	3.80	0.12	0.04	0	0	
165	0.03	ND		6.8	6.80	6.80	0.37	0.12	0	0	
166	0.33	ND				ND	0.03	0.01	0	0	640
167	0.02	ND		1.2	1.20	1.20	0.46	0.15	0	0	910
168	0.03	ND		0.7	0.70	0.70	0.43	0.14	0	0	
169	0.03	ND		3.9	3.90	3.90	0.09	0.03	0	0	
170	0.03	ND		4.4	4.40	4.40	0.31	0.1	0	0	
171	0.02	ND		1.7	1.70	1.70	0.09	0.03	0	0	
172	ND	ND		2	2.00	2.00	0.18	0.06	0	0	
173	ND	ND		3	3.00	3.00	0.09	0.03	0	0	

	A	B	C	D	E	F	G	H	I	J	K	L
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
174	43°41'39"	116°21'12"	04N 01E 08DDAD2	08-08-95	55	H	14	465		7.1	209	260
175	43°41'39"	116°21'13"	04N 01E 08DDAD3	08-08-95	100	I	13.5	394		7	175	210
176	43°41'38"	116°21'12"	04N 01E 08DDDA2	08-08-95	60	H	14.5	472		7.1	216	260
177	43°41'34"	116°21'09"	04N 01E 09CCCC1	08-22-95	65	H	13.5	455	6.2	7	207	250
178	43°41'37"	116°20'26"	04N 01E 09DCCA1	10-16-95	113	C	15	161	1.2	7	74	91
179	43°41'13"	116°20'18"	04N 01E 09DCDD1	10-16-95	82	H	13.5	126	1.3	7	60	74
180	43°41'32"	116°20'15"	04N 01E 09DDCC1	08-22-95	127	I	14.5	124	5.3	6.9	57	70
181	43°42'19"	116°18'13"	04N 01E 11BAAD1	10-24-95	335	H	20	245	0.5	7.3	112	140
182	43°42'23"	116°18'39"	04N 01E 11BBB1	07-17-95	203	H	16.5	994	>7	7.6	298	360
183	43°41'41"	116°18'41"	04N 01E 11CCBD1	09-12-95		H	14.5	225	1.6	7.6	96	120
184	43°41'40"	116°18'12"	04N 01E 11DCBC1	09-12-95	310	I	21.5	1020	3	7.1	345	420
185	43°41'28"	116°17'02"	04N 01E 13BAAA1	07-25-95	150	P	17	193		7.1	56	69
186	43°40'52"	116°17'33"	04N 01E 13CBCC1	10-19-95	30	H	13.5	453	0.9	6.8	223	270
187	43°41'03"	116°16'43"	04N 01E 13DBAA1	09-21-95	85	H	15.5	209	0.2	7.5	92	110
188	43°41'06"	116°18'34"	04N 01E 14BCDD1	09-27-95	31.5	H	14	245	1.4	8.4	129	160
189	43°41'30"	116°19'29"	04N 01E 15BAAB1	10-11-95	59	H	13.5	244	2.1		112	140
190	43°41'21"	116°19'29"	04N 01E 15BADC1	10-26-95	103	P	13	303	>7	6.9	135	170
191	43°41'29"	116°20'03"	04N 01E 16AAA1	08-22-95	88	H	16	287	4.5	7.1	107	130
192	43°41'08"	116°22'07"	04N 01E 17BCDD1	08-24-95	95	H	13	109	2.6	6.9	48	58
193	43°41'03"	116°22'25"	04N 01E 17CBBC1	10-16-95	300	H	12	261	3.6	6.7	96	120
194	43°40'42"	116°21'50"	04N 01E 17CDDD1	07-25-95	115	H	13	211	4.3	6.8	87	110
195	43°41'25"	116°22'56"	04N 01E 18ABCB1	10-19-95	190	C	14	281	4.1	7	120	140
196	43°41'04"	116°22'55"	04N 01E 18DBBA1	10-16-95	100	H	12.5	264	4.7	6.8	111	140
197	43°40'15"	116°22'42"	04N 01E 19ADCC1	08-23-95	233	H	13.5	425		7.1	191	230
198	43°40'25"	116°23'29"	04N 01E 19BCBA1	08-23-95	63	H	13.5	575		7.1	278	340
199	43°39'51"	116°20'45"	04N 01E 21CDCA1	08-24-95	180	H	13.5	554		7.2	301	370
200	43°39'48"	116°20'34"	04N 01E 21DCCC1	08-24-95	160	H	13.5	495		7.7	239	290
201	43°39'50"	116°20'05"	04N 01E 21DDDC2	09-26-95	100	I	13.5	520	4.3	7.3	244	300
202	43°40'29"	116°18'45"	04N 01E 23BBCB1	08-24-95	124	H	13	148	2.7	6.7	64	79
203	43°40'06"	116°17'46"	04N 01E 23DAC1	07-27-95	403	P	17.5	242		7.2	116	140
204	43°40'33"	116°17'34"	04N 01E 24BBBC1	10-04-95	60	H	13.5	309	1.5	7.5	158	190
205	43°40'20"	116°17'19"	04N 01E 24BCA1	10-25-95	70	H	15.5	228	0.9	6.6	94	120
206	43°40'07"	116°17'02"	04N 01E 24CAAD1	09-25-95	54	H	14	261	3.5	7.4	128	160
207	43°39'54"	116°16'27"	04N 01E 24DDAD1	09-20-95	104	I	14.5	292	2.1	8.2	145	180
208	43°39'53"	116°16'34"	04N 01E 24DDB1	07-27-95	328	P	16.5	223	0	6.3	104	130
209	43°39'47"	116°19'44"	04N 01E 27BBAA1	10-02-95	120	H	13.5	441	4.6	7.2	217	260
210	43°39'26"	116°19'51"	04N 01E 27BCCA1	10-02-95	119	H	14	513	5.4	7.3	253	310
211	43°38'57"	116°19'04"	04N 01E 27DDC1	10-04-95	104	H	14.5	465	6.3	7.4	216	260
212	43°39'29"	116°21'14"	04N 01E 29ADDD1	10-18-95	114	H	13	596	5.1	7.3	291	360
213	43°39'32"	116°22'22"	04N 01E 29BCBB1	09-28-95	80	H	13.5	471	>7	7.6	228	280
214	43°38'56"	116°22'16"	04N 01E 29CCCD1	09-27-95	90	H	13.5	521	5.4	8.1	234	290
215	43°39'40"	116°22'47"	04N 01E 30ABAD2	09-28-95	90	H	13.5	618	6.3	7.6	301	370

Nutrients, bacteria and radon results

Table 8

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
174	ND	ND		1.9	1.90	1.90	0.06	0.02	32		
175	ND	ND		3.4	3.40	3.40	0.09	0.03	0	0	
176	ND	ND		1.8	1.80	1.80	0.06	0.02	0	0	
177	ND	ND		2.9	2.90	2.90	0.03	0.01	0	0	770
178	ND	ND		0.07	0.07	0.07		ND	0	0	
179	ND	ND		0.08	0.08	0.08	0.03	0.01	0	0	
180	ND	ND		0.1	0.10	0.10	0.06	0.02	0	0	
181	1.6	ND		0.06	0.06	0.06	0.28	0.09	0	0	
182	ND	ND		7.4	7.40	7.40	0.18	0.06	0	0	830
183	0.07	ND		0.14	0.14	0.14	0.21	0.07	0	0	
184	ND	ND		1.7	1.70	1.70		ND	0	0	650
185	0.03	ND		2.3	2.30	2.30	0.52	0.17	0	0	470
186	ND	ND		2.1	2.10	2.10	0.31	0.1	0	0	1200
187	1.5	ND		0.05	0.05	0.05	0.4	0.13	0	0	
188	ND	ND		1.8	1.80	1.80	0.15	0.05	0	0	1600
189	ND	ND		0.53	0.53	0.53	0.18	0.06	0	0	360
190	ND	ND	2.09	2.09	2.10	2.10	0.15	0.05	0	0	410
191	ND	ND		0.38	0.38	0.38	0.15	0.05	0	0	
192	0.02	ND		0.08	0.08	0.08		ND	0	0	610
193	ND	ND		1	1.00	1.00	0.03	0.01	0	0	
194	0.03	ND		0.65	0.65	0.65		ND	0	0	
195	ND	ND		1.2	1.20	1.20	0.09	0.03	0	0	
196	ND	ND		0.85	0.85	0.85	0.03	0.01	0	0	
197	ND	ND		3.4	3.40	3.40		ND	0	0	
198	ND	ND		2.9	2.90	2.90	0.06	0.02	0	0	470
199	0.02	ND		2.5	2.50	2.50	0.09	0.03	0	0	
200	0.03	ND		2.8	2.80	2.80	0.28	0.09	0	0	
201	ND	ND		3.7	3.70	3.70	0.18	0.06	0	0	
202	0.02	ND		0.09	0.09	0.09		ND	0	0	
203	1.3	ND				ND	0.21	0.07	0	0	300
204	0.07	ND		0.06	0.06	0.06	0.06	0.02		0	
205	ND	0.02	0.33	0.35	0.35	0.35	0.06	0.02	0	0	
206	0.13	ND				ND	0.15	0.05	0	0	
207	0.04	ND		1.10	1.10	1.10	0.09	0.03	0	0	
208		ND									400
209	ND	ND		2.10	2.10	2.10	0.06	0.02	0	0	
210	ND	ND		4.50	4.50	4.50	0.43	0.14	0	0	
211	ND	ND		4.00	4.00	4.00	0.43	0.14		0	
212	ND	ND		2.90	2.90	2.90	0.34	0.11	0	0	
213	ND	ND		4.00	4.00	4.00	0.95	0.31	0	0	1200
214	ND	0.01	6.49	6.49	6.50	6.50	0.55	0.18	0	0	
215	ND	ND		3.60	3.60	3.60	0.03	0.01	1	0	

	A	B	C	D	E	F	G	H	I	J	K	L
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
216	43°39'26"	116°23'26"	04N 01E 30BCDB1	09-21-95	118	H	13	439	3.6	7.3	200	240
217	43°39'00"	116°23'31"	04N 01E 30CCCA1	09-12-95	87	H	13	661	6.3	7.3	339	410
218	43°39'00"	116°23'07"	04N 01E 30CDCA1	09-12-95	103	I	14.5	598	>7	7.4	276	340
219	43°39'08"	116°22'42"	04N 01E 30DACC1	09-14-95	93	H	13	538	5.5	7.3	254	310
220	43°38'53"	116°23'01"	04N 01E 31ABBB1	09-25-95	36	I	12.5	727	6.1	7.4	349	430
221	43°38'53"	116°23'01"	04N 01E 31ABBB2	09-25-95	84	H	12.5	688	>7	7.4	319	390
222	43°38'30"	116°22'31"	04N 01E 31ADDC1	09-11-95	40	I	13	658	>7	7.4	306	370
223	43°38'30"	116°22'31"	04N 01E 31ADDC2	09-11-95		H	13	673	5.1	7.4	310	
224	43°38'29"	116°23'31"	04N 01E 31BCCD1	09-12-95	130	H	13	560	>7	7.4	265	320
225	43°38'08"	116°22'44"	04N 01E 31DCAD1	09-27-95	250	H	13.5	695	3.3	7.3	353	430
226	43°38'10"	116°22'57"	04N 01E 31DCBC1	10-17-95	56	H	12.5	546	2	7.2	270	330
227	43°38'03"	116°22'53"	04N 01E 31DCCD1	10-17-95	82	H	13	436	1.2	7.4	203	250
228	43°38'12"	116°22'26"	04N 01E 31DDAA1	09-21-95	86	H	12	546	2.5	7.1	249	300
229	43°38'31"	116°22'10"	04N 01E 32BCDD1	09-27-95	60	H	13	827	3.7	7.4	356	440
230	43°38'33"	116°21'58"	04N 01E 32BDCA2	10-17-95	50	H	13	308	3.2	7.3	141	170
231	43°38'24"	116°20'10"	04N 01E 33DABD1	09-26-95	97.3	H	14	417	4	7.3	196	240
232	43°38'08"	116°20'01"	04N 01E 33DDDA1	09-26-95	97	H	13.5	503	3.8	7.3	254	310
233	43°43'00"	116°23'35"	04N 01W 01ADAA1	07-26-95	127	H	14	425		7.5	213	260
234	43°42'44"	116°24'11"	04N 01W 01CAA1	07-20-95	260	H	13.5	604		7.5	287	350
235	43°42'24"	116°23'36"	04N 01W 01DDDD1	07-26-95	68	H	14.5	469		7.1	193	240
236	43°43'15"	116°25'02"	04N 01W 02AAB1	07-19-95	68	H	14	641	2.1	7.6	268	330
237	43°42'58"	116°25'54"	04N 01W 02BCBC1	07-27-95	92	H	14.5	499	1.9	7.1	210	260
238	43°42'25"	116°28'03"	04N 01W 04CCDD1	08-29-95	102	H	15.5	386	5.6	7	151	180
239	43°42'24"	116°28'27"	04N 01W 05DDDC1	07-27-95	140	H	15.5	269	1.3	7.3	109	130
240	43°42'57"	116°29'57"	04N 01W 06ACAC1	08-29-95	165	H	14.5	380	7	7.1	200	240
241	43°43'15"	116°30'15"	04N 01W 06BAAB1	07-27-95	177	H	14.5	474	6.9	7.1	224	270
242	43°42'44"	116°30'09"	04N 01W 06CAAD1	07-31-95	500	H	13.5	255	4.5	7.2	68	83
243	43°42'19"	116°29'34"	04N 01W 07AAAD1	07-31-95	172	H	13.5	254	5.4	7.1	96	120
244	43°42'04"	116°30'39"	04N 01W 07BCC1	07-31-95	115	H	14	247	3.5	6.9	82	100
245	43°41'45"	116°29'36"	04N 01W 07DADD1	08-09-95	182	H	14.5	126	4.8	7.2	76	92
246	43°41'43"	116°29'53"	04N 01W 07DCAA1	08-30-95	157	H	14	135	2.7	7.2	68	83
247	43°41'35"	116°29'50"	04N 01W 07DDCB2	09-06-95	30	I	13.5	203	3.6	6.7	88	110
248	43°41'35"	116°29'50"	04N 01W 07DDCB3	09-06-95	80	H	13.5	192	>7	7	90	110
249	43°41'35"	116°29'38"	04N 01W 07DDDB1	08-09-95	132	H	14.5	136	4.3	7	67	81
250	43°42'11"	116°28'26"	04N 01W 08AADC1	07-31-95	84	H	14.5	353		7.1	139	170
251	43°41'38"	116°29'16"	04N 01W 08CCAD1	08-01-95	154	H	14	133	2.2	7.1	69	85
252	43°41'37"	116°29'28"	04N 01W 08CCCA1	08-01-95	167	H	14	122	1.9	7.2	71	87
253	43°42'16"	116°27'25"	04N 01W 09AACB1	08-29-95	300	H	16.5	188	1.3	7.5	87	110
254	43°41'55"	116°28'18"	04N 01W 09CBBB1	08-01-95	72	H	13	232	1.1	6.8	110	130
255	43°41'47"	116°27'25"	04N 01W 09DACC1	08-01-95	185	H	14.5	156	7	7.5	51	62
256	43°41'46"	116°26'07"	04N 01W 10DACD2	08-02-95	71	H	14	212	2.8	7.4	95	120
257	43°41'44"	116°16'04"	04N 01W 10DADC1	08-02-95	95	H	14	151	4	7.3	68	83

Nutrients, bacteria and radon results

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
216	ND	ND		4.20	4.20	4.20	0.49	0.16	0	0	
217	ND	ND		4.80	4.80	4.80	0.52	0.17	0	0	
218	ND	ND		6.20	6.20	6.20	0.77	0.25	0	0	
219	ND	ND		3.80	3.80	3.80	0.31	0.1	0	0	
220	0.02	ND		5.80	5.80	5.80	0.8	0.26	80	<53	
221	ND	ND		6.50	6.50	6.50	0.71	0.23	0	0	660
222	ND	ND		7.10	7.10	7.10	0.71	0.23	3	0	
223	ND	ND			6.5		0.23		0	0	
224	ND	ND		2.80	2.80	2.80	0.06	0.02	0	0	420
225	ND	ND		4.90	4.90	4.90	0.25	0.08	0	0	
226	ND	ND		3.30	3.30	3.30	0.12	0.04	0	0	
227	ND	ND		1.80	1.80	1.80	1.1	0.37	0	0	
228	ND	ND		3.70	3.70	3.70	0.31	0.1	0	0	
229	ND	0.01	16	16.00	16.00	16.00	0.46	0.15	1	0	
230	ND	ND		2.20	2.20	2.20	0.86	0.28	0	0	
231	ND	ND		3.40	3.40	3.40	0.67	0.22	0	0	920
232	ND	ND		2.50	2.50	2.50	0.95	0.31	0	0	
233	0.04	ND		1.40	1.40	1.40	0.49	0.16	0	0	
234	0.02	ND		4.20	4.20	4.20	0.43	0.14	0	0	360
235	0.03	ND		2.60	2.60	2.60	0.37	0.12	0	0	
236	0.02	ND		9.10	9.10	9.10	0.64	0.21	0	0	540
237	0.03	ND				ND	0.03	0.01	0	0	
238	ND	ND		1.90	1.90	1.90	0.15	0.05	0	0	
239	ND	ND		0.06	0.06	0.06	0.12	0.04	0	0	630
240	ND	ND		1.70	1.70	1.70	0.43	0.14	0	0	
241	ND	ND		2.30	2.30	2.30	0.28	0.09	0	0	340
242	ND	ND		1.30	1.30	1.30	0.06	0.02	0	0	
243	ND	ND		1.50	1.50	1.50	0.03	0.01	0	0	
244	ND	ND		1.20	1.20	1.20	0.06	0.02	0	0	
245	ND	ND		0.07	0.07	0.07	0.09	0.03	0	0	
246	ND	ND		0.09	0.09	0.09		ND	0	0	
247	ND	ND		1.60	1.60	1.60	0.15	0.05	3	0	1800
248	ND	ND		0.70	0.70	0.70	0.06	0.02	0	0	
249	ND	ND		0.18	0.18	0.18	0.06	0.02	0	0	
250	ND	ND		5.50	5.50	5.50	0.31	0.1	0	0	270
251	ND	ND		0.16	0.16	0.16	0.09	0.03	0	0	
252	ND	ND		0.12	0.12	0.12	0.12	0.04	0	0	
253	ND	ND				ND	0.12	0.04	0	0	
254	ND	ND		0.62	0.62	0.62	0.09	0.03	0	0	410
255	ND	ND		0.13	0.13	0.13	0.09	0.03	0	0	
256	ND	ND		0.06	0.06	0.06	0.12	0.04	0	0	350
257	ND	ND		0.10	0.10	0.10	0.12	0.04	0	0	

	A	B	C	D	E	F	G	H	I	J	K	L
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
258	43°41'42"	116°26'18"	04N 01W 10DCA1	08-02-95	259	H	14.5	159	2.7	7.5	76	93
259	43°41'42"	116°26'32"	04N 01W 10DCBB1	08-02-95	70	H	16	159		7.2	73	89
260	43°41'36"	116°26'07"	04N 01W 10DDCA1	08-02-95	230	H	15	134	3	7.3	65	79
261	43°41'32"	116°25'35"	04N 01W 11CDCD1	08-29-95	150	H	15.5	125	1.5	7.3	58	70
262	43°41'55"	116°24'53"	04N 01W 11DAAB1	08-03-95	84	H	14	176	5.6	7	75	92
263	43°42'07"	116°24'12"	04N 01W 12BDAD1	07-25-95	230	H	15.5	192	3.4	7.1	83	100
264	43°41'45"	116°23'45"	04N 01W 12DACD1	07-24-95	98	H	15	214	7	5.6	88	110
265	43°41'50"	116°23'41"	04N 01W 12DADB1	07-24-95	191	H	14.5	185	6.2	7.1	79	96
266	43°41'47"	116°23'38"	04N 01W 12DADD1	07-24-95	209	H	15	238	4.3	7.2	100	120
267	43°41'39"	116°23'50"	04N 01W 12DDB1	07-21-95	81	H	14	245	6.3	7.1	96	120
268	43°41'15"	116°24'38"	04N 01W 13BCBA1	07-25-95	160	H	17.5	189	2.7	7.1	73	89
269	43°40'54"	116°24'28"	04N 01W 13CBD1	07-25-95	32	H	11.5	302	0.6	6.5	134	160
270	43°40'40"	116°24'18"	04N 01W 13DCC5	08-30-95	128	N	13	468	5.1	6.9	194	240
271	43°41'22"	116°25'39"	04N 01W 14BAC1	09-05-95		H	14	148	>7	7.3	59	72
272	43°41'30"	116°25'44"	04N 01W 14BBAB2	08-30-95	108	H	14	136	4	7.3	61	74
273	43°41'05"	116°25'37"	04N 01W 14CAB1	09-05-95		I	14	180	6	7.1	72	88
274	43°40'59"	116°25'42"	04N 01W 14CBA1	09-05-95		I	14.5	179	6.4	7.2	74	90
275	43°40'58"	116°25'55"	04N 01W 14CBBC1	07-26-95	160	H	15	219		7	69	84
276	43°41'20"	116°26'20"	04N 01W 15ABDC1	08-03-95	78	H	14	140	3.7	7.3	88	110
277	43°41'08"	116°26'30"	04N 01W 15ACCB1	08-31-95	116	H	14.5	136		7.5	60	73
278	43°41'23"	116°27'11"	04N 01W 16AADA1	08-07-95	261	H	15.5	140	5.3	7.4	124	150
279	43°41'04"	116°27'47"	04N 01W 16CAAA1	08-08-95	160	H	13.5	115	5.6	7.4	59	71
280	43°41'22"	116°29'31"	04N 01W 17BBCB1	09-12-95	125	H	13.5	104	1.4	7.1	55	67
281	43°41'24"	116°29'21"	04N 01W 17BBDB1	08-09-95	149	H	14	110	4.8	7.1	51	62
282	43°41'20"	116°29'21"	04N 01W 17BBDC1	08-09-95	424	H	15.5	124	4.6	7.6	60	73
283	43°41'21"	116°29'43"	04N 01W 18AACD1	08-31-95	374	C	14.5	130		8.1	66	81
284	43°40'09"	116°28'02"	04N 01W 21CABC1	08-10-95	105	H	13.5	764	5.7	7.1	262	320
285	43°40'02"	116°27'45"	04N 01W 21DBCC1	08-10-95	168	H	14	541		7.2	169	210
286	43°39'48"	116°27'31"	04N 01W 21DCDD1	08-31-95	243	H	14.5	550		7.2	162	200
287	43°40'13"	116°25'22"	04N 01W 23ACCC2	08-10-95	155	H	14.5	674		7.1	290	350
288	43°40'01"	116°24'48"	04N 01W 23DADD1	09-07-95	70.8	H	12.5	622	>7	7.3	244	300
289	43°40'04"	116°25'16"	04N 01W 23DBCA1	08-10-95	133	H	13	701		7.2	291	360
290	43°39'57"	116°24'54"	04N 01W 23DDAB3	09-19-95	80	I	13.5	680	5.5	7.3	288	350
291	43°39'54"	116°24'54"	04N 01W 23DDAC2	09-07-95	182	H	13	697	>7	7.2	303	370
292	43°39'55"	116°24'47"	04N 01W 23DDAD1	08-14-95	220	H	13.5	582		7.1	257	310
293	43°40'26"	116°23'56"	04N 01W 24ACAB1	09-11-95	120	H	13.5	596	6.7	7.2	259	320
294	43°40'27"	116°23'56"	04N 01W 24ACAB2	09-11-95	85	I	12.5	591	>7	7.1	278	330
295	43°40'18"	116°23'51"	04N 01W 24ACDA1	09-19-95	98	H	14	369	5.1	7.1	152	190
296	43°40'24"	116°23'35"	04N 01W 24ADAA2	08-14-95	133	H	15	541		7	260	320
297	43°40'39"	116°24'34"	04N 01W 24BBAB1	09-28-95	209	I	13	381	>7	7.8	151	180
298	43°40'20"	116°24'34"	04N 01W 24BCAC1	08-14-95	235	H	13.5	609		7	246	300
299	43°40'21"	116°24'10"	04N 01W 24BDAD2	08-15-95	121	H	13	514		7.1	224	270

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
258	ND	ND				ND	0.12	0.04	0	0	
259	ND	ND				ND	0.12	0.04	0	0	
260	ND	ND				ND	0.09	0.03	0	0	
261	ND	ND		0.06	0.06	0.06	0.09	0.03	0	0	
262	ND	ND		0.35	0.35	0.35	0.09	0.03	0	0	410
263	0.03	ND		0.18	0.18	0.18	0.18	0.06	0	0	
264	0.03	ND		0.45	0.45	0.45	0.09	0.03	0	0	
265	0.03	ND		0.30	0.30	0.30	0.21	0.07	0	0	
266	0.03	ND		0.43	0.43	0.43	0.09	0.03	0	0	530
267	0.02	ND		0.69	0.69	0.69	0.09	0.03	2	0	480
268	0.03	ND		0.58	0.58	0.58	0.18	0.06	0	0	
269	0.16	ND	0.03	0.03	0.06	0.06		ND	2	0	
270	ND	ND		2.00	2.00	2.00	0.03	0.01	0	0	
271	ND	ND		0.12	0.12	0.12	0.03	0.01	0	0	
272	ND	ND		0.16	0.16	0.16	0.09	0.03	0	0	290
273	ND	ND		0.44	0.44	0.44	0.06	0.02	0	0	
274	ND	ND		0.15	0.15	0.15	0.12	0.04	0	0	
275	0.03	ND		0.72	0.72	0.72	0.06	0.02	0	0	
276	0.02	ND		0.06	0.06	0.06	0.09	0.03	0	0	420
277	ND	ND		0.20	0.20	0.20	0.09	0.03	0	0	
278	0.02	ND		0.06	0.06	0.06	0.12	0.04	0	0	
279	ND	ND		0.13	0.13	0.13	0.03	0.01	0	0	
280	ND	ND				ND	0.06	0.02	0	0	350
281	0.02	ND		0.07	0.07	0.07		ND	0	0	
282	ND	ND		0.07	0.07	0.07	0.06	0.02	0	0	
283	0.02	ND				ND	0.09	0.03	0	0	
284	ND	ND		2.70	2.70	2.70	0.09	0.03	2	0	
285	ND	ND		2.20	2.20	2.20	0.03	0.01	0	0	
286	ND	ND		1.80	1.80	1.80		ND	0	0	
287	ND	ND		4.20	4.20	4.20	0.03	0.01	1	0	
288	ND	ND		11.00	11.00	11.00	0.77	0.25	0	0	
289	ND	ND		8.10	8.10	8.10	0.03	0.01	0	0	
290	ND	ND		8.70	8.70	8.70	0.4	0.13	0	0	
291	ND	ND		6.00	6.00	6.00	0.06	0.02	0	0	
292	0.03	ND		3.20	3.20	3.20		ND	0	0	
293	ND	ND		5.10	5.10	5.10	0.09	0.03	0	0	
294	ND	ND		3.10	3.10	3.10	0.03	0.01	0	0	
295	ND	ND		1.60	1.60	1.60		ND	0	0	
296	0.02	ND		2.30	2.30	2.30	0.06	0.02	0	0	
297	ND	0.01	1.49	1.49	1.50	1.50	0.03	0.01	0	0	
298	0.03	ND		3.00	3.00	3.00	0.03	0.01	0	0	
299	0.02	ND		5.00	5.00	5.00	0.09	0.03	0	0	

	A	B	C	D	E	F	G	H	I	J	K	L
1–5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
300	43°40'24"	116°24'26"	04N 01W 24BDBB1	08-14-95	147	H	13	607		7.1	253	310
301	43°39'48"	116°24'29"	04N 01W 24CCDD1	08-15-95	143	H	13.5	637		7.3	277	340
302	43°39'26"	116°23'34"	04N 01W 25ADDA1	09-14-95	125	H	12.5	442	3.4	7.4	209	260
303	43°39'25"	116°25'59"	04N 01W 27ADDA1	08-31-95	30	H	12.5	856	6.2	7.4	343	420
304	43°39'35"	116°27'20"	04N 01W 28AADC1	10-12-95	120	H	13.5	736	5.7	7.2	265	320
305	43°39'14"	116°28'20"	04N 01W 28CBCB2	09-20-95	200	H	14.5	123	1.9	7.3	50	61
306	43°39'23"	116°28'24"	04N 01W 29ADDD1	10-19-95	100	H	12.5	791	1.9	7.3	317	390
307	43°39'42"	116°30'09"	04N 01W 30ABBC1	10-23-95	237	H	13.5	625		7.3	219	270
308	43°39'34"	116°29'36"	04N 01W 30ADAA2	09-20-95	99	H	13.5	775	6.3	7.5	335	410
309	43°38'30"	116°30'43"	04N 01W 31BCCC1	08-15-95	67	H	13.5	587		7.4	169	210
310	43°38'35"	116°30'28"	04N 01W 31BCDA1	08-15-95	312	F	15	359		6.3	91	110
311	43°38'30"	116°30'34"	04N 01W 31BCDC1	08-15-95	126	F	14.5	495	5.7	6.6	194	240
312	43°38'31"	116°30'24"	04N 01W 31BDCC1	08-15-95	120	C	14.5	588		6.9	223	270
313	43°38'34"	116°30'10"	04N 01W 31BDDA1	08-15-95	78	D	13	787		6.9	268	330
314	43°38'49"	116°29'32"	04N 01W 32BBBC1	09-26-95	65	H	12.5	560	4.4	8	234	290
315	43°38'49"	116°29'32"	04N 01W 32BBBC1	10-03-95	65	H						
316	43°38'17"	116°28'12"	04N 01W 33CBDC2	09-20-95	119	H	13.5	543	5.3	7.3	199	240
317	43°38'30"	116°26'03"	04N 01W 34ADDC1	09-21-95	355	H	12.5	733	>7	7.7	230	280
318	43°38'51"	116°24'45"	04N 01W 36BBBB2	09-07-95		H	13	738	>7	7.3	350	430
319	43°41'59"	116°34'19"	04N 02W 09ADD1	10-18-95	197	H	13	171	3.3	6.9	58	71
320	43°41'59"	116°34'20"	04N 02W 09ADD2	10-18-95	200	H	13	242	4.1	6.8	70	86
321	43°41'51"	116°31'55"	04N 02W 12CBC1	07-12-95	155	H	13.5	175	0.4	7	84	100
322	43°39'08"	116°36'42"	04N 02W 29CCB1	07-20-95	130	H	14.5	144		8.8	56	68
323	43°39'35"	116°36'47"	04N 02W 30ADA1	08-22-95	80	H	15	224		7.6	68	82
324	43°42'10"	116°42'27"	04N 03W 09BBD1	07-25-95	200	P	15	686		7.8	226	280
325	43°41'28"	116°38'36"	04N 03W 13BAA1	08-13-95	185	S	15.5	120		8	54	66
326	43°40'04"	116°40'21"	04N 03W 22DADA1	09-18-95	140	H	16.5	1010	5.2	7.7	270	330
327	43°39'35"	116°41'00"	04N 03W 27BADD1	09-19-95	47	I	16	1050	5.7	7.8	427	520
328	43°39'20"	116°42'16"	04N 03W 28BDDC1	09-18-95	120	I	21.5	285	2	8.8	125	150
329	43°38'55"	116°41'43"	04N 03W 28DDCD1	09-19-95	30	I	18	592	>7	7.9	224	270
330	43°44'01"	116°22'35"	05N 01E 31AACB1	08-15-95	185	H	14	480		7.2	220	270
331	43°43'49"	116°22'37"	05N 01E 31ADCB2	08-23-95	229	H	13.5	633		7.1	279	340
332	43°43'31"	116°21'36"	05N 01E 32DBD1	08-07-95	128	H	14	275		7	126	150
333	43°43'29"	116°21'10"	05N 01E 33CBCC1	10-12-95	174	H	14	385	4.4	7	160	200
334	43°43'16"	116°21'05"	05N 01E 33CCCD1	10-05-95	190	H	14	330	4.9	7	141	170
335	43°43'16"	116°21'00"	05N 01E 33CCDC1	10-05-95	154	H	14	338	5.7	7	150	180
336	43°43'54"	116°18'52"	05N 01E 34ADAA1	10-17-95	103	H	13.5	514	1.4	6.9	165	200
337	43°43'21"	116°19'08"	05N 01E 34DCD1	08-06-95	54	H	13.5	926		7	241	290
338	43°43'26"	116°18'46"	05N 01E 35CCBB1	10-12-95	363	K	18	302	2.1	7.6	138	170
339	43°43'45"	116°26'15"	05N 01W 34ACDA1	09-06-95	90	H	13.5	613	>7	7.2	238	290
340	43°43'35"	116°26'15"	05N 01W 34DBAD1	09-06-95	74	H	13.5	794	>7	7.1	203	250
341	43°43'35"	116°26'15"	05N 01W 34DBAD2	09-13-95	72.6	I	13.5	825	5.2	6.9	205	250

Nutrients, bacteria and radon results

Table 8

	M	N	O	P	Q	R	S	T	U	V	W
1 2 3 4 5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
300	0.03	ND		5.20	5.20	5.20	0.09	0.03	0	0	
301	0.02	ND		5.50	5.50	5.50	0.09	0.03	0	0	
302	ND	ND		3.70	3.70	3.70	0.43	0.14	0	0	
303	ND	ND		14.00	14.00	14.00	0.89	0.29	0	0	
304	ND	ND		3.10	3.10	3.10	0.06	0.02	0	0	430
305	ND	ND		0.22	0.22	0.22	0.06	0.02	0	0	
306	ND	ND		5.50	5.50	5.50	0.12	0.04	0	0	
307	ND	ND		2.00	2.00	2.00	0.09	0.03	0	0	
308	ND	ND		8.20	8.20	8.20	0.83	0.27	0	0	
309	0.02	ND		2.50	2.50	2.50	0.09	0.03	0	0	
310	0.02	ND		0.68	0.68	0.68	0.03	0.01	0	0	
311	0.02	ND		4.60	4.60	4.60	0.37	0.12	1	0	
312	0.03	ND		6.70	6.70	6.70	0.58	0.19	0	0	
313	0.04	ND		12	12	12	0.49	0.16	0	0	
314	ND	ND		6.80	6.80	6.80	0.55	0.18	38	0	
315		ND							130	0	
316	ND	ND		3.00	3.00	3.00	0.12	0.04	0	0	
317	ND	ND		3.40	3.40	3.40	0.67	0.22	0	0	
318	ND	ND		4.50	4.50	4.50	0.18	0.06	0	0	
319	ND	ND		0.41	0.41	0.41	0.06	0.02	0	0	
320	ND	ND		0.63	0.63	0.63	0.06	0.02	0	0	
321	ND	0.01	0.5	0.5	0.51	0.51		ND	0	0	400
322	0.02	ND		0.47	0.47	0.47	0.21	0.07		0	
323	0.02	ND		0.67	0.67	0.67	0.15	0.05		0	380
324	0.4	ND		3.4	3.40	3.40	0.12	0.04		0	320
325	ND	ND		0.16	0.16	0.16	0.06	0.02		0	
326	ND	ND		3.3	3.30	3.30	0.6	0.02	1	0	
327	0.02	ND		5	5.00	5.00	0.4	0.13	3	0	
328	ND	ND		0.28	0.28	0.28	0.6	0.02	0	0	
329	ND	0.02		5.18	5.20	5.20	0.4	0.13	5	12	
330	ND	ND		2.6	2.60	2.6	0.49	0.16	0	0	
331	ND	ND		2.4	2.40	2.4	0.46	0.15	0	0	
332	ND	ND		1.9	1.90	1.9	0.46	0.15		0	360
333	ND	ND		3.2	3.20	3.2	0.52	0.17	0	0	
334	ND	ND			2.90	2.9	0.4	0.13	0	0	
335	ND	ND			2.50	2.5	0.43	0.14	0	0	
336	ND	ND			1.7	1.7	0.8	0.26	1	0	
337	ND	ND			11.00	11	0.55	0.18		0	
338	1.1	ND			0.11	0.11	0.28	0.09	0	0	
339	ND	ND			15	15	0.89	0.29	0	0	
340	ND	0.02	37	37	37.00	37	0.61	0.2	0		
341	ND	ND			36.00	36	0.64	0.21	0	0	

	A	B	C	D	E	F	G	H	I	J	K	L
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	WATER TEMP (°C)	SPECIFIC COND. (US/CM)	OXYGEN DISS (MG/L)	pH FIELD (STAND UNITS)	ALKALINITY (MG/L)	BICARBONATE (MG/L)
342	43°43'02"	116°25'54"	05N 01W 35CCC1	08-19-95	84	I	13.5	514		7.4	214	

Nutrients, bacteria and radon results

Table 8

	M	N	O	P	Q	R	S	T	U	V	W
1-5	NITROGEN NH4, DISS (MG/L as N)	NITROGEN NO2, DISS (MG/L as N)	NITROGEN NO3, DISS (MG/L as N)	NITROGEN NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 TOTAL (MG/L as N)	NITROGEN NO2+NO3 DISS (MG/L as N)	PHOS PHATE, ORTHO DISS(MG/L as PO4)	PHOS PHORUS, ORTHO DISS (MG/L as P)	TOTAL COLI-FORM (COL/ 100ML)	FECAL COLI-FORM (COL/ 100ML)	RADON 222 TOTAL (PCI/L)
342	0.01	ND			8.5			0.26	0	0	

APPENDIX C

Table 9

VOC Results

Headnotes for Tables 8, 9, 10, and 11

Well Location: well location in latitude and longitude or township, range and section

Primary Use of Water:

H	domestic
I	irrigation
P	public supply
C	commercial
D	dewater
S	stock
F	fire

Units of Measure:

°C	degrees celsius
US/CM	microsiemens per centimeter at 25 °C
<	less than
>	greater than
MG/L	milligrams per liter
STAND UNITS	standard units
MG/L as N	milligrams per liter as nitrogen
DISS	dissolved
MG/L as PO4	milligrams per liter as phosphate
MG/L as P	milligrams per liter as phosphorus
COL/100ML	colonies per 100 milliliters
PCI/L	picocuries per liter
UG/L	micrograms per liter
H2O	water
REC	recoverable
GF	glass fiber filter
FLT	filtered
U	micron (filter pore size)
ND	non-detect
*	results from Dept. of Ag study
MG/L as CACO3	milligrams per liter as calcium carbonate
MG/L as CA	milligrams per liter as calcium
MG/L as MG	milligrams per liter as magnesium
MG/L as NA	milligrams per liter as sodium
MG/L as K	milligrams per liter as potassium
MG/L as CL	milligrams per liter as chloride
MG/L as SO4	milligrams per liter as sulfate
MG/L as F	milligrams per liter as fluoride
MG/L as SIO2	milligrams per liter as silica
UG/L as AS	micrograms per liter as arsenic
UG/L as CD	micrograms per liter as cadmium
UG/L as CR	micrograms per liter as chromium
UG/L as FE	micrograms per liter as iron

Units of Measure continued:

UG/L as PB	micrograms per liter as lead
UG/L as MN	micrograms per liter as manganese
UG/L as ZN	micrograms per liter as zinc
UG/L as SE	micrograms per liter as selenium

Empty Box: no information available

Volatile Organic Compounds (VOCs) were analyzed at every site with a portable gas chromatograph for presence or absence. Sites with VOCs present had duplicates sent to Alpha Analytical Laboratory in Sparks, Nevada, those results can be found in Table 9.

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	A	B	C	D	E	F	G	H
1–6	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	TEMP °C	WELL DEPTH (FEET)	CHLORO BENZENE (UG/L)	1,2,3-TRI CHLORO BENZENE (UG/L)
7	43°32′46"	116°25′54"	02N 01W 02BBA1	07-13-95	14.5	104	ND	ND
8	43°31′43"	116°24′51"	02N 01W 11ADA1	08-03-95	12.5	190	ND	
9	43°32′42"	116°35′53"	02N 02W 05ABA1	07-22-95	16	180	ND	
10	43°38′02"	116°19′48"	03N 01E 03BBA1	08-18-95	21.5	117	ND	
11	43°37′51"	116°20′45"	03N 01E 04BAD1	08-01-95	14	68	ND	
12	43°37′54"	116°21′14"	03N 01E 05AADA1	09-14-95	13	86	ND	
13	43°38′01"	116°21′32"	03N 01E 05ABAA1	09-14-95	13.5	63	ND	
14	43°37′39"	116°21′38"	03N 01E 05ACDB1	09-25-95	13.5	97	ND	
15	43°37′56"	116°21′49"	03N 01E 05BAAD1	10-17-95	13.5	28	ND	
16	43°37′56"	116°21′49"	03N 01E 05BAAD2	10-17-95	12.5	162	ND	
17	43°36′48"	116°23′31"	03N 01E 07BCCA1	09-27-95	15	35	ND	
18	43°36′47"	116°23′29"	03N 01E 07BCCA2	09-27-95	15.5	35	ND	
19	43°38′07"	116°18′33"	03N 01E 14BBD1	07-05-95	14.5	183	ND	ND
20	43°34′34"	116°21′22"	03N 01E 20DDCD1	10-24-95	12.5	170	ND	
21	43°37′37"	116°37′07"	03N 02W 06ACD1	09-08-95	13.5	87	ND	ND
22	43°36′33"	116°37′51"	03N 02W 07CBC1	07-22-95	18.5	196	ND	ND
23	43°36′19"	116°33′23"	03N 02W 10DDCC1	09-06-95	16.5	213	ND	
24	43°36′20"	116°33′18"	03N 02W 10DDCD1	09-06-95	15.5	70	ND	
25	43°36′22"	116°33′18"	03N 02W 10DDCD2	09-06-95	15	60	ND	
26	43°36′21"	116°33′16"	03N 02W 10DDDC1	09-06-95	15.5	75	ND	
27	43°36′46"	116°32′44"	03N 02W 11BDCD1	09-08-95	16.5	110	ND	
28	43°36′18"	116°32′54"	03N 02W 14BBAB2	09-08-95	24.5	82	ND	
29	43°36′18"	116°33′06"	03N 02W 14BBBB1	09-08-95	14.5	80	ND	
30	43°36′02"	116°36′38"	03N 02W 17BCB1	08-16-95	24	461	ND	ND
31	43°32′49"	116°31′35"	03N 02W 36CDC1	07-25-95	15.5	90	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	I	J	K	L	M	N	O	P	Q
1 2 3 4 5 6	1,2,4-TRI CHLORO BENZENE WATER (UG/L)	1,2,4-TRI-METHYL BENZENE (UG/L)	1,3,5-TRI METHYL BENZENE (UG/L)	1,4-DI CHLORO BENZENE WATER (UG/L)	BENZENE (UG/L)	BROMO BENZENE (UG/L)	ETHYL BENZENE (UG/L)	ISOPROPYL BENZENE (UG/L)	n-BUTYL BENZENE (UG/L)
7	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	ND		ND	ND	ND	ND	ND		
11				ND	ND		ND		
12				ND	ND		ND		
13				ND	ND		ND		
14				ND	ND		ND		
15				ND	ND		ND		
16				ND	ND		ND		
17				ND	ND		ND		
18		0.24		ND	ND		ND	0.1	
19	ND	ND	ND	ND	ND	ND	ND	ND	ND
20				ND	ND		ND		
21	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	ND	ND	ND	ND	ND	ND	ND
23				ND	ND		ND		
24	ND			ND	ND		ND		
25				ND	ND		ND		
26				ND	ND		ND		
27				ND	ND		ND		
28				ND	ND		ND		
29				ND	ND		ND		
30	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	R	S	T	U	V	W	X	Y	Z
1–6	n-PROPYL BENZENE (UG/L)	sec-BUTYL BENZENE (UG/L)	tert-BUTYL BENZENE (UG/L)	BROMO FORM (UG/L)	CARBON TETRA CHLORIDE (UG/L)	CHLORO BENZENE (UG/L)	CHLORO ETHANE (UG/L)	CHLORO FORM (UG/L)	DI-BROMO CHLORO METHANE (UG/L)
7	ND	ND	ND	ND	ND	ND	ND	ND	ND
8	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	ND	ND	ND
10				ND	ND	ND	ND	0.25	0.56
11				ND	ND	ND		ND	ND
12				ND	ND	ND		ND	ND
13				ND	ND	ND		ND	ND
14				ND	ND	ND		ND	ND
15				ND	ND	ND		ND	ND
16				ND	ND	ND		ND	ND
17				ND	ND	ND		ND	ND
18		0.3		ND	ND	ND		ND	ND
19	ND	ND	ND	ND	ND	ND	ND	ND	ND
20				ND	ND			ND	ND
21	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	ND	ND	ND	ND	ND	ND	ND
23				ND	ND	ND		ND	ND
24				ND	ND	ND		ND	ND
25				ND	ND	ND		ND	ND
26				ND	ND	ND		ND	ND
27				ND	ND	ND		ND	ND
28				1.9	ND	ND		ND	0.5
29				ND	ND	ND		ND	ND
30	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1-6	DI BROMO METHANE (UG/L)	BROMO DI CHLORO METHANE (UG/L)	1,1-DI CHLORO ETHANE (UG/L)	1,1,1-TRI CHLORO ETHANE (UG/L)	1,1,1,2-TETRA CHLORO ETHANE WATER (UG/L)	1,1,2-TRI CHLORO ETHANE (UG/L)	1,1,2,2-TETRA CHLORO ETHANE WATER (UG/L)	1,2-DI BROMO ETHANE (UG/L)	1,2-DI CHLORO ETHANE (UG/L)	TRI-CHLORO FLUORO ETHANE (UG/L)
7	ND	ND	ND	ND	ND	ND	ND		ND	
8	ND	ND	ND	ND	ND	ND	ND		ND	
9	ND	ND	ND	ND	ND	ND	ND		ND	
10	ND	0.27	ND	ND		ND	ND		ND	
11		ND	ND	ND					ND	ND
12		ND	ND	ND					ND	ND
13		ND	ND	ND					ND	ND
14		ND	ND	ND					ND	ND
15		ND	ND	ND					ND	ND
16		ND	ND	ND					ND	ND
17		ND	ND	ND					ND	ND
18		ND	ND	ND					ND	ND
19	ND	ND	ND	ND	ND	ND	ND		ND	
20		ND	ND	ND					ND	ND
21	ND	ND	ND	ND	ND	ND	ND		ND	
22	ND	ND	ND	ND	ND	ND	ND		ND	
23		ND	ND	ND					ND	ND
24		ND	ND	ND			ND		ND	ND
25		ND	ND	ND					ND	ND
26		ND	ND	ND					ND	ND
27		ND	ND	ND					ND	ND
28		ND	ND	ND					ND	ND
29		ND	ND	0.5					ND	ND
30	ND	ND	ND	ND	ND	ND	ND		ND	
31	ND	ND	ND	ND	ND	ND	ND		ND	

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT
1–6	METHYL ETHER TERT BUTYL (UG/L)	1,1-DI CHLORO ETHYLENE (UG/L)	cis-1,2-DI CHLORO ETHENE (UG/L)	trans-1,2-DI CHLORO ETHENE (UG/L)	TETRA CHLORO ETHYL ENE (UG/L)	TRI CHLORO ETHYL ENE (UG/L)	HEXA CHLORO BUT ADIENE (UG/L)	METHYL BROMIDE (UG/L)	BROMO CHLORO METHANE (UG/L)	DI-CHLORO METHANE (UG/L)
7		ND	ND	ND	ND	ND	ND	ND	ND	ND
8		ND	ND	ND	ND	ND	ND	ND	ND	ND
9		ND	ND	ND	ND	ND	ND	ND	ND	ND
10		ND	ND	ND	ND	ND	ND	ND		
11	ND	ND	ND	ND	0.3	ND				
12	ND	ND	ND	ND	0.2	ND				
13	ND	ND	ND	ND	0.3	ND				
14	ND	ND	ND	ND	0.2	ND				
15	ND	ND	ND	ND	ND	ND				
16	ND	ND	ND	ND	0.2	ND				
17	ND	ND	ND	ND	ND	ND				
18	ND	ND	ND	ND	ND	ND				
19		ND	ND	ND	ND	ND	ND	ND	ND	ND
20	ND	ND	ND	ND	0.14	ND				
21		ND	ND	ND	ND	ND	ND	ND	ND	ND
22		ND	ND	ND	ND	ND	ND	ND	ND	ND
23	ND	ND	ND	ND	ND	ND				
24	ND	ND	ND	ND	0.4	ND				
25	ND	ND	ND	ND	34	ND				
26	ND	ND	ND	ND	0.8	ND				
27	ND	ND	ND	ND	ND	ND				
28	ND	ND	ND	ND	ND	ND				
29	ND	ND	0.3	ND	110	0.4				
30		ND	ND	ND	ND	ND	ND	ND	ND	ND
31		ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
1–6	DI CHLORO DI FLUORO METHANE (UG/L)	TRI CHLORO FLUORO METHANE (UG/I0	METHYL ENE CHLORIDE (UG/L)	NAPHTH ALENE (UG/L)	DIBROMO CHLORO PROPANE (UG/L)	1,2-DI CHLORO PROPANE (UG/L)	1,2,3-TRI CHLORO PROPANE (UG/L)	1,3-DI CHLORO PROPANE (UG/L)	2,2-DI CHLORO PROPANE (UG/L)	1,1-DI CHLORO PROPENE (UG/L)
7	ND	ND	ND	ND		ND	ND	ND	ND	ND
8	ND	ND	ND	ND		ND	ND	ND	ND	ND
9	ND	ND	ND	ND		ND	ND	ND	ND	ND
10	ND	ND	ND	ND		ND				
11	ND	ND	ND			ND				
12	ND	ND	ND			ND				
13	ND	ND	ND			ND				
14	ND	ND	ND			ND				
15	ND	ND	ND			ND				
16	ND	ND	ND			ND				
17	ND	ND	ND			ND				
18	ND	ND	ND			ND				
19	ND	ND	ND	ND		ND	ND	ND	ND	ND
20	ND	ND	ND			ND				
21	ND	ND	ND	ND		ND	ND	ND	ND	ND
22	ND	ND	ND	ND		ND	ND	ND	ND	ND
23	ND	ND	ND			ND				
24	ND	ND	ND			ND				
25	ND	ND	ND			ND				
26	ND	ND	ND			ND				
27	ND	ND	ND			ND				
28	ND	ND	ND			ND				
29	ND	ND	ND			ND				
30	ND	ND	ND	ND		ND	ND	ND	ND	ND
31	ND	ND	ND	ND		ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	BE	BF	BG	BH	BI	BJ	BK	BL	BM
1 2 3 4 5 6	cis-1,3-DI CHLORO PROPENE (UG/L)	TRANS 1,3-DI CHLORO PROPENE (UG/L)	STYRENE (UG/L)	TOLUENE (UG/L)	o- CHLORO TOLUENE (UG/L)	p- CHLORO TOLUENE (UG/L)	p-ISO PROPYL TOLUENE (UG/L)	VINYL CHLORIDE (UG/L)	XYLENE (UG/L)
7		ND	ND	ND	ND	ND	ND	ND	ND
8		ND	ND	ND	ND	ND	ND	ND	ND
9		ND	ND	ND	ND	ND	ND	ND	ND
10		ND	ND	ND				ND	ND
11			ND	ND				ND	ND
12			ND	ND				ND	ND
13			ND	ND				ND	ND
14			ND	ND				ND	ND
15			ND	ND				ND	ND
16			ND	ND				ND	ND
17			ND	ND				ND	ND
18			ND	ND				ND	ND
19		ND	ND	ND	ND	ND	ND	ND	ND
20			ND	ND				ND	ND
21		ND	ND	ND	ND	ND	ND	ND	ND
22		ND	ND	ND	ND	ND	ND	ND	ND
23			ND	ND				ND	ND
24			ND	ND				ND	ND
25			ND	ND				ND	ND
26			ND	ND				ND	ND
27			ND	ND				ND	ND
28			ND	ND				ND	ND
29			ND	ND				ND	ND
30		ND	ND	ND	ND	ND	ND	ND	ND
31		ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

	A	B	C	D	E	F	G	H
1–6	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	TEMP °C	WELL DEPTH (FEET)	CHLORO BENZENE (UG/L)	1,2,3-TRI CHLORO BENZENE (UG/L)
32	43°43'15"	116°23'32"	04N 01E 06BBB1	07-17-95	15	67	ND	ND
33	43°41'45"	116°21'53"	04N 01E 08CAD1	07-19-95	15	462	ND	ND
34	43°42'23"	116°18'39"	04N 01E 11BBB1	07-17-95	16.5	203	ND	ND
35	43°41'28"	116°17'02"	04N 01E 13BAAA1	07-25-95	17	150	ND	ND
36	43°41'03"	116°16'43"	04N 01E 13DBAA1	09-21-95	15.5	85	ND	
37	43°40'06"	116°17'46"	04N 01E 23DAC1	07-27-95	17.5	403	ND	ND
38	43°38'10"	116°22'57"	04N 01E 31DCBC1	10-17-95	12.5	56	ND	
39	43°38'03"	116°22'53"	04N 01E 31DCCD1	10-17-95	13	82	ND	
40	43°38'12"	116°22'26"	04N 01E 31DDAA1	09-21-95	12	86	ND	
41	43°38'24"	116°20'10"	04N 01E 33DABD1	09-26-95	14	97.3	ND	
42	43°38'08"	116°20'01"	04N 01E 33DDDA1	09-26-95	13.5	97	ND	
43	43°42'44"	116°24'11"	04N 01W 01CAA1	07-20-95	13.5	260	ND	ND
44	43°43'15"	116°25'02"	04N 01W 02AAB1	07-19-95	14	68	ND	ND
45	43°41'39"	116°23'15"	04N 01W 12DDB1	07-21-95	14	81	ND	ND
46	43°41'51"	116°31'55"	04N 02W 12CBC1	07-12-95	13.5	155	ND	ND
47	43°39'08"	116°36'42"	04N 02W 29CCB1	07-20-95	14.5	130	ND	ND
48	43°39'35"	116°36'47"	04N 02W 30ADA1	08-22-95	15	80	ND	ND
49	43°42'10"	116°42'27"	04N 03W 09BBD1	07-25-95	15	200	ND	ND
50	43°41'28"	116°38'36"	04N 03W 13BAA1	08-13-95	15.5	185	ND	ND
51	43°36'19"	116°21'40"	05N 01E 33CBCC1	10-12-95	14	174	ND	
52	43°43'21"	116°19'08"	05N 01E 34DCD1	08-06-95	13.5	54	ND	ND
53	43°43'45"	116°26'15"	05N 01W 34ACDA1	09-06-95	13.5	120	ND	ND
54	43°43'35"	116°26'15"	05N 01W 34DBAD1	09-06-95	13.5	74	ND	ND
55	43°43'35"	116°26'15"	05N 01W 34DBAD2	09-13-95	13.5	72.6	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	I	J	K	L	M	N	O	P	Q
1–6	1,2,4-TRI CHLORO BENZENE WATER (UG/L)	1,2,4-TRI-METHYL BENZENE (UG/L)	1,3,5-TRI METHYL BENZENE (UG/L)	1,4-DI CHLORO BENZENE WATER (UG/L)	BENZENE (UG/L)	BROMO BENZENE (UG/L)	ETHYL BENZENE (UG/L)	ISOPROPYL BENZENE (UG/L)	n-BUTYL BENZENE (UG/L)
32	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	ND	ND	ND	ND	ND	ND	ND	ND	ND
36				ND	ND		ND		
37	ND	ND	ND	ND	ND	ND	ND	ND	ND
38				ND	ND		ND		
39				ND	ND		ND		
40				ND	ND		ND		
41				ND	ND		ND		
42				ND	ND		ND		
43	ND	ND	ND	ND	ND	ND	ND	ND	ND
44	ND	ND	ND	ND	ND	ND	ND	ND	ND
45	ND	ND	ND	ND	ND	ND	ND	ND	ND
46	ND	ND	ND	ND	ND	ND	ND	ND	ND
47	ND	ND	ND	ND	ND	ND	ND	ND	ND
48	ND	ND	ND	ND	ND	ND	ND	ND	ND
49	ND	ND	ND	ND	ND	ND	ND	ND	ND
50	ND	ND	ND	ND	ND	ND	ND	ND	ND
51				ND	ND		ND		
52	ND	ND	ND	ND	ND	ND	ND	ND	ND
53	ND	ND	ND	ND	ND	ND	ND	ND	ND
54	ND	ND	ND	ND	ND	ND	ND	ND	ND
55	ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	R	S	T	U	V	W	X	Y	Z
1 2 3 4 5 6	n-PROPYL BENZENE (UG/L)	sec-BUTYL BENZENE (UG/L)	tert-BUTYL BENZENE (UG/L)	BROMO FORM (UG/L)	CARBON TETRA CHLORIDE (UG/L)	CHLORO BENZENE (UG/L)	CHLORO ETHANE (UG/L)	CHLORO FORM (UG/L)	DI-BROMO CHLORO METHANE (UG/L)
32	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	ND	ND	ND	ND	ND	ND	ND	ND	ND
35	ND	ND	ND	ND	ND	ND	ND	ND	ND
36				ND	ND	ND		ND	ND
37	ND	ND	ND	ND	ND	ND	ND	ND	ND
38				ND	ND	ND		ND	ND
39				ND	ND	ND		ND	ND
40				ND	ND	ND		ND	ND
41				ND	ND	ND		ND	ND
42				ND	ND	ND		ND	ND
43	ND	ND	ND	ND	ND	ND	ND	ND	ND
44	ND	ND	ND	ND	ND	ND	ND	ND	ND
45	ND	ND	ND	ND	ND	ND	ND	ND	ND
46	ND	ND	ND	ND	ND	ND	ND	ND	ND
47	ND	ND	ND	ND	ND	ND	ND	ND	ND
48	ND	ND	ND	ND	ND	ND	ND	ND	ND
49	ND	ND	ND	ND	ND	ND	ND	ND	ND
50	ND	ND	ND	ND	ND	ND	ND	ND	ND
51				ND	ND	ND		ND	ND
52	ND	ND	ND	ND	ND	ND	ND	ND	ND
53	ND	ND	ND	ND	ND	ND	ND	ND	ND
54	ND	ND	ND	ND	ND	ND	ND	ND	ND
55	ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1 2 3 4 5 6	DI BROMO METHANE (UG/L)	BROMO DI CHLORO METHANE (UG/L)	1,1-DI CHLORO ETHANE (UG/L)	1,1,1-TRI CHLORO ETHANE (UG/L)	1,1,1,2-TETRA CHLORO ETHANE WATER (UG/L)	1,1,2-TRI CHLORO ETHANE (UG/L)	1,1,2,2-TETRA CHLORO ETHANE WATER (UG/L)	1,2-DI BROMO ETHANE (UG/L)	1,2-DI CHLORO ETHANE (UG/L)	TRI-CHLORO FLUORO ETHANE (UG/L)
32	ND	ND	ND	ND	ND	ND	ND		ND	
33	ND	ND	ND	ND	ND	ND	ND		ND	ND
34	ND	ND	ND	ND	ND	ND	ND		ND	
35	ND	ND	ND	ND	ND	ND	ND		ND	
36		ND	ND	ND					ND	ND
37	ND	ND	ND	ND	ND	ND	ND		ND	ND
38		ND	ND	ND					ND	
39		ND	ND	ND					ND	ND
40		ND	ND	ND					ND	ND
41		ND	ND	0.4					ND	ND
42		ND	ND	ND					ND	ND
43	ND	ND	ND	ND	ND	ND	ND		ND	
44	ND	ND	ND	ND	ND	ND	ND		ND	
45	ND	ND	ND	ND	ND	ND	ND		ND	
46	ND	ND	ND	ND	ND	ND	ND		ND	
47	ND	ND	ND	ND	ND	ND	ND		ND	
48	ND	ND	ND	ND	ND	ND	ND		ND	
49	ND	ND	ND	ND	ND	ND	ND		ND	
50	ND	ND	ND	ND	ND	ND	ND		ND	
51		ND	ND	ND					ND	ND
52	ND	ND	ND	ND	ND	ND	ND		ND	
53	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT
1-6	METHYL ETHER TERT BUTYL (UG/L)	1,1-DI CHLORO ETHYLENE (UG/L)	cis-1,2-DI CHLORO ETHENE (UG/L)	trans-1,2-DI CHLORO ETHENE (UG/L)	TETRA CHLORO ETHYL ENE (UG/L)	TRI CHLORO ETHYL ENE (UG/L)	HEXA CHLORO BUT ADIENE (UG/L)	METHYL BROMIDE (UG/L)	BROMO CHLORO METHANE (UG/L)	DI-CHLORO METHANE (UG/L)
32		ND	ND	ND	ND	ND	ND	ND	ND	ND
33		ND	ND	ND	ND	ND	ND	ND	ND	ND
34		ND	ND	ND	ND	ND	ND	ND	ND	ND
35		ND	ND	ND	ND	ND	ND	ND	ND	ND
36	ND	ND	ND	ND	ND	ND				
37		ND	ND	ND	ND	ND	ND	ND	ND	ND
38	ND	ND	ND	ND	0.11	ND				
39	ND	ND	ND	ND	ND	ND				
40	ND	ND	ND	ND	0.1	ND				
41	ND	ND	ND	ND	ND	ND				
42	ND	ND	ND	ND	0.2	ND				
43		ND	ND	ND	ND	ND	ND	ND	ND	ND
44		ND	ND	ND	ND	ND	ND	ND	ND	ND
45		ND	ND	ND	ND	ND	ND	ND	ND	ND
46		ND	ND	ND	ND	ND	ND	ND	ND	ND
47		ND	ND	ND	ND	ND	ND	ND	ND	ND
48		ND	ND	ND	ND	ND	ND	ND	ND	ND
49		ND	ND	ND	ND	ND	ND	ND	ND	ND
50		ND	ND	ND	ND	ND	ND	ND	ND	ND
51	ND	ND	ND	ND	ND	1.1				
52		ND	ND	ND	ND	ND	ND	ND	ND	ND
53	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD
1 2 3 4 5 6	DI CHLORO DI FLUORO METHANE (UG/L)	TRI CHLORO FLUORO METHANE (UG/I0	METHYL ENE CHLORIDE (UG/L)	NAPHTH ALENE (UG/L)	DIBROMO CHLORO PROPANE (UG/L)	1,2-DI CHLORO PROPANE (UG/L)	1,2,3-TRI CHLORO PROPANE (UG/L)	1,3-DI CHLORO PROPANE (UG/L)	2,2-DI CHLORO PROPANE (UG/L)	1,1-DI CHLORO PROPENE (UG/L)
32	ND	ND	ND	ND		ND	ND	ND	ND	ND
33	ND	ND	ND	ND		ND	ND	ND	ND	ND
34	ND	ND	ND	ND		ND	ND	ND	ND	ND
35	ND	ND	ND	ND		ND	ND	ND	ND	ND
36	ND	ND	ND			ND				
37	ND	ND	ND	ND		ND	ND	ND	ND	ND
38	ND	ND	ND			ND				
39	ND	ND	ND			ND				
40	ND	ND	ND			ND				
41	ND	ND	ND			ND				
42	ND	ND	ND			ND				
43	ND	ND	ND	ND		ND	ND	ND	ND	ND
44	ND	ND	ND	ND		2.64	5.01	ND	ND	ND
45	ND	ND	ND	ND		ND	ND	ND	ND	ND
46	ND	ND	ND	ND		ND	ND	ND	ND	ND
47	ND	ND	ND	ND		ND	ND	ND	ND	ND
48	ND	ND	ND	ND		ND	ND	ND	ND	ND
49	ND	ND	ND	ND		ND	ND	ND	ND	ND
50	ND	ND	ND	ND		ND	ND	ND	ND	ND
51	ND	ND	ND			ND				
52	ND	ND	ND	ND		ND	ND	ND	ND	ND
53	ND	ND	ND	ND	ND	0.6	7.9	ND	ND	ND
54	ND	ND	ND	ND	ND	1.3	22	ND	ND	ND
55	ND	ND	ND	ND	ND	1.3	17	ND	ND	ND

Volatile Organic Compound Results of Sites Sampled by DEQ and USGS

Table 9

	BE	BF	BG	BH	BI	BJ	BK	BL	BM
1 2 3 4 5 6	cis-1,3-DI CHLORO PROPENE (UG/L)	TRANS 1,3-DI CHLORO PROPENE (UG/L)	STYRENE (UG/L)	TOLUENE (UG/L)	o- CHLORO TOLUENE (UG/L)	p- CHLORO TOLUENE (UG/L)	p-ISO PROPYL TOLUENE (UG/L)	VINYL CHLORIDE (UG/L)	XYLENE (UG/L)
32		ND	ND	ND	ND	ND	ND	ND	ND
33		ND	ND	ND	ND	ND	ND	ND	ND
34		ND	ND	ND	ND	ND	ND	ND	ND
35		ND	ND	ND	ND	ND	ND	ND	ND
36			ND	ND				ND	ND
37		ND	ND	ND	ND	ND	ND	ND	ND
38			ND	ND				ND	ND
39			ND	ND				ND	ND
40			ND	ND				ND	ND
41			ND	ND				ND	ND
42			ND	ND				ND	ND
43		ND	ND	ND	ND	ND	ND	ND	ND
44		ND	ND	ND	ND	ND	ND	ND	ND
45		ND	ND	ND	ND	ND	ND	ND	ND
46		ND	ND	ND	ND	ND	ND	ND	ND
47		ND	ND	ND	ND	ND	ND	ND	ND
48		ND	ND	ND	ND	ND	ND	ND	ND
49		ND	ND	ND	ND	ND	ND	ND	ND
50		ND	ND	ND	ND	ND	ND	ND	ND
51			ND	ND				ND	ND
52		ND	ND	ND	ND	ND	ND	ND	ND
53	ND	ND	ND	ND	ND	ND	ND	ND	ND
54	ND	ND	ND	ND	ND	ND	ND	ND	ND
55	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX D

Table 10

Pesticide Results

Headnotes for Tables 8, 9, 10, and 11

Well Location: well location in latitude and longitude or township, range and section

Primary Use of Water:

H	domestic
I	irrigation
P	public supply
C	commercial
D	dewater
S	stock
F	fire

Units of Measure:

°C	degrees celsius
US/CM	microsiemens per centimeter at 25 °C
<	less than
>	greater than
MG/L	milligrams per liter
STAND UNITS	standard units
MG/L as N	milligrams per liter as nitrogen
DISS	dissolved
MG/L as PO4	milligrams per liter as phosphate
MG/L as P	milligrams per liter as phosphorus
COL/100ML	colonies per 100 milliliters
PCI/L	picocuries per liter
UG/L	micrograms per liter
H2O	water
REC	recoverable
GF	glass fiber filter
FLT	filtered
U	micron (filter pore size)
ND	non-detect
*	results from Dept. of Ag study
MG/L as CACO3	milligrams per liter as calcium carbonate
MG/L as CA	milligrams per liter as calcium
MG/L as MG	milligrams per liter as magnesium
MG/L as NA	milligrams per liter as sodium
MG/L as K	milligrams per liter as potassium
MG/L as CL	milligrams per liter as chloride
MG/L as SO4	milligrams per liter as sulfate
MG/L as F	milligrams per liter as fluoride
MG/L as SIO2	milligrams per liter as silica
UG/L as AS	micrograms per liter as arsenic
UG/L as CD	micrograms per liter as cadmium
UG/L as CR	micrograms per liter as chromium
UG/L as FE	micrograms per liter as iron

Units of Measure continued:

UG/L as PB	micrograms per liter as lead
UG/L as MN	micrograms per liter as manganese
UG/L as ZN	micrograms per liter as zinc
UG/L as SE	micrograms per liter as selenium

Empty Box: no information available

Volatile Organic Compounds (VOCs) were analyzed at every site with a portable gas chromatograph for presence or absence. Sites with VOCs present had duplicates sent to Alpha Analytical Laboratory in Sparks, Nevada, those results can be found in Table 9.

Pesticide Results of Sites Sampled by DEQ and USGS

Table 10

	A	B	C	D	E	F	G	H
1–7	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	TEMP WATER (°C)	SP COND (US/CM)	NO2+NO3 AS N DISS (MG/L as N)
8	43°32′40"	116°23′54"	02N 01W 01ABD1	08-23-95	200.00	15.00	594.00	4.80
9	43°32′46"	116°25′54"	02N 01W 02BBA1	07-13-95	104.00	14.50	649.00	4.40
10	43°31′43"	116°24′51"	02N 01W 11ADA1	08-03-95	190.00	12.50	794.00	6.50
11	43°38′02"	116°19′48"	03N 01E 03BBA1	08-18-95	117.00	21.50	352.00	0.71
12	43°36′07"	116°18′33"	03N 01E 14BBD1	07-05-95	183.00	14.50	655.00	2.80
13	43°34′17"	116°17′27"	03N 01E 25BCB1	08-06-95	117.00	13.00	568.00	3.00
14	43°37′37"	116°37′07"	03N 02W 06ACD1	09-08-95	87.00	13.50	965.00	15.00
15	43°32′49"	116°31′35"	03N 02W 36CDC1	07-25-95	90.00	15.50	812.00	5.20
16	43°43′15"	116°23′32"	04N 01E 06BBB1	07-17-95	67.00	15.00	414.00	4.20
17	43°42′23"	116°18′39"	04N 01E 11BBB1	07-17-95	203.00	16.50	994.00	7.40
18	43°38′53"	116°23′01"	04N 01E 31ABBB2	09-25-95	84.00	12.50	688.00	6.50
19	43°41′51"	116°36′42"	04N 02W 12CBC1	07-12-95	155.00	13.50	175.00	0.51
20	43°39′08"	116°36′42"	04N 02W 29CCB1	07-20-95	130.00	14.50	144.00	0.47
21	43°39′35"	116°36′47"	04N 02W 30ADA1	08-22-95	80.00	15.00	224.00	0.67
22	43°42′10"	116°42′27"	04N 03W 09BBD1	07-25-95	200.00	15.00	686.00	3.40
23	43°40′04"	116°38′36"	04N 03W 13BAA1	08-13-95	185.00	15.50	120.00	0.16
24	43°43′31"	116°21′36"	05N 01E 32DBD1	08-07-95	128.00	14.00	275.00	1.90
25	43°43′21"	116°19′08"	05N 01E 34DCD1	08-06-95	54.00	13.50	926.00	11.00
26	43°43′45"	116°26′15"	05N 01W 34ACDA1	09-06-95	120.00	13.50	613.00	15.00
27	43°43′45"	116°26′15"	05N 01W 34DBAD1	09-06-95	74.00	13.50	794.00	37.00
28	43°43′45"	116°26′15"	05N 01W 34DBAD2	09-13-95	72.60	13.50	825.00	36.00

Pesticide Results of Sites Sampled by DEQ and USGS

Table 10

	I	J	K	L	M	N	O	P	Q	R
1–7	PROP-CHLOR, H2O,DISS REC (UG/L)	BUTYL-ATE, H2O,DISS REC (UG/L)	SI-MAZINE, H2O,DISS REC (UG/L)	PRO-METON, H2O,DISS REC (UG/L)	DEETHYL ATRA-ZINE, H2O,DISS REC (UG/L)	CYANA-ZINE H2O,DISS REC (UG/L)	FONOFOS H2O,DISS REC (UG/L)	ALPHA BHC DISS (UG/L)	P,P' DDE DISS (UG/L)	CHLOR-PYRIFOS DISS (UG/L)
8	ND	ND	ND	ND	0.03	ND	ND	ND	ND	ND
9	ND	ND	0.00	ND	0.05	ND	ND	ND	ND	ND
10	ND	ND	ND	ND	0.06	ND	ND	ND	ND	ND
11	ND	ND	ND	ND	0.00	ND	ND	ND	ND	ND
12	ND	ND	ND	ND	0.01	ND	ND	ND	ND	ND
13	ND	ND	0.05	ND	0.11	ND	ND	ND	ND	ND
14	ND	ND	0.00	ND	0.02	ND	ND	ND	ND	ND
15	ND	ND	ND	ND	0.07	ND	ND	ND	ND	ND
16	ND	ND	0.01	0.04	0.00	ND	ND	ND	ND	ND
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	ND	ND	0.02	0.28	0.09	ND	ND	ND	ND	ND
19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	0.00	ND	0.00	ND	ND	ND	ND	ND
23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	0.04	ND	ND	ND	ND	ND
25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26										
27										
28	ND	ND	ND	ND	0.02	ND	ND	ND	0.00	ND

Pesticide Results of Sites Sampled by DEQ and USGS

Table 10

	S	T	U	V	W	X	Y	Z	AA	AB
1–7	LINDANE DISS (UG/L)	DI-ELDRIN DISS (UG/L)	METO-LACHLOR H20,DISS (UG/L)	MALA-THION, DISS (UG/L)	PARA-THION, DISS (UG/L)	DI-AZINON, DISS (UG/L)	ATRA-ZINE H2O,DISS (UG/L)	ALA-CHLOR, H2O,DISS REC (UG/L)	ACETO CHLORO H20-FLT REC (UG/L)	METRI-BUZIN SENCOR H2O,DISS (UG/L)
8	ND	ND	ND	ND	ND	ND	0.04	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	0.02	ND	ND	ND
10	ND	ND	ND	ND	ND	ND	0.05	ND	ND	ND
11	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND
12	ND	ND	ND	ND	ND	ND	0.02	ND	ND	ND
13	ND	ND	ND	ND	ND	ND	0.10	ND	ND	ND
14	ND	ND	ND	ND	ND	ND	0.05	ND	ND	ND
15	ND	ND	ND	ND	ND	ND	0.08	ND		ND
16	ND	ND	ND	ND	ND	ND	0.03	ND	ND	ND
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	ND	ND	ND	ND	ND	ND	0.30	ND	ND	ND
19	ND	ND	ND	ND	ND	ND	0.00	ND	ND	ND
20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND
23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	ND	ND	0.06	ND	ND	ND
25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26										
27										
28	ND	ND	ND	ND	ND	ND	0.02	ND	ND	0.08

Pesticide Results of Sites Sampled by DEQ and USGS

Table 10

	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
1–7	2,6-DI- ETHYL ANILINE H2O-FLT 0.7 U GF,REC (UG/L)	TRI- FLUR- ALIN H20-FLT 0.7 U GF,REC (UG/L)	ETHAL- FLUR- ALIN H20-FLT 0.7 U GF,REC (UG/L)	PHORATE H2O,FLT 0.7 U GF,REC (UG/L)	TER- BACILL H2O,FLT 0.7 U GF,REC (UG/L)	LINURON H2O,FLT 0.7 U GF,REC (UG/L)	METHYL PARA- THION H2O,FLT 0.7 U GF,REC (UG/L)	EPTC H2O,FLT 0.7 U GF,REC (UG/L)	PEBULATE H2O,FLT 0.7 U GF,REC (UG/L)	TEBU- THUIRON H2O,FLT 0.7 U GF,REC (UG/L)
8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	0.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02
19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26										
27										
28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

	AM	AN	AO	AP	AQ	AR	AS	AT	AU
1	MOLINATE	ETHOPROP	BENFLUR-	CARBO-	TERBUFOS	PRON-	DISUL-	TRAIL-	PRO-
2	H20,FLT	H2O,FLT	ALIN	FURAN	H2O,FLT	AMIDE	FOTON	LATE	PANIL
3	0.7 U	0.7 U	H20,FLT	H2O,FLT	0.7 U	H2O,FLT	H2O,FLT	H2O,FLT	H2O,FLT
4	GF,REC	GF,REC	0.7 U	0.7 U	(UG/L)	0.7 U	0.7 U	0.7 U	0.7 U
5	(UG/L)	(UG/L)	GF,REC	GF,REC		GF,REC	GF,REC	GF,REC	GF,REC
6			(UG/L)	(UG/L)		(UG/L)	(UG/L)	(UG/L)	(UG/L)
7									
8	ND	ND	ND	ND	ND	ND	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	ND	ND	ND
10	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	ND	ND	ND	ND	ND	ND	ND	ND	ND
14	ND	ND	ND	ND	ND	ND	ND	ND	ND
15	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	ND	ND	ND	ND	ND	ND	ND	ND	ND
18	ND	ND	ND	ND	ND	ND	ND	ND	ND
19	ND	ND	ND	ND	ND	ND	ND	ND	ND
20	ND	ND	ND	ND	ND	ND	ND	ND	ND
21	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	ND	ND	ND	ND	ND	ND	ND
23	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	ND	ND	ND	ND	ND	ND	ND	ND	ND
26									
27									
28	ND	ND	ND	ND	ND	ND	ND	ND	ND

Pesticide Results of Sites Sampled by DEQ and USGS

Table 10

	AV	AW	AX	AY	AZ	BA	BB	BC
1–7	CAR-BARYL H2O,FLT 0.7 U GF,REC (UG/L)	THIO-BENCARB H2O,FLT 0.7 U GF,REC (UG/L)	DCPA DACTHAL H2O,FLT 0.7 U GF,REC (UG/L)	PENDI-METH-ALIN H2O,FLT 0.7 U GF,REC (UG/L)	NAPROP-AMIDE H2O,FLT 0.7 U GF,REC (UG/L)	PRO-PARGITE H2O,FLT 0.7 U GF,REC (UG/L)	METHYL-AZINPHOS H2O,FLT 0.7 U GF,REC (UG/L)	PER-METHRIN CIS H2O,FLT 0.7 U GF,REC (UG/L)
8	ND	ND	ND	ND	ND	ND	ND	ND
9	ND	ND	ND	ND	ND	ND	ND	ND
10	ND	ND	ND	ND	ND	ND	ND	ND
11	ND	ND	ND	ND	ND	ND	ND	ND
12	ND	ND	ND	ND	ND	ND	ND	ND
13	ND	ND	ND	ND	ND	ND	ND	ND
14	ND	ND	ND	ND	ND	ND	ND	ND
15	ND	ND	ND	ND	ND	ND	ND	ND
16	ND	ND	ND	ND	ND	ND	ND	ND
17	ND	ND	ND	ND	ND	ND	ND	ND
18	ND	ND	ND	ND	ND	ND	ND	ND
19	ND	ND	ND	ND	ND	ND	ND	ND
20	ND	ND	ND	ND	ND	ND	ND	ND
21	ND	ND	ND	ND	ND	ND	ND	ND
22	ND	ND	ND	ND	ND	ND	ND	ND
23	ND	ND	ND	ND	ND	ND	ND	ND
24	ND	ND	ND	ND	ND	ND	ND	ND
25	ND	ND	ND	ND	ND	ND	ND	ND
26			*38					
27			*110					
28	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX E

Table 11

Metals, Chloride, Sulfate Fluoride, Silica, Selenium and Arsenic Results

Headnotes for Tables 8, 9, 10, and 11

Well Location: well location in latitude and longitude or township, range and section

Primary Use of Water:

H	domestic
I	irrigation
P	public supply
C	commercial
D	dewater
S	stock
F	fire

Units of Measure:

°C	degrees celsius
US/CM	microsiemens per centimeter at 25 °C
<	less than
>	greater than
MG/L	milligrams per liter
STAND UNITS	standard units
MG/L as N	milligrams per liter as nitrogen
DISS	dissolved
MG/L as PO4	milligrams per liter as phosphate
MG/L as P	milligrams per liter as phosphorus
COL/100ML	colonies per 100 milliliters
PCI/L	picocuries per liter
UG/L	micrograms per liter
H2O	water
REC	recoverable
GF	glass fiber filter
FLT	filtered
U	micron (filter pore size)
ND	non-detect
*	results from Dept. of Ag study
MG/L as CACO3	milligrams per liter as calcium carbonate
MG/L as CA	milligrams per liter as calcium
MG/L as MG	milligrams per liter as magnesium
MG/L as NA	milligrams per liter as sodium
MG/L as K	milligrams per liter as potassium
MG/L as CL	milligrams per liter as chloride
MG/L as SO4	milligrams per liter as sulfate
MG/L as F	milligrams per liter as fluoride
MG/L as SIO2	milligrams per liter as silica
UG/L as AS	micrograms per liter as arsenic
UG/L as CD	micrograms per liter as cadmium
UG/L as CR	micrograms per liter as chromium
UG/L as FE	micrograms per liter as iron

Units of Measure continued:

UG/L as PB	micrograms per liter as lead
UG/L as MN	micrograms per liter as manganese
UG/L as ZN	micrograms per liter as zinc
UG/L as SE	micrograms per liter as selenium

Empty Box: no information available

Volatile Organic Compounds (VOCs) were analyzed at every site with a portable gas chromatograph for presence or absence. Sites with VOCs present had duplicates sent to Alpha Analytical Laboratory in Sparks, Nevada, those results can be found in Table 9.

	A	B	C	D	E	F	G	H	I
1–5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SPECIFIC COND. (US/CM)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISS (MG/L AS CA)
6	43°31'43"	116°24'51"	02N 01W 11ADA1	08-03-95	190	I	794	180	41
7	43°32'42"	116°35'53"	02N 02W 05ABA1	07-22-95	180	H	694	230	61
8	43°38'02"	116°19'48"	03N 01E 03BBA1	08-18-95	117	H	352	110	35
9	43°36'07"	116°18'33"	03N 01E 14BBD1	07-05-95	183		655	200	60
10	43°34'17"	116°17'27"	03N 01E 25BCB1	08-06-95	117	H		210	54
11	43°34'17"	116°17'27"	03N 01E 25BCB1	08-06-95	117	H	568	210	55
12	43°36'42"	116°26'06"	03N 01W 10DAAB1	10-16-95	210	H	491		
13	43°36'18"	116°24'53"	03N 01W 11DDDC1	09-05-95	83	H	876		
14	43°33'42"	116°24'52"	03N 01W 26DDDC1	08-31-95	213	H	673	170	55
15	43°37'37"	116°37'07"	03N 02W 06ACD1	09-08-95	87	I	965	280	71
16	43°37'37"	116°37'07"	03N 02W 06ACD1	09-08-95	87	I		290	72
17	43°36'33"	116°37'51"	03N 02W 07CBC1	07-22-95	196	H	233	61	17
18	43°36'33"	116°37'51"	03N 02W 07CBC1	07-22-95	196	H	233	61	17
19	43°36'02"	116°36'38"	03N 02W 17BCB1	08-16-95	461	P	245	49	14
20	43°32'49"	116°31'35"	03N 02W 36CDC1	07-25-95	90	H	812	250	69
21	43°35'22"	116°40'36"	03N 03W 22ABB1	08-16-95	250	I	340	110	31
22	43°43'15"	116°23'32"	04N 01E 06BBB1	07-17-95	67	H	414	170	48
23	43°41'45"	116°21'53"	04N 01E 08CAD1	07-19-95	462	I	289	100	32
24	43°42'23"	116°18'39"	04N 01E 11BBB1	07-17-95	203	H	994	270	73
25	43°41'28"	116°17'02"	04N 01E 13BAAA1	07-25-95	150	P	193	61	17
26	43°40'06"	116°17'46"	04N 01E 23DAC1	07-27-95	403	P	242	69	22
27	43°42'44"	116°24'11"	04N 01W 01CAA1	07-20-95	260	H	604	190	56
28	43°43'15"	116°25'02"	04N 01W 02AAB1	07-19-95	68	H	641	280	81
29	43°41'39"	116°23'50"	04N 01W 12DDB1	07-21-95	81	H	245	96	30
30	43°41'51"	116°31'55"	04N 02W 12CBC1	07-12-95	155	H	175	65	21
31	43°39'05"	116°36'42"	04N 02W 29CCB1	07-20-95	130	I	144	38	11

	J	K	L	M	N	O	P	Q	R	S
1–5	MAGNE SIUM DISS (MG/L AS MG)	SODIUM DISS (MG/L AS NA)	SODIUM ADSORP TION RATIO	SODIUM PERCENT	POTAS SIUM DISS (MG/L AS K)	CHLORIDE DISS (MG/L AS CL)	SULFATE DISS (MG/L AS SO4)	FLUORIDE DISS (MG/L AS F)	SILICA DISS (MG/L AS SIO2)	ARSENIC DISS (UG/L AS AS)
6	20	95	3	52	4.2	14	92	0.5	40	5
7	18	49	1	32	3.8	53	120	0.4	43	8
8	6.1	29	1	35	2.5	8.6	22	0.5	44	1
9	13	59	2	38	1.9	19	51	0.4	32	ND
10	18	43	1	31	1.1	5.1	34	0.8	44	3
11	18	44	1	31	1.3	5	34	0.8	43	2
12								0.2		
13										
14	8.8	75	2	48	1.4	34	110	0.4	26	2
15	26	97	3	42	2.8	22	97	0.6	57	18
16	26	97	2	42	2.9	21	97	0.6	56	18
17	4.4	25	1	46	3	5	8.1	0.5	43	4
18	4.4	25	1	46	3.2	5.2	8.3	0.4	43	4
19	3.5	34	2	58	2.6	5.9	7.1	1	38	5
20	18	78	2	40	7.3	26	130	0.2	48	2
21	8.6	27	1	34	2.9	4.2	24	0.5	49	10
22	11	23	0.8	23	1.7	5.4	8.6	0.3	56	32
23	5.8	20	0.9	29	1.6	3.3	18	0.4	14	1
24	22	97	3	43	2.6	83	65	0.4	37	5
25	4.5	14	0.8	32	1.9	6.9	19	0.3	44	6
26	3.3	22	1	40	3	2	8.9	0.3	42	ND
27	11	61	2	41	2.7	4.2	22	0.4	33	6
28	18	34	0.9	21	4.1	14	27	0.3	63	28
29	5.1	12	0.5	21	1.6	4.9	19	0.3	30	2
30	3	10	0.5	25	0.9	1.9	4.9	0.3	25	ND
31	2.5	15	1	46	0.7	3.5	7.5	0.5	31	4

	T	U	V	W	X	Y	Z	AA
1 2 3 4 5	CADMIUM DISS (UG/L as CD)	CHROMIUM DISS (UG/L AS CR)	COPPER DISS (UG/L AS CU)	IRON DISS (UG/L AS FE)	LEAD DISS (UG/L AS PB)	MANGA NESE DISS (UG/L AS MN)	ZINC DISS (UG/L AS ZN)	SELENIUM DISS (UG/L AS SE)
6	ND	ND	1	ND	ND	ND	3	ND
7	ND	5	ND	10	ND	ND	30	1
8	ND	ND	4	21	ND	46	49	ND
9	ND	1	1	ND	ND	ND	120	1
10	ND	ND	ND	ND	ND	ND	37	ND
11	ND	ND	1	ND	ND	ND	34	ND
12								
13				ND		ND		
14	ND	2	3	ND	ND	2	30	
15	ND	ND	2	ND	ND	ND	ND	ND
16	ND	ND	1	ND	ND	ND	5	1
17	ND	7	ND	ND	ND	ND	ND	ND
18	ND	7	ND	3	ND	ND	6	ND
19	ND	7	ND	ND	ND	ND	4	ND
20	ND	2	ND	ND	ND	ND	39	1
21	ND	ND	ND	ND	ND	ND	6	ND
22	ND	ND	2	ND	ND	ND	49	
23	ND	ND	1	310	ND	170	20	ND
24	ND	2	ND	3	ND	ND	25	7
25	ND	ND	ND	6	ND	1	52	ND
26	ND	ND	ND	120	ND	130	ND	ND
27	ND	2	4	ND	ND	1	19	ND
28	ND	ND	8	ND	ND	9	27	ND
29	ND	1	6	ND	ND	3	62	ND
30	ND	ND	ND	390	ND	7	36	ND
31	ND	3	ND	4	ND	3	31	ND

	A	B	C	D	E	F	G	H	I
1 2 3 4 5	LATITUDE	LONGITUDE	TOWNSHIP RANGE & SECTION	DATE SAMPLED	DEPTH OF WELL (FEET)	PRIMARY USE OF WATER	SPECIFIC COND. (US/CM)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISS (MG/L AS CA)
32	43°39'35"	116°36'47"	04N 02W 30ADA1	08-22-95	80	H	224	73	21
33	43°42'10"	116°42'27"	04N 03W 09BBD1	07-25-95	200	P	686	200	61
34	43°41'28"	116°38'36"	04N 03W 13BAA1	08-13-95	185	S	120	39	12
35	43°43'31"	116°21'36"	05N 01E 32DBD1	08-07-95	128	H	275	93	27
36	43°43'21"	116°19'08"	05N 01E 34DCD1	08-06-95	54	H	926	340	100

Metals, Chloride, Sulfate, Fluoride, Silica, Selenium, and Arsenic Results — Table 11

	J	K	L	M	N	O	P	Q	R	S
1–5	MAGNESIUM DISS (MG/L AS MG)	SODIUM DISS (MG/L AS NA)	SODIUM ADSORPTION RATIO	SODIUM PERCENT	POTASSIUM DISS (MG/L AS K)	CHLORIDE DISS (MG/L AS CL)	SULFATE DISS (MG/L AS SO4)	FLUORIDE DISS (MG/L AS F)	SILICA DISS (MG/L AS SIO2)	ARSENIC DISS (UG/L AS AS)
32	5	14	0.7	29	1.9	9.1	22	0.3	32	1
33	11	69	2	43	2.6	24	76	0.3	36	4
34	2.1	9.4	0.7	34	0.9	1.2	3.7	0.2	29	3
35	6.3	21	0.9	32	2.2	2.4	7.2	0.2	45	10
36	22	56	1	26	5.2	36	140	1.1	43	14

	T	U	V	W	X	Y	Z	AA
1 2 3 4 5	CADMIUM DISS (UG/L as CD)	CHROMIUM DISS (UG/L AS CR)	COPPER DISS (UG/L AS CU)	IRON DISS (UG/L AS FE)	LEAD DISS (UG/L AS PB)	MANGA NESE DISS (UG/L AS MN)	ZINC DISS (UG/L AS ZN)	SELENIUM DISS (UG/L AS SE)
32	ND	3	8	ND	ND	ND	37	ND
33	ND	2	1	ND	ND	ND	9	1
34	ND	2	ND	ND	ND	ND	ND	ND
35	ND	ND	3	ND	ND	ND	18	ND
36	ND	ND	2	ND	ND	ND	ND	5

Appendix F

Standard Operating Procedures
DEQ Drinking Water Monitoring Requirements
EPA Health Advisory on Dacthal

STATEWIDE PROGRAM FIELD SAMPLING CRITERIA

Event	Criteria/Comments	SOP
GENERAL	* Do not substitute sampling sites. * Ensure that ALL field inspection information is complete. * Note septic tank or other contaminant source locations. * Check summary sheet for required special samples.	2.00 1.00
WELL PURGING	* Monitor pH, temperature, and SC. * Record readings every 5 minutes until readings stabilize over 3 successive measurements within: 0.2 Celsius, 5% μS/cm, 0.1 pH unit. * Record last purging readings as site field parameters.	3.00
DECON	**Before field:** * Detergent wash all equipment. * Sterilize bacteria filter assembly. **Before filtration:** * Triple rinse all equipment in native water. * Use gloves or non-metal tweezers to place filter. * Run 200 ml native water through filter. **After filtration:** * Remove filter; run 500 ml deionized water through apparatus. * Triple rinse all equipment with deionized water.	4.00
SAMPLES	*** Refer to Sample Schedule for bottle types, treatment and shipping.**	5.00
UNFILTERED	* Collect directly from source.	5.00, p.1
FILTERED	* Collect from churn splitter or flow through filtration system.	5.00, p.2
PRESERVING	* Use gloves, safety goggles. Have spray wash handy. * Use preservation chamber. * Break ampules away from the body. * Discard used ampules in bottle of deionized water.	
VOC	* Collect directly from the source. * Slide sample water and preservative down inside wall of vial. * Keep trip/transfer blanks with samples at all times. * Note any odors, spills, haze, etc. * Do a rigorous bubble check when collected. Ignore bubbles that form later. * Do not skip sample for aerated waters. (See SOP).	5.00, p.3,4
RADON	* Collect last. * Rinse syringe with native water. * Avoid aerating the sample. Withdraw slowly. * Inject 10 ml native water under mineral cocktail. * Recap and shake sample vigorously.	5.00, p. 5

Event	Criteria/Comments	SOP
SAMPLES, cont. SPECIAL PESTICIDES	* Check Summary Sheet * Two bottles for NAWQA sites (Schedules 2001 and 2050). Use NAWQA charge code. * One bottle for all others listed on summary sheet (schedule 2001). * For both types, also request LC8008 (filtration). Mark bottle and forms: **'Sample Must be Filtered'**.	11.0
FIELD PARAMETERS	* Alkalinity (end point) * pH, temperature (water & air), specific conductance * Water level if possible	4.50
BACTERIA	* Media less than 72 hours old. * Sterilize filter unit according to SOP. * Use sterile buffer water before and after each volume. * Pre-blank, 30 ml and 100 ml sample. Shake sample first. * Incubate at 44.5°C for 24 (±2) hours. Count all colonies with blue coloring within 20 minutes of removal. * Autoclave all cultures before discarding.	5.50
SHIPPING	**** Refer to Sample Schedule or SOP for destinations and details **** OVERNIGHT: Radon OVERNIGHT (that day/next morning): Nutrients, Pesticides OVERNIGHT (every two days, M & W): VOCs MAIL (every two days, M & W): Immunoassays ONCE per WEEK: Common ions, trace elements ONCE per TWO WEEKS: RadChem	6.00
FIELD FORMS	* Mail every week * **Notify Ivalou within two days of sites with FC Bacteria detections.**	7.00
LABELS/LAB FORMS	* Use NAWQA account number for NAWQA pesticide sites. * Enter **both Site ID and** local well numbers on lab forms and bottles. * Protect bottle labels and lab forms from moisture or condensation. * Note field team and date shipped on VOC lab forms.	8.00
QC SAMPLES	EQUIPMENT BLANKS: One per crew; first week in season. BLIND REFERENCE: Two per month per crew. REPLICATES: RU, FU, FA, FA, FCC: Four per crew per season. Radchem: Four per crew per season. VOCs: As specified on summary sheet. VOC TRIP BLANKS: One per shipment. VOC TRANSFER BLANKS: One per shipment. VOC FIELD SPIKES: As specified for NAWQA. * Refer to SOP for QC Sample labeling.	9.00

Sample Bottle and Shipping Summary

Sample	Request	Bottle Type	Pre-Rinse	Treatment	Storage	Bottles Marked	Shipping	Ship To
Volatile Organic Compounds (VOCs)	Method 524.2	Three 40 ml amber glass vials	No	Raw + 2 drops HCl; Avoid aeration; No bubbles in final sample	Chill	VOC	Critical - Fed Ex all samples every Mon & Wed.	Alpha Analytical 255 Glendale Ave, #21 Sparks, NV 89431
Immunoassays	No form necessary	One 60 ml amber glass	Yes	Raw	Chill	Pesticide	Critical - Mail all samples every Mon & Wed.	Janet Crockett IDWR 1301 N. Orchard St. Boise, ID 83706
Pesticides *(For specified sites only).*	Sch 2001 Sch 2050 (NAWQA sites only)	One 1 liter amber glass baked NAWQA sites: Two 1 liter amber glass baked	No	Raw See SOP # 11.0	Chill	GCC	Critical - Fed Ex Overnight, same day/next a.m. Ship Friday samples Friday.	Denver USGS Lab
Radon	LC1369	One 20 ml clear glass	No	10 ml water injected beneath mineral oil cocktail. Shake well.	Cardboard Tube	LC1369, Military Time	Critical - Fed Ex overnight.	Denver USGS Lab Attn: Ann Mullin
Radchem	Gross Alpha and Gross Beta	One 1 liter plastic cubic container	No	Raw + 2 ml nitric acid (HNO_3)	No chill	Radchem	Once per two weeks.	Janet Crockett IDWR 1301 N. Orchard St. Boise, ID 83706
Common Ions	Sch. 42	One 250 ml plastic One 250 ml plastic One 250 ml acid rinsed plastic	Yes Yes Yes	Raw, untreated Filter 0.45 μm, untreated Filter 0.45 μm, + 1 ml nitric acid (HNO_3).	No chill No chill No chill	RU FU FA	Once a week.	Denver USGS Lab
Nutrients	Sch. 400	One 125 ml amber plastic	Yes	Filter 0.45 μm (no preservative)	Chill	FCC	Critical - Fed Ex overnight, same day/next a.m.	Denver USGS Lab
Trace Elements	Sch. 1066	One 250 ml acid rinsed plastic	Yes	Filter 0.45 μm, + 1 ml nitric acid (HNO_3).	No chill	FA	Once a week	Denver USGS Lab
Fecal Coliform Bacteria	do on-site	Autoclaved 500 ml polypropolene	No	See SOP # 5.50	Chill until filtered	-	Filter and incubate on-site	Immediately notify Ivalou O'Dell of any detections.

Field parameters to be done on site:

- Water Level (if not done at time of inventory)
- Fecal Coliform (see above and SOP # 5.50)
- pH
- Temperature, water and air
- Alkalinity - end point
- Specific Conductance @ 25°C

June 20, 1995

STANDARD OPERATING PROCEDURE FOR FIELD INVENTORIES

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: A thoroughly completed field site inventory considerably shortens the process of sampling a site during the summer field season. In addition, as representatives of both the state and federal government, we are responsible to these well owners to make sure we're getting permission from the right source, and that we are able to contact them if we find a problem in their water.

Criteria:

1) Do not substitute monitoring sites (SOP #2).

2) Ensure that Field Inventory forms are filled out completely. Write the complete mailing address, including the town and zip code. Make sure the spelling of the owner's name is correct. Try to get a phone number where someone can be reached during the day. If that's not possible, note a time when someone can be reached and the phone number.

3) If a site is a rental, be sure to get the owner's permission and address. Include names and addresses for both the renter and the owner.

4) In addition to noting potential contamination sources, be sure to fill out the requested information on septic tanks. This information is critical for data analysis, particularly in interpreting anomalous nitrate results.

5) For stock and irrigation wells, find out how long the well will be used for the season. Sampling will take place from June 12, through September 30.

6) For other government agencies (BLM, USBR, USFS) call them first. It will probably save you time.

7) If possible and you have permission, measure the water level either at the time of inventory or prior to sampling.

STANDARD OPERATING PROCEDURE FOR PURGING A WELL

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: Ground water samples for the Statewide Ground Water Quality Monitoring Program are collected from existing public supply and private wells that are equipped with a pump, or that flow naturally under artesian pressure. Purging is necessary to obtain a representative sample of the formation water from these wells.

Procedures:

1) On the QW field sheet, note the time well purging began and the time sampling began; or note the total duration of the well purging. To estimate duration, see notes below.

2) Calibrate field parameter equipment measuring instruments, e.g., pH and specific conductance meters following manufacturer's instructions.

3) Attach hose or portable discharge apparatus to sampling hydrant and place other end at the bottom of the churn splitter or stainless steel or plastic bucket, or connect to a flow through chamber. Turn water on.

4) Estimate discharge, if possible, and record on QW field sheet.

5) During purging, monitor temperature, pH, and specific conductance of the water being discharged into the churn splitter or stainless steel bucket. Make sure that open containers continue to fill from the bottom and that flow through changers do not develop back pressure.

6) Record readings every 5 minutes (or more) until readings stabilize over three successive measurements, as follows:

temperature	within 0.2 degrees Celsius
specific conductance	5% (or within 5 μS/cm when $<$ 100 μS/cm)
pH	0.1 unit

If readings do not stabilize within the removal of **four** casing volumes worth of water, proceed with sampling, but make clear notes to that effect on the QW field sheet.

7) When all field parameters have stabilized, record final values on field sheet and proceed with sample collection.

8) Decontaminate equipment used in the purging process (SOP # 4.00).

Estimating Time for Well Purging

To estimate the duration of purging a well to remove 3 casing volumes of water, the formula is:

$3K(\pi r^2 h)/d$, where:

K = 7.48 gallons per ft^3, conversion factor
π = 3.142
r^2 = casing radius (in feet) squared
h = well depth (in feet), (or total well depth minus water level depth)
d = estimated pump discharge rate (gallons per minute)

For example, a well has a casing diameter of 10 inches, the well depth is 150 feet and the discharge is estimated to be 45 gallons per minute. A 10 inch diameter has a 5 inch radius which is equal to 0.417 feet.

$3K(\pi r^2 h)/d = 70.5 * (r^2 h)/d$

$(70.5 * (.417)^2 * 150) / 45 = 41$ minutes

STANDARD OPERATING PROCEDURE FOR DECONTAMINATING FIELD EQUIPMENT

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: Field equipment must be kept clean to prevent contamination and cross contamination of ground water samples.

Procedures:

Before Going to the Field

1) Disassemble the acrylic filter apparatus. Wash disassembled filter apparatus parts, churn splitter and stainless steel bucket with liquinox soap. Sample container should be stored in a plastic bag, away from all possible sources of contaminants (dust, fumes). Rinse with deionized water, allow to dry, and store all filter apparatus parts in zip-lock bags.

2) Sterilize the fecal coliform filter/holder assembly according to SOP # 5.50.

At the New Site

3) All sampling equipment that comes in contact with sample water (such as tubing, churn splitter, stainless steel bucket, glassware, etc.) should be triple rinsed with native water at each new site. Fill the sample container with native water, replace the lid and remove to the mobile laboratory.

4) Using gloves or non-metal tweezers, place a new 0.45 micron filter between the plastic membranes of the filter apparatus and re-assemble.

5) Run at least 200 ml of native water (no deionized water) through the filter. After this is complete, ground water samples can be collected according to following SOPs.

After Sample Collection

6) After the filtering operation is complete, remove the old filter and run 500 ml. deionized water through the peristaltic pump tubing and filter apparatus.

7) Triple rinse with deionized water, all glassware and field equipment that came in contact with native sample water.

8) If sediment collected on the filter paper, wash equipment with detergent and replace tubing if necessary.

STANDARD OPERATING PROCEDURE FOR MEASURING ALKALINITY IN THE FIELD

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: Field alkalinity measurements are more representative than lab measurements. Accuracy requires careful attention to the procedure.

Procedures, using fixed end point method, Hach digital titrator:

1) Assemble the digital titrator by inserting the titrant cartridge into the titrator and inserting the delivery tube into the cartridge. Turn delivery knob to release a few drops of titrant (into a waste container) from the end of the delivery tube, ensuring that no bubbles remain in the delivery tube or the base of the cartridge. Gently blot any drops adhering to the end of the tube, and set digital counter to ZERO reading.

2) The pH meter must be calibrated using two fresh buffers and "checked" with a third. (The majority of Idaho waters are greater than 7.0, so 7 and 10 buffers are usually preferred for the initial calibration). Only electrodes having a slope within 92 to 108 percent and a "check buffer" reading within 0.2 pH units are acceptable.

3) Rinse the electrode thoroughly (at least 3 times) with sample water.

4) Using a graduated cylinder, measure 50 or 100 milliliters of sample water into a clean dry 150 ml beaker and insert pH probe and teflon stirring bar. Be sure to record volume of sample used on the QW field sheet.

5) Place beaker on magnetic stirrer and turn on stirrer. Adjust the rate to low. Turn on pH meter, allowing reading to stabilize, then read and record initial pH value.

6) If pH is less than or equal to 8.3, skip step 7 and go on to step 8.

7) If pH is greater than 8.3, add sulfuric acid immediately from the titrator until a sample pH of 8.3 is reached. Record the number of digital counts. This data is used for the carbonate calculation. **TIP:** allow reading to stabilize as sulfuric acid is added. If you blow by pH 8.3, start over with step 1.

8) Continue to titrate sample down to a pH of 4.5, being careful to allow the reading to stabilize periodically. If you blow by pH of 4.5, start over with step 1. This data is used for the bicarbonate calculation. Record the total number of digital counts.

9) Calculations for alkalinity, carbonate and bicarbonate are provided on the QW field sheet.

Mark Hardy has also provided the following equivalent instructions:

Alkalinity Calculations

Calculations	Titrant Normality	Volume of Sample Used			
		25 ml	50 ml	100 ml	150 ml
Alkalinity as CaCO3: Multiply the total digital count to reach pH 4.5 by the appropriate factor in this table.	0.16	0.4	0.2	0.1	0.05
Carbonate in mg/l: Multiply the digital count to reach pH 8.3 by the appropriate factor in this table.	0.16	0.48	0.24	0.12	0.06
Bicarbonate in mg/l: Multiply the quantity, [digital count from initial pH to reach pH 4.5, minus 2 times the digital count to reach pH 8.3] by the appropriate factor in this table.	0.16	0.488	0.244	0.122	0.061

Examples: Both examples use a sample volume of 100 ml and an acid normality of 0.1600.

A) Native pH = 9.7

Titration results:

volume titrated	pH
0	9.70
225	8.30
654	4.50

Calculations:

Alkalinity (654)(0.1) = 65.4 = 65
Carbonate (225)(0.12) = 27
Bicarbonate [654 - 2(225)](0.122) = (204)(0.122) = 24.89 = 25

B) Native pH = 7.6

Titration results:

volume titrated	pH
0	7.60
2024	4.50

Calculations:

Alkalinity (2024)(0.1) = 202.4 = 202
Carbonate = 0
Bicarbonate (2024)(0.122) = 246.93 = 247

STANDARD OPERATING PROCEDURE FOR SAMPLE COLLECTION

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: Ground water samples must be collected in a consistent manner, using established procedures, to assure that the resulting analytical data is of the highest quality

Procedures: The following sections describe collection procedures for unfiltered, filtered, volatile organic compound and radon samples.

General

1) Do not allow bottle rims or inside of caps to touch anything, including fingers, outlet, hydrant or other sampling point parts.

2) Except for radon samples, do not collect ground water samples through a hose. In cases where using a hose is necessary, tygon tubing is acceptable except for VOC or Pesticide samples.

Unfiltered Samples

(raw untreated, radiological, pesticide and bacteriological)

Raw untreated (RU - for lab pH, conductivity and alkalinity), radiological (gross alpha and gross beta), pesticide and bacteriological sample bottles or containers are filled directed from the sampling point (generally a hydrant).

1) RU: Rinse the bottle profusely with native water directly from the sampling hydrant. Fill the bottle, leaving a small amount of air space to facilitate mixing in the lab, then cap. Store RU bottle in zip lock bag.

2) Radiological cubic container: Inflate cubic container by blowing into container. Fill container completely and temporarily cap. In the mobile laboratory, add nitric acid preservative, cap tightly and store unchilled.

3) Bacteriological bottles: **Do not rinse bottle.** Fill bottle, leaving a small amount of air space to facilitate mixing, then cap. Place bottles out of direct sunlight and into ice chest as soon as possible, or run bacteria analysis directly in the field.

4) Immunoassay bottle: Fill bottle and cap. Store in ziplock bag to protect label, place bottle out of direct sunlight and chill immediately.

5) Pesticide bottle: *For specified locations (see summary sheet).* Refer to SOP # 11.0.

Filtered

(common ions, nutrients, trace elements)

Common ion (FA,FU), nutrient (FCC) and trace element (FA) sample bottles are filled with filtered sample water.

1) Refer to SOP # 4.00 for equipment decontamination procedures.

2) Remove cap from bottle, filter small amount of native water into bottle, replace cap, shake vigorously to rinse, remove cap and discard water, and replace cap until actual sample collection. Repeat procedure for each bottle.

3) Fill bottles with filtered sample water and temporarily cap each bottle.

4) Put on powderless disposable gloves and protective eye wear.

5) Using a preservation chamber, remove the cap from one sample bottle at a time, add the appropriate preservative, re-cap bottle and shake. Continue until all samples are properly preserved. Make sure caps are tightly sealed. (Mercuric chloride preservative is no longer used for nutrient samples).

6) Put used preservative ampules in a plastic bottle filled with deionized water, cap tightly and secure.

7) Chill nutrient sample. Place remaining bottles in a zip lock bag and store unchilled.

Volatile Organic Compounds (VOCs)

VOC samples must be collected and preserved carefully to prevent volatilization and biodegradation. A large supply of 40 ml sample vials have been shipped to each field office in advance of the field season. Coolers containing VOC sample preparation supplies will arrive on a regular basis. Eight coolers are recycled per field team. Cooler contents:

a) Cutout foam for vial protection. It holds 25 vials.
b) A one bottle trip blank.
c) Two vials of organic free water to use in making a transfer blank.
d) A fresh bottle of HCl, enough for 25 vials.
e) Labels, indelible ink marker and lab submittal forms in a ziplock bag.
f) Blue ice bags or similar purpose bags for freezing.

Precautions:

1) TRIP and TRANSFER BLANKS MUST REMAIN WITH VOC SAMPLES AT ALL TIMES!

2) Take the sample directly from the source. Do not allow water to stand exposed to the atmosphere. Do not take the sample through a hose. Do not dip vials into a container. Never filter VOC samples.

3) Never sample for volatile organics near any type of exhaust system or fuel tank because discharged fumes or vapors may contaminate the sample. On the field sheet, note any possible environmental contamination, such as odors, fumes, ground spills, etc.

4) Keep all VOC cooler contents together. Ship samples in provided VOC (Alpha Analytical) coolers. Do not use VOC coolers for other purposes.

Procedures:

1) Reduce the flow from the sample point to a very small stream (about a pencil diameter or smaller). Put on disposable gloves and protective eye wear.

2) Carefully fill vial one half to two thirds full by letting the water run down the inside walls of the bottle.

3) Drip 2 drops of 1:1 hydrochloric acid into each VOC vial, allowing the acid to run down the inside wall of the vial. One additional drop may be added if the bottle will be allowed to overflow slightly, but do NOT add more acid than 3 or 4 drops total.

4) Continue to fill vial slowly from the sample point, letting the water run down the inside walls of the bottle until a meniscus forms above the bottle rim. Cap vial tightly.

5) Invert vial and tap **firmly** with finger or heel of hand. Carefully check for bubbles. If any bubbles are present, empty the vial and begin again, starting with step 2. If small bubbles are still present after several tries, cap and submit as sample, making appropriate notes. Refer to 'When Bubble are Persistent in VOC Samples' below.

6) Repeat steps 2 through 5 for second and third vial.

7) Chill samples to 4° Centigrade, storing with the trip and transfer blanks. Each shipment of VOC samples requires one trip blank and one transfer blank. Transfer blanks are covered in SOP # 9.

8) VOC samples **MUST** be shipped on a timely basis (refer to SOP # 6).

9) At the end of each field day, recheck caps on all vials for tightness. Assuming a rigorous check for bubbles was done at collection, ignore bubbles that form in the vial later.

WHEN BUBBLES ARE PERSISTENT IN VOC SAMPLES:

1) Fill the bottle to a very high meniscus and quickly cap the bottle.

2) In high discharge situations, pierce the flow with a clean, dry glass rod, allowing a small stream of water to run down the rod into the vial. This may be a two person technique.

3) If you still cannot get a VOC sample without bubbles, collect a three bottle sample anyway and note on the lab submittal form that the sample was collected with bubbles. **This note on the lab form is VERY IMPORTANT.** Then collect a second sample via the beaker method (following).

4). Rinse a clean, **dry**, glass beaker several times with native water. Slowly and carefully fill the beaker with sample water. Allow any natural effervescence to settle out, then fill and preserve the VOC sample vials, following the same steps above, using the sample water from the beaker. Note 'BEAKER METHOD' on the lab form, note the new time and change the last two digits of the site ID to 'BM'.

   A dry beaker ensures that no volatiles are present before collecting the sample. If the beaker has any scum or algae on it, wash the beaker with dish soap, then rinse well with native water. According to the Alpha Analytical chief organic chemist, the beaker method is preferable to submitting samples with air bubbles, as the longer period of time the air bubble exists in the vial allows more volatiles to escape than the brief period of time the sample water is in the beaker. According to 1993 comparison tests on samples from known VOC-contaminated wells, the difference between labs was more significant to the VOC concentration than the beaker method. Having the lab analyze both a sample with bubbles and a beaker method sample MAY provide some additional comparison data.

IF GLASS ROD OR BEAKER METHODS ARE USED TO COLLECT THE SAMPLE, OR THE SAMPLE CONTAINED BUBBLES AT TIME OF COLLECTION, NOTE THE TECHNIQUE ON BOTH THE LAB SUBMITTAL SHEET AND THE QW FIELD SHEET.

Radon

Radon samples must be collected from non-aerated water, as close to the sampling point as possible.

Precautions:

1) Collect Radon samples last to avoid any contamination from the mineral cocktail.

Procedures:

1) Allow sample water to flow continuously through the hose or portable discharge apparatus into a glass beaker or small plastic container 2 to 3 minutes (or use plastic funnel method). Reduce the discharge from the hydrant and keep the mouth of the hose (or sampling apparatus) below the water surface to prevent aeration.

2) Submerge needle on syringe below water surface and as close to discharging water as possible. Rinse syringe and hypodermic needle 3 times by drawing native water from the container to fill up the syringe and ejecting it away from the container.

3) Slowly withdraw 12 to 15 ml of sample water. Note collection time. Rapid withdrawal of the water sample will create a large negative pressure which may draw radon out of solution.

4) Remove syringe from water. Invert and tap syringe to allow air bubbles to rise to top. Depress plunger slightly to expel air bubbles. Point syringe upward and slowly depress the plunger to expel sample down to 10 ml.

4) Insert needle tip at the bottom of the radon vial, below the surface of the scintillation cocktail. Slowly inject 10 ml of sample water into the vial. Remove needle from vial. Cap vial tightly and shake vigorously. Note date and time on cap (time is recorded in military fashion, eg. 1415 for 2:15 p.m.). DO NOT put tape on the wall of the vial.

5) Immediately complete the radon lab submittal sheet, repack the vial into the cardboard radon mailing tube and roll the lab sheet around the tube, keeping it in place with a rubberband. Place the tube in a federal express mailing envelope. All radon samples collected in one day must be shipped overnight to the Arvada lab.

NOTE: **IDWR and the USGS have prepared and distributed a video that reviews the techniques for collecting and preserving VOCs, radon and other more complex techniques of ground water quality sample collection. Please review this video before each field season begins and have all new field personnel review before assisting in sample collection.**

STANDARD OPERATING PROCEDURE FOR SHIPPING GROUND WATER QUALITY SAMPLES

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: Timely shipping of properly prepared samples is a critical component of usable data.

Procedures: In all cases, check the tightness of caps on all bottles before shipping.

From Field to Alpha Analytical

VOCs: Keep trip and transfer blanks with VOC samples at all times. Keep VOC supplies together. Place VOC vials in provided foam padding. Be sure to include trip and transfer blanks, and the acid bottle. (A new vial of acid will be included with every shipment). Pack the cooler (bottom, sides and top, with enough frozen blue ice packets or ice in ziplock bags to keep samples cool during shipment.

Complete, initial and date lab submittal forms and place in a separate ziplock bag on top of ice packets in cooler. Replace lid of cooler firmly and tape.

VOC samples must be analyzed within 14 days from collection and must be received by the laboratory in a timely manner in order to schedule the large number of incoming samples. Ship samples twice a week via overnight express. Do not ship on Friday, but keep samples cold over the weekend and ship first thing Monday morning. Ship to:

Alpha Analytical, Inc.
255 Glendale Ave, #21
Sparks, NV 89431

From Field to USGS Arvada Lab, Special Handling

Radon: Pack radon vial in cardboard tube provided. Screw on container lid and tape. Roll lab sheet around tube, keeping it in place with a rubberband. Place in Federal Express envelope. Complete Federal Express mailing form and place on envelope. **Federal Express all radon samples so that the laboratory receives them within 24 hours of collection.** Radon samples are shipped to the USGS lab in Arvada, Colorado. Do not collect radon samples on Friday.

Pesticides: Return filled sample bottles to the foam shipping sleeve and place in large ziplock bag to protect label from moisture. Pack in ice chest with sufficient ice to maintain chilled conditions. Lab request forms and return labels should be placed in ziplock bags or whirl pack bags and taped to inside of cooler lid. Tape ice chest lid and water drain closed. Ship; Federal Express overnight that same day or first thing the next morning to the USGS Lab in Arvada.

Nutrients: Place samples in zip lock bag. Put lab request forms in small ziplock or whirl pack bag and insert in ziplock bag with the samples. Pack in ice chest with sufficient ice to maintain chilled conditions. Return mailing labels should be placed in ziplock bags or whirl pack bags and taped to inside of cooler lid. Tape ice chest lid and water drain closed. Tape mailing label to ice chest. Affix "Fragile" and "This Side Up" labels to ice chest. Coolers should contain at least 30% ice. Ship Federal Express overnight that same day or first thing the next morning. Ship Friday samples on Friday.

From Field to USGS Arvada Lab

Unchilled: (Common ions, Trace elements). Place combined in zip lock bags for each respective site. Place lab request form in a whirl pack bag and enclose in the ziplock bag with the respective samples. Ship unchilled samples in a disposable cardboard box with appropriate packing to prevent breakage. Every week, ship fourth class or UPS directly to the USGS lab in Arvada, Colorado.

STANDARD OPERATING PROCEDURE FOR BOTTLE LABELING AND LAB FORMS

Applicability: This SOP was prepared for and applies to activities related to the Statewide Ground Water Quality Monitoring Program and may not be specifically applicable to activities of other organizations.

Purpose: To ensure that all data required for electronic transfer is available to laboratories and to program administrators to compile together and relate data analyzed by different labs.

Procedures: To prevent loss of samples due to conditions that render the sample bottle or forms unreadable or due to incorrect identification.

1) Use indelible Sharpie ink on bottles or bottle labels.

2) Enter **both** the USGS 15 digit site ID **and** the local well number, the date, time and laboratory scheduled treatment on each bottle.

3) Put bottles to be chilled in plastic bags before icing to protect the labels.

4) Do not include lab forms with chilled bottles in the plastic bag as condensation may blur the ink on the forms. Put lab forms in separate ziplock bag and tape to inside of ice chest lid or include with unchilled samples.

5) USGS lab request form mandatory items:
   A) Use permanent waterproof ink, including collector's name and telephone number, and local well number.
   B) Site ID number, project account number, date, time, state code, district code and county code.
   C) Schedules, field and laboratory codes - complete all information, schedules and lab codes requested. Be sure to include medium code 6 for ground water.
   D) Field values - field pH, conductivity and alkalinity results.
   E) Bottle types.

6) On lab forms other than USGS lab form, clearly list in ball point pen ink the site ID, local well (station) number, county, sample date and time, and field team.

7) Collect forms for each lab together in separate batches and put each in a plastic bag.

STANDARD OPERATING PROCEDURE FOR COLLECTING NAWQA PESTICIDE SAMPLES

These instructions were developed by the NAWQA program for collection of pesticide samples for USGS schedules 2001 and 2050. Approximately 210 sites from selected areas will be sampled for pesticides.

Procedures:

1) Samples must be collected directly from the discharge point. DO NOT collect samples from a garden hose, tygon tubing or other plastic hoses. Teflon or stainless steel tubing are acceptable.

2) Use one liter baked amber glass bottle (GCC). Bottle should have old green plastic top or new white metal top. Bottle must have been weighed empty. Use only bottles with white sampling tape with empty weight written on it.

3) Fill one bottles per site (two for NAWQA sites). Label the one bottle **Schedule 2001**. At NAWQA sites, label the second bottle **Schedule 2050**.

4) Also label each bottle **LC8008 and "Must be Filtered"**. Lab forms should also specify Schedule 2001, Lab Code 8008, and for NAWQA sites Schedule 2050. At NAWQA sites, charge pesticide analyses to 471617500.

5) To sample, put on new vinyl gloves. Remove top of bottle with one hand, holding the bottle with the other. Fill the bottle. DO NOT touch top of bottle, including threaded area with anything, including gloved hands. DO NOT touch bottle to faucet; hold bottle in stream of water only. It is best to hold bottle from the bottom so it doesn't slip out of your hands when it gets heavy. DO NOT touch the inside of the cap with anything. Try not to put the cap on the ground, but if you need to, choose a location where there is absolutely no chance of contamination. If you drop the cap on the ground, discard the bottle and use a new one. Please be very careful to avoid any chance of contamination because the new detection limits are now down to parts per trillion.

6) Leave a small amount of head space in the bottle and cap.

7) Place the bottle in a foam sleeve and place on ice immediately. Samples must be on ice at all times.

8) Ship samples Federal Express overnight to the National USGS Lab in Denver. Samples must be extracted within **four** days of sample collection.

BACTERIA MEDIA KIT PREPARATION

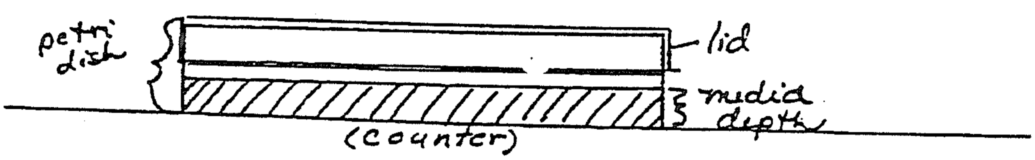
General Directions: Fecal Strep, Fecal Coliform, Total Coliform

1. Dissolve media-agar in 100 mls. of the required liquid in a 250 ml beaker of flask. Make sure all lumps are completely broken. (F.C. media only: Allow rosolic acid-NaOH solution to dissolve 15 minutes and add 1 ml of that solution to the the media-agar solution.

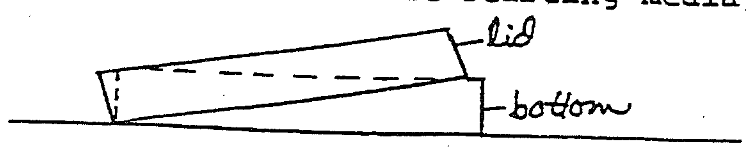
2. Heat to just boiling (99-100C). Stir well. Cool to lukewarm on wrist. (F.S. media only: Add 1 ml Sterile TTC and mix completely).

3. Pour in to sterile petri dishes, let cool, invert dishes, refrigerate. Kits make approximately 15 dishes per batch.

NOTE: petri dishes with media should be stored inverted in refrigerator so water condensation will not drip onto media surface, running bacteria colonies together.



4. PETRI DISH CONTAMINATION:
Since the coliform bacteria to be counted in these tests are also very common in the air, sterile petri dishes should be open to the air for the shortest possible time. The easiest way not to contaminate the dishes while still pouring media quickly is to pry off the lids and leave them on top at a slight angle (do this before starting media).



When you get ready to pour the media, just lift each lid away slightly as you pour, then replace on top as soon as possible.

5. Specific details for media prep. and colony counting are found in MIllipore's Biological Analysis of Water and Wastewater, Application Manual AM302; pps. 19-21, 33-36.

6. Media ingredients, incubation & storage information, colony characteristics are listed on the back of this sheet.

Fecal Coliform:

5.25 gm mFC agar & media
5 ml 10% NaOH
.05 gm ~~0.5 gm~~ rosolic acid
100 ml distilled water

incubate: 24 hrs. at 44.5C water bath
store: 4 days in refrigerator
colonies: blue

Fecal Strep:

7.64 gm KF Strep agar & media
1 ml sterile 1% TTC
100 ml distilled water

incubate: 48 hrs. at 35C
store: 4 days in refrigerator
colonies: light pink flat to smooth dark red with pink margins

Total Coliform:

6.3 gm MF Endo agar & media
100 ml 2% ethanol

incubate: 24 hrs. at 35C
store: 4 days in refrigerator
colonies: pink to dark red with a golden metallic sheen, ofte with a greenish tint, variable colony size.

EPA

HEALTH ADVISORY SUMMARY

Dacthal (DCPA)

What is a Health Advisory?

Health Advisories are guidance documents issued by the U.S. Environmental Protection Agency to assist federal, state, and local officials in responding to drinking water contamination. The Health Advisories contain information on health risks and treatment technologies, and specify levels of chemical concentrations in water that are acceptable for drinking. In preparing Health Advisories, EPA reviews available human data and experimental animal studies in evaluating potential human health effects. The Health Advisories are updated as new information becomes available. This summary presents key highlights from the Health Advisory for Dacthal.

What is Dacthal?

Dacthal, also known as DCPA, is a herbicide used to control annual grasses in turf, ornamentals, strawberries, seeded vegetables, cotton, soybeans, and field beans.

What Health Effects Might Be Caused by Dacthal in My Water?

Non-Cancer Effects. EPA has set a Lifetime Health Advisory level for Dacthal and its metabolites in drinking water at ***4000 micrograms per liter****. This level includes a margin of safety to protect human health and should be regarded as a guideline. EPA believes that water containing Dacthal at or below this level is acceptable for drinking every day over the course of one's lifetime, and does not pose any health concerns.

However, consuming Dacthal at high levels well above the Lifetime Health Advisory level over a long period of time has been shown to result in damage to the liver, kidney, and thyroid, in animal studies.

Cancer Risk. Data from laboratory studies are inadequate for EPA to determine if Dacthal can increase the risk of cancer in humans.

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* Micrograms per liter are the units of measurement for contaminants in water, equivalent to parts per billion.

What Actions Should I Take?

Your first step should be to get the advice of your state or county health officials. Other experts in your state environmental agency or agriculture department may also be helpful to you.

These people are likely to recommend that you retest your well to get an accurate overall picture of the water quality. Seasonal precipitation changes and changes in pesticide use can cause wide variations in the amount of pesticides found in your well.

Upon retesting, if Dacthal or its metabolites is detected in your drinking well at or below 4000 micrograms per liter, you should continue to retest your well periodically. Your state or county health officials can refer you to approved testing services, advise you on the cost of testing, and recommend how often you should retest.

If Dacthal or its metabolites is detected in your water and confirmed by retesting at a level above 4000 micrograms per liter, once again consult your state or county health officials. They may advise you to continue periodic retesting, or in some cases, to use an alternative drinking water supply (such as bottled water) or treat the water or dig a new or deeper well.

At present, reverse osmosis appears to be a possible method for removing Dacthal from water. However, this technique is not necessarily appropriate or available in every situation. Your state or county health officials should be able to advise you on the best approach to follow.

Where Can I Get More Information?

In addition to your state and county experts, EPA has two toll-free lines you can call. For further information on drinking water quality, treatment technologies, and EPA's Health Advisories, please contact EPA's toll-free Safe Drinking Water Hotline, Monday thru Friday, 8:30 A.M. to 4:30 P.M. E.S.T. at 1-800-426-4791.

Additional information on the health effects of pesticides is available from the National Pesticide Telecommunications Network, toll-free, 24 hours a day, 1-800-858-7378.

DRAFT

DRINKING WATER MONITORING REQUIREMENTS

FOR NEWLY DEVELOPED DRINKING WATER SOURCES

All the following testing must be completed and demonstrate that water falls within allowable contamination levels (below MDL) before a newly developed source can deliver drinking water to the public. The only exceptions to monitoring requirements are denoted by a parenthetical statement or footnote symbol beside the name of the contaminant.

Required Monitoring or Determination	Regulatory Status	Action After Review of Results
Coliform	Coliform Rule	Contamination will require disinfection treatment.
Surface Water Influence Determination (Required only for all wells located less than 200 feet horizontally from surface water and wells screened or perforated less than 50 feet deep and all springs and infiltration galleries)	Surface Water Treatment Rule	Determination that water is surface water influenced will require disinfection, turbidity monitoring and probably filtration.
Treatment Contact Time (Only if disinfection is required)	Coliform Rule or Surface Water Treatment Rule	If disinfection is required, an IDEQ engineer will work with water system to ensure contact time is sufficient to deactivate the required percentage of organisms)

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AUG 06 1993

DIVISION OF ENVIRONMENTAL QUALITY

MONITORING REQUIRED FOR NEW WATER SOURCE DEVELOPMENT

VOC Contaminant	Regulatory Status	MCL mg/l	MDL mg/l
Vinyl chloride	Phase II	.002	.0005
Benzene	Phase II	.005	.0005
Carbon tetrachloride	Phase II	.005	.0005
1,2-dichloroethane	Phase II	.005	.0005
Trichloroethylene	Phase II	.005	.0005
para-dichlorobenzene (1,4-dichlorobenzene)	Phase II	.075	.0005
1,1-dichloroethylene	Phase II	.007	.0005
1,1,1-trichloroethane	Phase II	0.2	.0005
cis-1,2-dichloroethylene	Phase II	.07	.0005
1,2-dichloropropane	Phase II	.005	.0005
Ethylbenzene	Phase II	0.7	.0005
Monochlorobenzene	Phase II	0.1	.0005
ortho-dichlorobenzene (1,2-dichlorobenzene)	Phase II	0.6	.0005
Styrene	Phase II	0.1	.0005
Tetrachloroethylene	Phase II	.005	.0005
Toluene	Phase II	1	.0005
trans-1,2-dichloroethylene	Phase II	0.1	.0005
Xylenes (total)	Phase II	10	.0005
Dichloromethane	Phase V	.005	.0005
1,2,4-trichlorobenzene	Phase V	.07	.0005
1,1,2-trichloroethane	Phase V	.005	.0005
Chloroform	THM rule: (Only systems serving a population of 10,000 or more people are required to conduct this test)	.10 mg/l is the MCL for the sum of the concentrations of all 4 THMs.	
Bromodichloromethane			
Chlorodibromomethane			
Bromoform			
meta-dichlorobenzene (1,3-dichlorobenzene)	Unregulated	Unregulated	
1,1-dichloropropene	Unregulated	Unregulated	
1,1-dichloroethane	Unregulated	Unregulated	
1,1,2,2-tetrachloroethane	Unregulated	Unregulated	
1,3-dichloropropane	Unregulated	Unregulated	
Chloromethane	Unregulated	Unregulated	
Bromomethane	Unregulated	Unregulated	
1,2,3-trichloropropane	Unregulated	Unregulated	
1,1,1,2-tetrachloroethane	Unregulated	Unregulated	
Chloroethane	Unregulated	Unregulated	
2,2-dichloropropane	Unregulated	Unregulated	
ortho-chlorotoluene (1,2-chlorotoluene)	Unregulated	Unregulated	
para-chlorotoluene (1,4-chlorotoluene)	Unregulated	Unregulated	
Bromobenzene	Unregulated	Unregulated	
1,3-dichloropropene	Unregulated	Unregulated	

SOC Contaminant	Regulatory Status	MCL mg/l	MDL mg/l
Alachlor	Phase II	.002	.0002
Aldicarb	Phase II	Delayed	.0005
Aldicarb sulfoxide	Phase II	Delayed	.0005
Aldicarb sulfone	Phase II	Delayed	.0008
Atrazine	Phase II	.003	.0001
Carbofuran	Phase II	.04	.0009
Chlordane	Phase II	.002	.0002
Dibromochloropropane (DBCP)	Phase II	.0002	.00002
2,4-D (2,4-dichlorophenoxyacetic acid)	Phase II	.07	.0001
Ethylene dibromide (EDB)	Phase II	.00005	.00001
Heptachlor	Phase II	.0004	.00004
Heptachlor epoxide	Phase II	.0002	.00002
Lindane	Phase II	.0002	.00002
Methoxychlor	Phase II	.04	.0001
Polychlorinated biphenyls (PCBs)	Phase II	.0005	.0001
Pentachlorophenol (penta)	Phase II	.001	.00004
Toxaphene	Phase II	.003	.001
2,4,5-TP (2,4,5-trichlorophenoxypropanic acid) or (Silvex)	Phase II	.05	.0002
Benzo[a]pyrene	Phase V	.0002	.00002
Dalapon	Phase V	0.2	.001
Di(2-ethylhexyl)adipate	Phase V	0.4	.0006
Di(2-ethylhexyl)phthalate	Phase V	.006	.0006
Dinoseb	Phase V	.007	.0002
Diquat †	Phase V	.02	.0004
Endothall †	Phase V	0.1	.009
Endrin (Also regulated under phase I with a MCL of .0002 mg/l)	Phase I/V	.002	.00001
Glyphosate †	Phase V	0.7	.006
Hexachlorobenzene	Phase V	.001	.0001
Hexachlorocyclopentadiene	Phase V	.05	.0001
Oxamyl (Vydate)	Phase V	0.2	.002
Picloram	Phase V	0.5	.0001
Simazine	Phase V	.004	.00007
2,3,7,8-TCDD★ (2,3,7,8-tetrachlorodibenzodioxin) or (Dioxin)★	Phase V	$3x10^{-8}$	$5x10^{-9}$
Aldrin	Unregulated	Unregulated	
Butachlor	Unregulated	Unregulated	
Carbaryl	Unregulated	Unregulated	
Dicamba	Unregulated	Unregulated	
Dieldrin	Unregulated	Unregulated	
3-hydroxycarbofuran	Unregulated	Unregulated	
Methomyl	Unregulated	Unregulated	
Metolachlor	Unregulated	Unregulated	
Metribuzin	Unregulated	Unregulated	
Propachlor	Unregulated	Unregulated	

★ New source testing for dioxin and asbestos will not be required except in special circumstances. You will be notified if your system is required to test for dioxin and/or asbestos.

† IDEQ may not require monitoring for diquat, endothall, or glyphosate for systems serving 150 connections or less.

IOC Contaminant	Regulatory Status	MCL mg/l
Fluoride	Phase II	4.0
Asbestos★	Phase II	7 million fibers per liter (> 10μm long)
Barium	Phase II	2
Cadmium	Phase II	0.005
Chromium	Phase II	0.1
Mercury	Phase II	0.002
Nitrate	Phase II	10 (as nitrogen)
Nitrite	Phase II	1 (as nitrogen)
Total nitrate and nitrite	Phase II	10 (as nitrogen)
Selenium	Phase II	0.05
Antimony	Phase V	0.006
Arsenic	Phase I (Regulation currently being modified to reduce MCL)	0.05
Beryllium	Phase V	0.004
Cyanide (as free cyanide)	Phase V	0.2
Nickel	Phase V	0.1
Thallium	Phase V	0.002
Lead	Lead/Copper Rule	0.015 (90%ile action level)
Copper	Lead/Copper Rule	1.3 (90%ile action level)
Sulfate	Phase V (delayed)	
Sodium	Unregulated	Unregulated
Alpha Radioactivity	Phase I	15 pCi/L
Beta Radioactivity (Required only of systems over 100,000 population)	Phase I	4 mREM/yr
Sand content (for wells only)	IDAPA 16.01.08550,02.d.iii	5 ppm requires screening/gravel packing
Temperature (properly taken on site)	Corrosivity/lead ban	Non corrosive to lead and copper
pH (properly taken on site)	Corrosivity/lead ban	Non corrosive to lead and copper
Total Dissolved Solids (TDS)	Corrosivity/lead ban	Non corrosive to lead and copper
Alkalinity	Corrosivity/lead ban	Non corrosive to lead and copper
Calcium Hardness	Corrosivity/lead ban	Non corrosive to lead and copper
Turbidity (only if surface water or determination surface water influence is made)	Surface Water Treatment Rule	Performance Standard

Monitoring Recommended but not Required	Regulatory Status	MCL
Aluminum	Secondary	.05 to .02 mg/l
Chloride	Secondary	250 mg/l
Color	Secondary	15 Color units
Copper	Secondary	1.0 mg/l
Fluoride	Secondary	2.0 mg/l
Foaming agents	Secondary	0.5 mg/l
Iron	Secondary	0.3 mg/l
Manganese	Secondary	0.05 mg/l
Odor	Secondary	3 Threshold odor number
Silver	Secondary	0.1 mg/l
Zinc	Secondary	5 mg/l

★ New source testing for dioxin and asbestos will not be required except in special circumstances. You will be notified if your system is required to test for dioxin and/or asbestos.