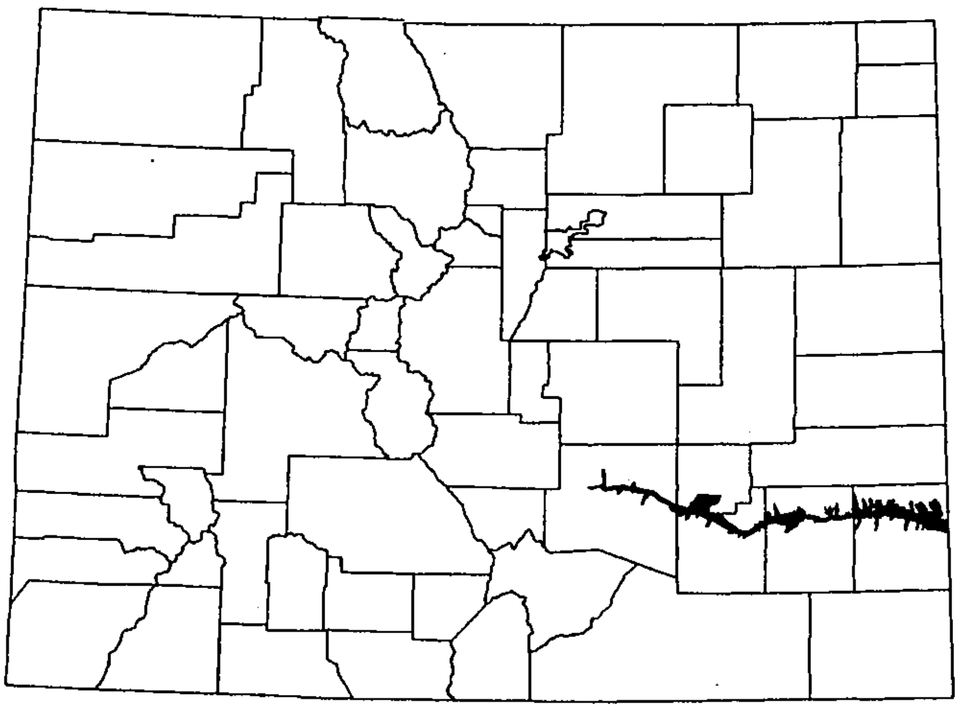
Report to the Commissioner of Agriculture Colorado Department of Agriculture



Ground Water Monitoring Activities Arkansas River Valley Alluvial Aquifer 1994 - 1995

Bradford Austin
Agricultural Chemicals Program
Water Quality Control Division
Colorado Department of Public Health and Environment

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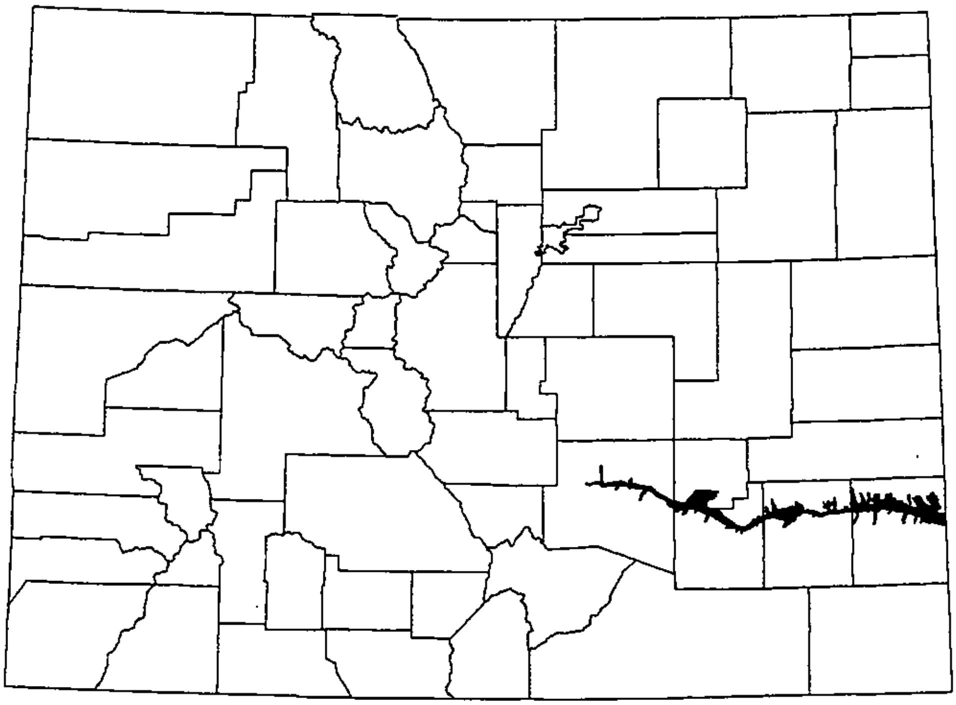

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EXECUTIVE SUMMARY

The Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment (CDPHE) has responsibility under the Agricultural Chemicals and Ground Water Protection Program (SB 90-126) to conduct monitoring for the presence of commercial fertilizers and pesticides in ground water. This data assists the Commissioner of Agriculture in determining whether agricultural operations are impacting ground water quality.

This report describes the monitoring program for groundwater quality in one of Colorado's major agricultural regions, the Arkansas River Valley. In 1994-95 the program monitored groundwater quality in one of Colorado's major agricultural regions, the Arkansas River Valley.

The program sampled one hundred thirty nine (139) domestic, stock, and irrigation wells throughout the valley (Figure 1). Each well was sampled once between July and December, 1994. Well samples were analyzed for basic constituents, dissolved metals, and selected pesticides (Table 1). The laboratory results and field data from the survey have been entered into the CDPHE Ground Water Quality Data System. Analysis of the laboratory reports, particularly for the nitrate and pesticide data, indicates that ground water in several areas of the study has been impacted by various agricultural chemicals. The major inorganic contaminant of concern is nitrate. Nineteen of 139 (14%) of the wells sampled showed nitrate levels in excess of the EPA standard for drinking water (10 mg/L) (Figure 2). The majority of the wells that exceeded the nitrate standard were located in Otero County (Figure 3). Twelve of 139 (9%) samples showed positive for the herbicide Atrazine. One sample detected the herbicide Metolachlor and one sample detected the herbicide 2,4-D (Figure 4). All pesticide detections where well below the drinking water standard.

In August 1995, a confirmation sampling program was conducted to confirm pesticide detections and elevated nitrate levels measured in 1994. The confirmation sampling program consisted of resampling thirty two (32) wells that had shown either a pesticide detection or nitrate level above the standard in the 1994 sampling. The 1995 results confirmed the quality of the 1994 field and laboratory work. Of the nineteen (19) wells that had nitrate levels in excess of the EPA drinking water standard of 10 mg/L in 1994, four decreased below the standard. Two wells resampled for a pesticide detection increased above the standard. The pesticide resampling showed four wells with a trace amount of Atrazine (up to but not over 0.49 ug/L) in 1994, falling below the 1995 detection limit of 0.1 ug/L. One well resampled for nitrate picked up a hit of Atrazine. Another well increased from a trace level to 4.20 ug/L which is over the standard of 3.0. This is the only occurrence of pesticides at or above a water quality standard in the Arkansas Valley survey.

This report provides the details of the monitoring effort in the Arkansas River Valley alluvial aquifer to the Commissioner of Agriculture. Sections describing the area sampled, the protocol for sampling and analysis, and the results of the analysis are provided.

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LIST OF ACRONYMS USED IN THIS REPORT

CDPHE	Colorado Department of Public Health and Environment
CDA	Colorado Department of Agriculture
CSU	Colorado State University
EPA	United States Environmental Protection Agency
GIS	Geographic Information System
MCL	Maximum Contaminate Level
mg/L	Milligrams per Liter (for water equivalent to parts per million)
QA	Quality Assurance
QC	Quality Control
SB 90-126	Senate Bill 90-126 of the Colorado General Assembly
ug/L	Micrograms per Liter (for water equivalent to parts per billion)
USDA	United States Department of Agriculture
WQCD	Water Quality Control Division of the Colorado Department of Public Health and Environment

INTRODUCTION

The Water Quality Control Division (WQCD) of the Colorado Department of Public Health and Environment (CDPHE) has responsibility under the Agricultural Chemicals and Ground Water Protection Program (SB 90-126) to conduct monitoring for the presence of commercial fertilizers and pesticides in ground water. The Agricultural Chemicals Program has been established to provide current, scientifically valid, ground water quality data to the Commissioner of Agriculture. Prior to passage of SB 90-126, a lack of data had prevented an accurate assessment of impacts to groundwater quality from agricultural operations. This program will assist the Commissioner of Agriculture in determining to what extent agricultural operations are impacting ground water quality. The program also assists the Commissioner in identifying those aquifers that are vulnerable to contamination. The philosophy adopted is to protect ground water and the environment from impairment or degradation due to the improper use of agricultural chemicals, while allowing for their proper and correct use.

This report has been prepared for the Commissioner of Agriculture to provide a summary of the monitoring work completed in the Arkansas River Valley alluvial aquifer in 1994 and 1995. This report details the monitoring work required by SB 90-126, including an evaluation of possible impacts to ground water quality from current and past use of agricultural chemicals in the Arkansas Valley.

The scope of this project involves the collection and laboratory analysis of ground water samples. This monitoring program was planned to meet the objectives necessary for a preliminary determination of the existence of agricultural chemicals in the ground water in a safe, cost effective, and timely manner.

The ground water quality sampling program is intended to fulfill the following objectives:

1. Determine if agricultural chemicals are present in the ground water.
2. Provide data to assist the Commissioner of Agriculture in the identification of potential agricultural management areas.

The factors considered in the choice of the Arkansas River Valley as a study area are:

1. The Arkansas Valley is a major agricultural area of Colorado.
2. The ground water in the alluvial aquifer within this area is shallow in depth.
3. The area is heavily irrigated by both surface water diversions and ground water pumpage.
4. The soil types are conducive to leaching.
5. The alluvial and deeper bedrock aquifers are utilized for irrigation and domestic water supplies throughout the basin.
6. Colorado State University Extension and USDA Natural Resource Conservation Service have chosen the Arkansas Valley as the site for various water quality demonstration projects.

Based on the land use and hydrogeologic factors, the potential exists for migration of agricultural chemicals into the ground water in this area.

During the preliminary planning for sampling, CDPHE contacted interested parties to inform them of the sampling program and SB 90-126, and how we envisioned its implementation. CDPHE has coordinated closely with federal agencies, county extension agents, conservancy districts, and local health officials in the project area.

GROUND WATER MONITORING PROGRAM

The monitoring program presented in this report focused on groundwater quality monitoring in one of Colorado's major agricultural regions, the Arkansas River Valley. A map of the study area and sample locations is provided in Figure 1. The monitoring program included sample collection, laboratory analysis, and data analysis and storage. Upon completion of the full analysis, which will include integration with previous and current studies by other agencies, this sampling program will provide the basis for determining a groundwater quality baseline for this region.

The Ag Chemicals Program of the Water Quality Control Division sampled one hundred thirty nine (139) domestic, stock, and irrigation wells throughout the valley (Figure 1). This sampling program was the first effort to monitor the entire Arkansas River Valley alluvial aquifer to establish the possible impacts and magnitude of agricultural chemical contamination. This region is characterized by intense irrigation agriculture encompassing both surface water diversions and wells for irrigation water supplies. The wells supply surface and center-pivot irrigation systems from the shallow unconfined aquifer. In August 1995, a confirmation sampling program was conducted to confirm pesticide detections and elevated nitrate levels measured in 1994.

Wells were selected for sampling based on a favorable location within the shallow alluvial aquifer, general well and site conditions, and cooperation of the well owner. The wells were sampled once between July and December, 1994 by Brad Austin and John Colbert of CDPHE. Field sampling procedures followed the protocol developed by the ground water Quality Monitoring working group of the Colorado nonpoint task force.

Well samples were analyzed for basic water quality constituents, dissolved metals, and selected pesticides. A list of analytes is presented in Table 1. The basic inorganic analysis was performed by the Soils Laboratory at CSU with all samples split with the CDPHE Laboratory for nitrate. Comparison of these split parameters shows consistent results between the two laboratories.

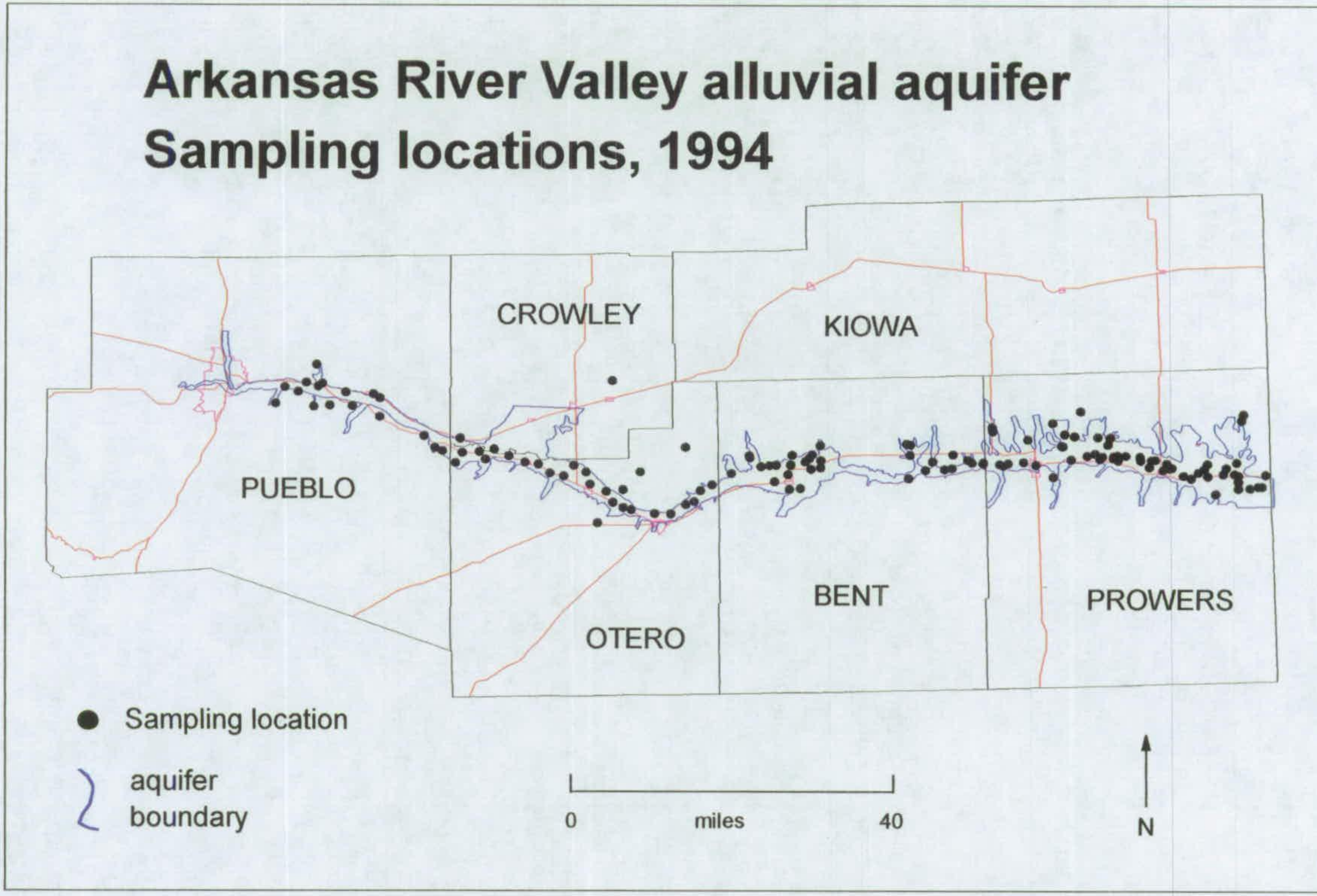

Figure 1 - Study Area and sampling locations. Map showing the boundary of the Arkansas River Valley alluvial aquifer and well locations sampled in 1994.

TABLE 1 - LIST OF ANALYTES

Arkansas River Valley alluvial aquifer
Ground Water Analysis, 1994

BASIC WATER QUALITY CONSTITUENTS

Boron
Bicarbonate
Calcium
Carbonate
Chloride
Magnesium
Nitrate
Ammonia
pH
Sodium
Specific Conductance (TDS)
Sulfate
Potassium
Alkalinity, total
Solids, Total Dissolved
Hardness, total as $CaCO_3$

DISSOLVED METALS

Aluminum
Barium
Cadmium
Chromium
Copper
Iron
Lead
Manganese
Nickel
Molybdenum
Phosphorous, total
Zinc

PESTICIDE COMPOUNDS

Trade Name	Common Name	Use	Trade Name	Common Name	Use
Harness	Acetachlor	Herb	Temik	Aldicarb	Insect
Lasso	Alachlor	Herb	Sevin	Carbaryl	Insect
Atrazine	Atrazine	Herb	Furadan	Carbofuran	Insect
Balan	Benfluralin	Herb	Bravo	Chlorothalonil	Fungi
Bladex	Cyanazine	Herb	Lorsban	Chlorpyrifos	Insect
Velpar	Hexazinone	Herb	Isotox	Lindane	Insect
Agritox	MCPA	Herb	Lannate	Methomyl	Insect
Kilprop	MCPP	Herb	Marlate	Methoxychlor	Insect
Dual	Metolachlor	Herb	DPX	Oxamyl	Insect
Sencor	Metribuzin	Herb	Baygon	Propoxur	Insect
Prometon	Prometone	Herb			
Princep	Simazine	Herb			
Treflan	Trifluralin	Herb			
Weed B Gone	2,4-D	Herb			
Banvel	Dicamba	Herb			

In addition to the inorganic constituents, all of the groundwater samples collected were analyzed for selected pesticides. A listing of pesticides was compiled for analysis based on those substances that have recently been, or are currently being utilized in the Arkansas River Valley according to agricultural officials there. Budget restrictions would not allow testing for all pesticides used in the study area. To reduce the analysis cost, each pesticide was weighted according to its chemical properties of persistence and mobility in the environment, amount of active ingredient used per acre, and the amount of acreage within the study area that the pesticide was used on. Pesticides were then selected according to their final score and the ability of the laboratory to detect their presence.

GROUND WATER MONITORING RESULTS

The results from this sampling program have been entered into the CDPHE Groundwater Quality Data System, a database specifically designed and maintained by the WQCD to store ground water quality data. Reports may be generated from the database on ground water quality in any area of the state from all data sources available. A complete printout of all water quality data from this survey is provided in Appendix A.

Analysis of the laboratory results indicates that ground water in portions of the study area has been impacted by nitrates and certain pesticides. The major inorganic contaminant of concern is nitrate. Nineteen (19) of the one hundred thirty nine (139) wells sampled (14%) showed nitrate levels in excess of the EPA standard for drinking water (10 mg/L) (Figure 2). One hundred twelve (112) wells (80%) tested positive for nitrate but were below the EPA standard. Eight (8) wells (6%) tested below the detection level of 0.5 mg/L.

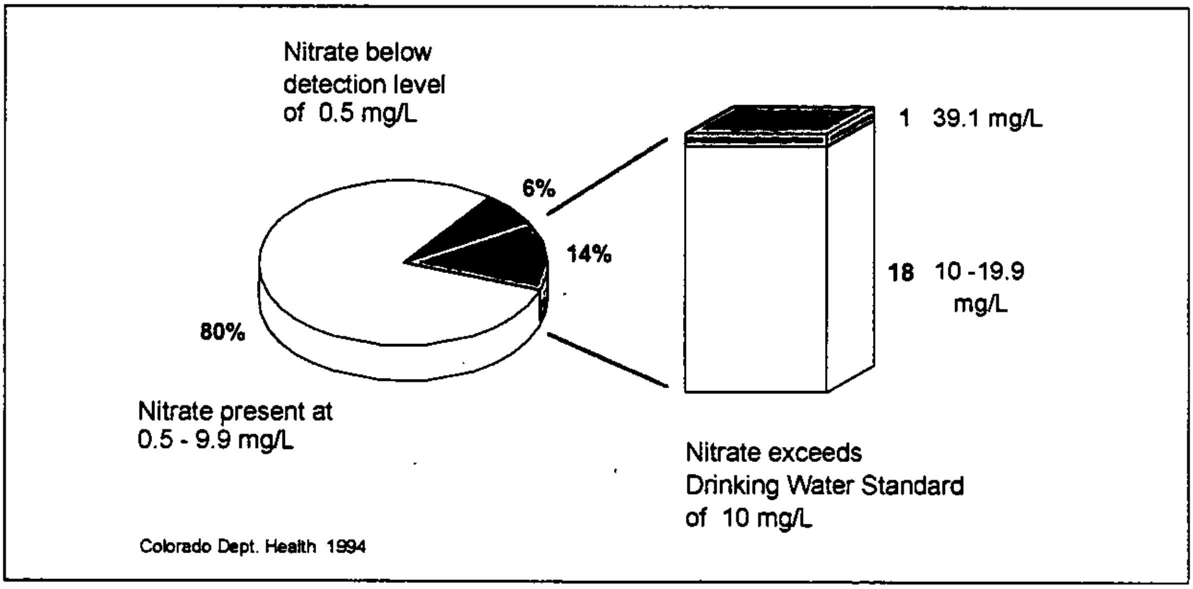

FIGURE 2 - Nitrate levels in Arkansas Valley wells Chart showing distribution of nitrate levels in the Arkansas River Valley alluvial aquifer, 1994.

A map prepared on a geographic information system (GIS) (Figure 3) shows the location of the wells and the nitrate results graphed in Figure 2. Wells on the map have been color coded according to the nitrate level measured in the well. The wells in green have nitrate levels below the laboratory detection level of 0.5 mg/L. Wells in yellow indicate nitrate present in the sample but below the drinking water standard of 10 mg/L. Wells represented in red indicate nitrate levels exceeding the EPA drinking water standard. The elevated nitrate levels (above the EPA drinking water standard) appear to be concentrated in three areas: Pueblo County near Avondale, Otero County between Fowler and La Junta, and Prowers County near Lamar and Granada.

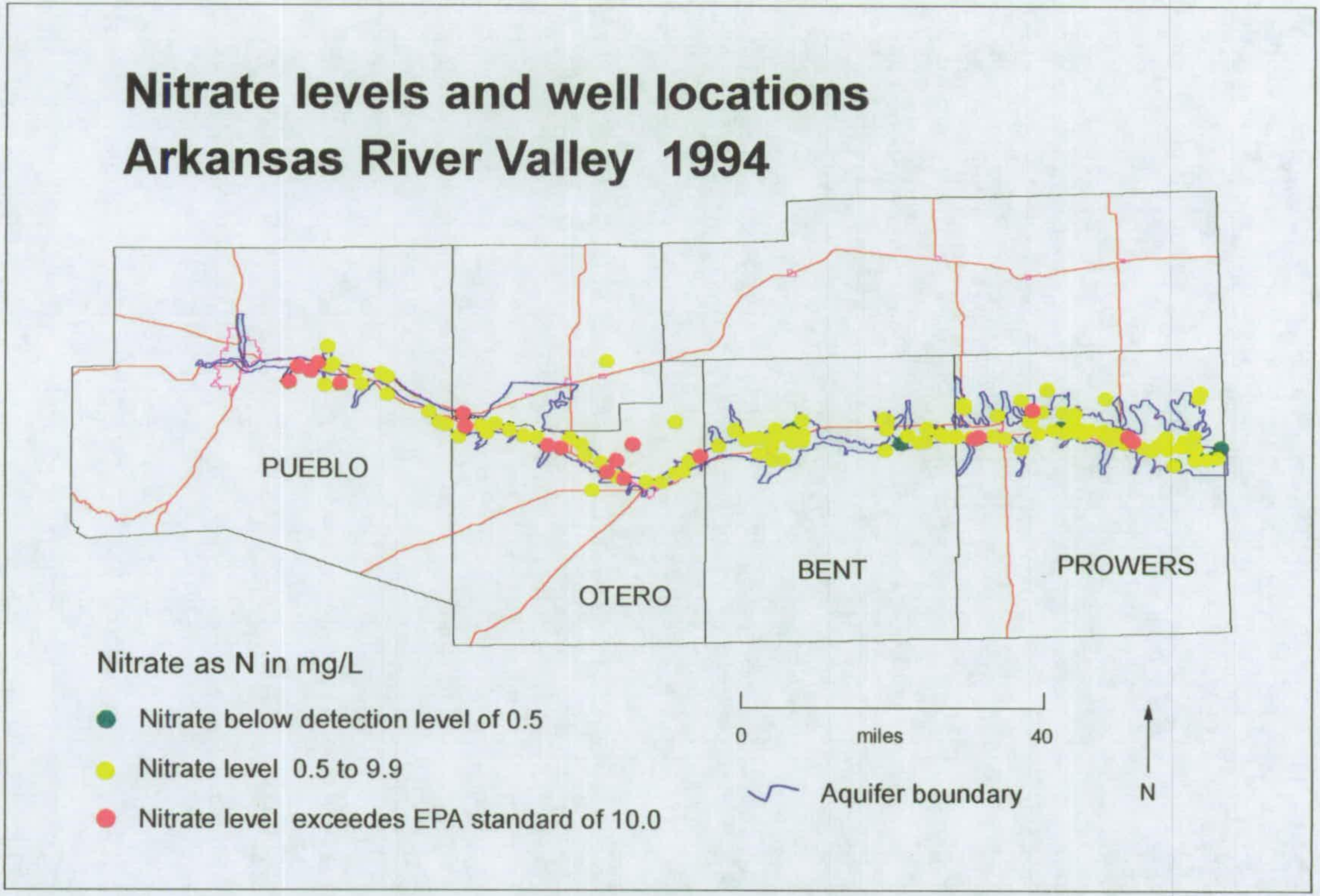

FIGURE 3 - Location of wells and nitrate levels in Arkansas Valley Map showing locations and nitrate levels in ground water quality survey, Arkansas River Valley alluvial aquifer, 1994

Examination of the pesticide data reveals that three different pesticides were detected in the Arkansas River Valley alluvial aquifer. In twelve (12) of the one hundred thirty nine (139) wells sampled the herbicide Atrazine was detected. The detection limit of the laboratory analysis is 0.5 ug/l or ppb. One well contained the herbicides Metolachlor and Atrazine at the trace level. One other well detected the herbicide 2,4-D also at the trace level. No well contained a pesticide at a level higher than the EPA drinking water standard. The location of the pesticide detections are plotted in Figure 4.

The WQCD intends to include, in the final analysis of the Arkansas River Valley alluvial aquifer, all available ground water quality data. Results from previous and ongoing studies by other agencies in the area will be integrated into this analysis.

TABLE 2 - Results of Pesticide Analysis, Arkansas Valley Aquifer, 1994.

Pesticide	Use	No. Detections	DL	MCL
Atrazine	Herbicide	12	0.05	3.0
Metolachlor	Herbicide	1	0.05	100
2,4-D	Herbicide	1	0.02	70

Amounts are given in micrograms per liter (ug/L). Units of measurement for pesticide concentrations. In water, equivalent to parts per billion.
DL - Minimum concentration that can be detected by the laboratory
MCL - the maximum amount allowed in drinking water

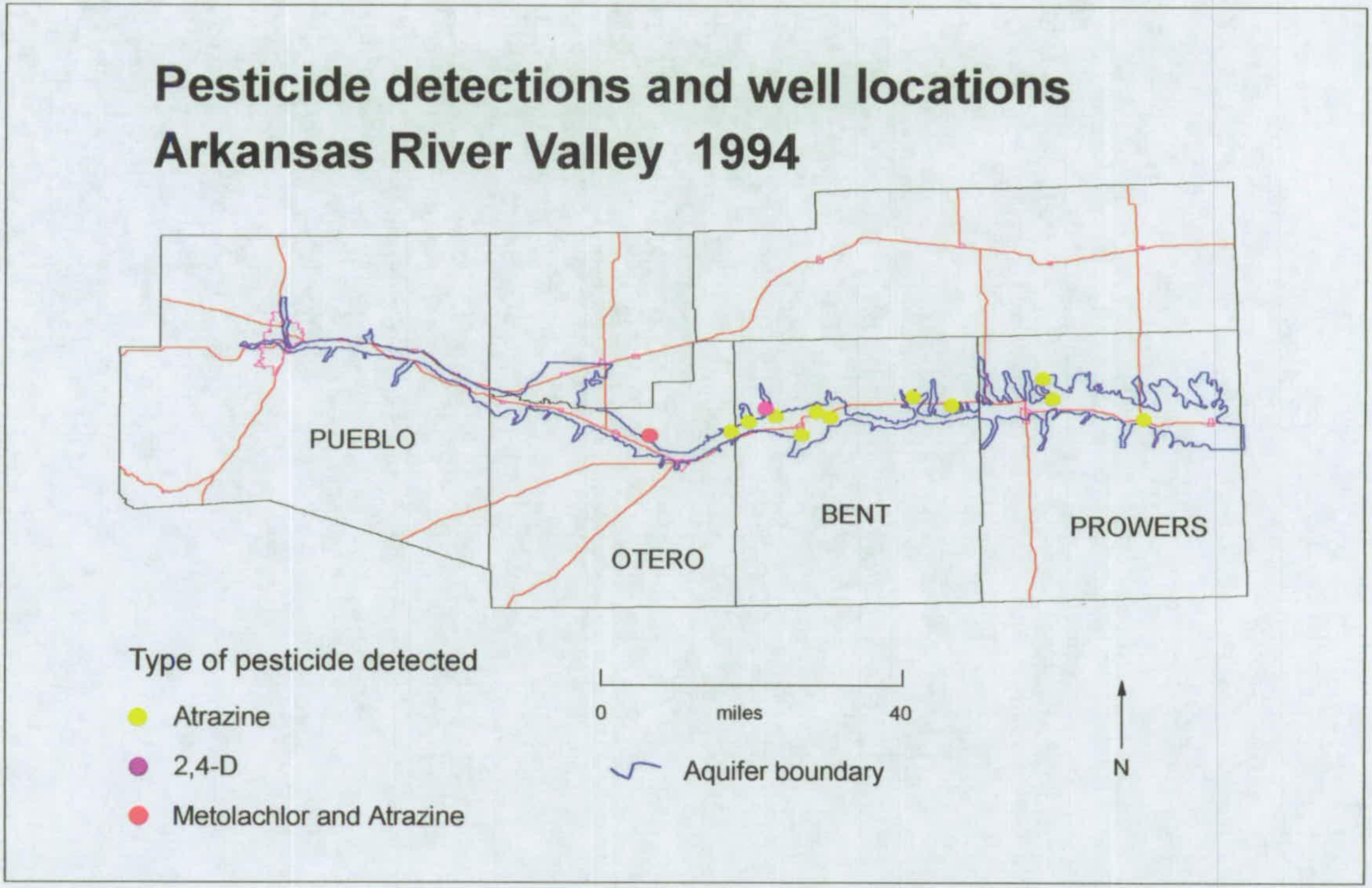

FIGURE 4 - Locations of pesticide detections in Arkansas Valley wells Map showing location and type of pesticide detected in ground water quality survey, Arkansas River Valley alluvial aquifer, 1994

1995 Confirmation Sampling

In August 1995, a confirmation sampling program was conducted to confirm pesticide detections and elevated nitrate levels measured in 1994. Analysis of the nitrate data had indicated nineteen (19) wells in three areas where nitrate levels exceeded the drinking water standard of 10.0 mg/L. The pesticide data revealed twelve (12) wells with Atrazine, one well with Metolachlor and Atrazine, and another with 2,4-D.

The confirmation sampling program consisted of resampling thirty two (32) wells that had shown either a pesticide detection or nitrate level above the standard in the 1994 sampling. The resampling program was designed to determine if the contamination originally detected was representive of the groundwater quality at that site or only a conincidence of timing of the sampling. The only change in field or laboratory procedures from 1994 to 1995 was a decrease in the method detection level for Atrazine from 0.5 to 0.1 micrograms per liter or parts per billion. The lowest level of Atrazine which the laboratory could quantify was thus more sensitive by a factor of five. As a result, those detections reported as traces (atrazine present in the sample, but to low to quantify) in 1994 are reported in micrograms per liter in the 1995 data.

Twenty eight (28) wells were sampled in 1995. Two wells sampled in 1994 were out of service when revisited in 1995, and the sampling of two others could not be scheduled within the allowable time frame. Table 3 summarizes the 1995 results and compares them to the previous year. The 1995 results confirmed the quality of the 1994 field and laboratory work. Of the nineteen (19) wells that had nitrate levels in excess of the EPA drinking water standard of 10 mg/L in 1994, four decreased below the standard. Two wells resampled for a pesticide detection increased above the standard. The high mobility of nitrate combined with this hydraulically active ground water system can produce significant swings in nitrate concentrations from year to year. But overall, the differences between the 94 and 95 values are statistically insignificant. The resampling indicates little or no change in nitrate levels from one year to the next in those wells that were sampled both years. The data does demonstrate the fluctuations one can normally expect in ground water nitrate concentrations, and confirms that if proposed action is tied to a numerical standard, long term monitoring is recommended.

The pesticide resampling showed four wells with a trace amount of Atrazine (up to but not over 0.49 ug/L) in 1994, falling below the 1995 detection limit of 0.1 ug/L. One well resampled for nitrate picked up a hit of Atrazine. Another well increased from a trace level to 4.20 ug/L which is over the standard of 3.0. This is the only occurrence of pesticides at or above a water quality standard in the Arkansas Valley survey.

TABLE - 3 Confirmation sampling in the Arkansas River Valley, 1995

Well	*Nitrate as N (mg/L)*		*Atrazine*		*Metolachlor*		*2,4-D*	
ID	**1994**	**1995**	**1994**	**1995**	**1994**	**1995**	**1994**	**1995**
AK 17	9.8	10.5						
AK 27	4.8	5.5	TR	BDL				
AK 28	12.1	10.5						
AK 29	10.3	10.2						
AK 47	10.1	11.7		0.39				
AK 48	4.7	*	TR	*				
AK 49	1.4	0.9	TR	BDL				
AK 53	10.1	5.2						
AK 54	12.7	9.6						
AK 64	3.3	3.7	TR	0.35				
AK 65	1.7	*	TR	*				
AK 87	8.5	5.6					0.4	BDL
AK 89	9.6	6.1	TR	4.20				
AK 90	7.4	6.9	TR	0.12				
AK 95	7.6	11.9	TR	0.29				
AK 97	5.7	4.1	TR	BDL				
AK 98	3.8	3.3	TR	BDL				
AK 99	11.0	7.0	TR	0.12				
AK 102	9.9	7.1						
AK 104	12.8	14.7						
AK 107	16.3	15.7	TR	0.21	TR	BDL		
AK 108	39.1	32.9						
AK 114	15.0	18.1						
AK 116	11.7	15.7						
AK 121	11.0	10.9						
AK 125	10.1	*						
AK 128	10.6	*						
AK 137	13.2	13.0						
AK 139	14.8	12.5						
AK 140	19.9	20.3						
AK 142	13.5	4.1						
AK 144	15.3	11.7						

* Unable to sample in 1995

TR - Reported as a trace in 1994 (positively detected, but amount is below the lab quantification level of 0.5 micrograms per liter)

BDL - Below detection level in 1995 (varies with analyte, for Atrazine - 0.1, Metolachlor - 0.1, 2,4-D - 0.2 micrograms per liter)

SAMPLING AREA DESCRIPTION AND CHARACTERISTICS

Sampling Area Location and Description

The sampling area includes the Arkansas River valley from just east of Pueblo, Colorado to the Colorado - Kansas border in Prowers County. The area is approximately 150 miles in length and occupies about 400 square miles.

Agricultural History and Water Use in the Area

The agricultural economy of the Arkansas river basin is based on irrigated and dry land farming, and livestock production. The principal irrigated crops are alfalfa, corn, sorghum, winter wheat, melons, onions, and dry beans. Small grains, chiefly wheat, are the principal dry land farm crops. The livestock consists mostly of beef and dairy cattle although some hogs and sheep are raised.

Several large canals for diverting water for irrigation were constructed in the late 1800's. Water for irrigation is also diverted from several reservoirs. Because shortages of surface water occur during years of low runoff and the timing of runoff does not coincide with irrigation requirements, irrigation wells have been drilled in the valley to supplement the surface-water supply. In some areas groundwater pumped from wells is the sole supply for irrigation.

Many of the towns and some industries in the area also obtain water from wells. Although nearly all the large-capacity wells are in the valleys, small-capacity domestic and stock wells have been constructed both in the valleys and on the uplands since early settlement of the region. The upland areas that are without adequate surface or groundwater supplies for irrigation total about 250,000 acres and are used largely for dry land farming and for grazing.

The principal industries in the area are related to the processing of agricultural products; they include vegetable processing plants, alfalfa mills, vegetable warehouses, and confined animal feeding. Deposits of sand and gravel are exploited for the fabrication of concrete products and building roads.

Geology

The rocks that crop out in the lower Arkansas River Valley are sedimentary and range in age from Early Cretaceous to Recent. The oldest rocks, which are of Early Cretaceous age, are the Dakota sandstone, the Carlile shale, and the Niobrara formation. Most of the major valleys contain Quaternary deposits of alluvium, terrace deposits, and dune sand.

The alluvium in the Arkansas River valley was deposited in a channel eroded into the underlying bedrock and consists mainly of heterogeneous mixtures of clay, sand, and gravel, or lenses of these materials. Pebbles, cobbles, and boulders occur as erratics. The particles generally are well rounded to subrounded and range from well sorted to poorly sorted. Extensive lenses of clay are present within the alluvium. These clay lenses are most prevalent in the tributary valleys and probably represent shallow-lake deposits. The lenses of silt, sand, and gravel were deposited by braided streams as they aggraded their channels. The materials in the Arkansas River valley generally are coarser than those in the tributary valleys and contain fewer clay lenses. The thickness of the alluvium ranges from less than a foot to more than 200 feet in Prowers County.

Alluvium is present in the Arkansas River valley both as Pleistocene and recent terrace deposits and as recent flood-plain deposits. Terrace deposits form the major portion of the alluvium in the Arkansas River valley and its tributaries. In the area covered by this study, the terraces are present throughout the Arkansas river valley on both sides of the river and in all the major tributary valleys.

Dune sand covers a significant part of the area included in this study. It consists predominantly of very fine to medium sand and includes some coarse sand, but it also contains some silt and clay. The thickness of the dune-sand deposits ranges from less than 1 foot to more than 50 feet; where the dunes are actively migrating the thickness may differ considerably in a few years.

HYDROGEOLOGY

The alluvium contains the major available supply of ground water in the area covered by this study. Throughout the Arkansas River valley and its tributary valleys, these deposits form an almost continuous unconfined aquifer that is in hydraulic connection with the Arkansas River. Because of its high permeability, the alluvium yields large quantities of water to wells in many parts of the area. Most of the irrigation wells obtain their entire yield from the alluvium. Supplemented by water supplied through trans-mountain diversions, the river and alluvial aquifer supply all of the water used for irrigation and a significant portion of the domestic supply for the area.

In general the areas of dune-sand deposits are good infiltration areas for recharge to the underlying alluvial material. However, the few wells in dune-sand areas yield only small quantities of water suitable for only domestic or stock wells. In areas where small saturated thickness of dune sand is underlain by impervious material, a few wells have been drilled through the sand into the impervious material, thus providing a small reservoir for the accumulation of water.

HYDROLOGY

In the Arkansas River valley, surface water and ground water are two components of one hydraulic system. The valley-fill aquifer is recharged by precipitation, applied irrigation water, and leakage from canals and reservoirs. Recharge to the aquifer from irrigated land is from 45 to 50 percent of the applied irrigation water and precipitation. Ground water withdrawals lower the water table and tend to reduce flow towards the river and, locally, under heavy pumpage, may temporarily lower the water table sufficiently to reverse the ground water gradient and cause water to flow from the stream to the aquifer.

The surface water supply has been augmented by diversions to the Arkansas River drainage basin from the Colorado River basin. Ground water return flows that augment the flow of the river are the direct result of recharge from applied irrigation water and precipitation. Prior to the practice of diverting surface water for irrigation, ground water levels were not high enough to maintain river flow throughout the year for the length of the river. In some areas the sand and gravel did not contain any water at all. With the application of surface water for irrigation, water began percolating into the alluvium beneath the fields and the water table rose. As a result of consumptive losses, due to evaporation and evapotranspiration, recharged ground water is higher in dissolved solids than the applied irrigation water. This creates a general increase in dissolved solids concentration in a down-gradient and down-valley direction within the alluvial aquifer.

A long term water budget of streamflow shows the Arkansas River to be a gaining stream as a large part of the ground water recharge ultimately seeps into the river. Therefore the trend in surface water quality is an increase in dissolved solids concentrations in the river in a down-valley direction.

Irrigation Practices

With the exception of dry land wheat and pasture, most crops in the area are irrigated. The main crops grown in the study area and their irrigated acreage is:

1. Hay	122,400
2. Corn	54,600
3. Sorghum Grain	20,300
4. Winter Wheat	19,700
5. Vegetables	8,600
6. Dry Beans	4,200
7. Barley	1,200
8. Oats	1,000

The data for irrigated acreage in the study area by crop were based on 1992 agricultural statistics data from the Colorado Department of Agriculture.

Meteorology

Based on U.S. Weather Bureau data, the climatic regime of the surrounding area would be classified as semi-arid. Mean annual precipitation in the area ranges from approximately 11 inches to 14 inches per year. Over 75 percent of the precipitation occurs during the period of April through September. Based on published information from the Colorado State Engineer's Office, the 100 year 24 hour precipitation event is approximately 4.5 inches and the 10 year 24 hour precipitation event is 3 inches. Normal annual Class A pan evaporation for this area is approximately 65 inches to 70 inches per year with the majority occurring during the May through October period. The general prevailing wind direction pattern is from the north and northeast.

FIELD OPERATIONS

Scheduling

All wells were scheduled for sampling by WQCD personnel between June and November, 1994. The exact dates for sampling were subject to laboratory schedules, sample holding times, well owner availability, and travel times.

Sample Well Selection

The rationale used in selecting wells for this monitoring project are listed below.

1. Low flow, shallow depth wells are prefered, generally domestic use;
2. Completed within the unconfined alluvial aquifer of the Arkansas Valley;
3. Located within the irrigated agricultural area of the valley;
4. Depth to ground water less than 50 feet, generally less than 25 feet;
5. Well currently in use or at least has a working pump installed;
6. Direction of ground water flow;
7. Wellhead and casing in good physical condition and availability of completion information documentation;
8. Wellhead area free of point sources of contamination;
9. Well owner consent to participate in the monitoring program;

The ground water contaminants that may be encountered in the area include nitrates, high levels of total dissolved solids, dissolved metals, and pesticides.

Key Personnel

The sampling survey was conducted by:

Brad Austin, Ground Water Geologist and Program Manager
John Colbert, Physical Sciences Tech

Site Access and Logistics

Access to the sampling sites and scheduling with land owners will be the responsibility of the field personnel. Consent for access to the property and for sampling the well will have been received prior to site entry.

QUALITY ASSURANCE / QUALITY CONTROL

Sample Collection Methods

All samples were collected in accordance with the Non-Point Source Task Force protocol for sampling of ground water. Samples were collected from existing wells via outside hydrants or whatever means available prior to any type of treatment (i.e. water softener). As a rule of thumb, three times the volume of water in the well casing plus any volume contained within the associated piping was purged prior to sampling. Rather than attempt to calculate these volumes, a determination of when fresh formation water has reached the point of sampling was verified by measuring pH, conductivity and temperature. A field portable instrument for measuring pH, conductivity and temperature was used for this purpose at each well site. For each well, the pH, conductivity and temperature were measured at periodic intervals (approximately every 5 minutes) while the well was being purged. Water samples were collected when solution chemistry of the ground water had stabilized such that three consecutive readings were within 5 % . It can be reasonably assumed that a stabilization in the values of these parameters indicates that the casing and piping have been purged and fresh formation water had reached the sampling point.

Negative bias (loss of constituent) is of significant concern in sampling for volatile compounds. Therefore, great care was taken in sample collection to minimize degassing by operating the sampling port at a low volume. Samples for volatile constituents and those samples which require field filtration were collected first. Samples for nitrate and inorganic analysis were collected next. Samples collected for dissolved metals analysis were filtered in the field with a 0.45 micron size filter.

In addition, the sampling team collected quality assurance samples consisting of field blanks, periodic duplicate samples, and spiked samples. Field blanks were utilized for field QA/QC performance and subjected to all conditions to which the samples were exposed. Duplicate and spiked samples were prepared for lab calibration checks.

The following types of samples were provided for quality assurance:

1. Field Blank

   A blank ground water sample was periodically collected to check field decontamination procedures. The blank was prepared by pouring laboratory supplied deionized water through decontaminated sampling equipment following the collection of possible contaminated samples.

2. Duplicates

   Random duplicate groundwater samples were collected to compare laboratory analysis procedures as well as sample collection procedure.

3. Spikes

Up to five pesticide spiked samples were submitted to the organic laboratories for lab QA/QC. These spiked samples were prepared in duplicate in accordance with instructions provided by the manufacture of the spiking kits.

4. Duplicate Spikes

Duplicate spiked samples as described above.

Ground water samples were protected from undue exposure to light during handling, storage, and transport. Samples were stored on ice to prevent temperature extremes and transported to the CDA, or CSU laboratory and analyzed within the recommended holding periods. Documentation of actual sample storage and treatment were handled as part of the chain of custody procedures.

Decontamination Procedures

Wells were sampled to minimize the potential for cross contamination. Decontamination procedures were adhered to between each sampling event. All common sampling equipment was decontaminated prior to and between all sampling events by washing with a nonphosphate detergent and triple rinsing with deionized water. Since pesticides were the constituents of most concern due to the low levels detectable, no sampling equipment was common between wells for the pesticide sampling.

Control of Contaminated Materials

The sampling team disposed of all wastes produced during the investigation in accordance with Federal and State regulations. Disposable sampling equipment was bagged, removed from the site, and disposed of as a nonhazardous material.

Laboratory Analyses

All water samples were analyzed for selected pesticides currently used in the area, basic inorganic minerals including nitrate, and dissolved metals. Table 3 provides a listing of the laboratories used, the chemicals analyzed by each, and their detection limits. All collected samples (classified as environmental samples) were transported to the designated laboratory as medium hazard and analyzed accordingly. EPA analytical methods for each parameter group were as follows:

pesticides	solid phase extraction: GC/MSD
metals	ICP / GFAA
inorganics	varies with analyte

Table 4 - Laboratories, Methods and Detection Levels

Colorado Department of Agriculture Standards Laboratory

PESTICIDE ANALYSIS

Pesticide Trade Name	Pesticide Common Name	Pesticide Use	Chemical Type	EPA Method	MDL (ug/L)
Lasso	Alachlor	Herb	OrganoCL	525.1	0.5
AAtrex	Atrazine	Herb	Triazine	525.1	0.5
Balan	Benfluralin	Herb	OrganoFL	525.1	0.5
Bravo	Chlorothalonil	Fungi	Nitrile	525.1	0.5
Lorsban	Chlorpyrifos	Insect	OrganoPH	525.1	0.5
Bladex	Cyanazine	Herb	Triazine	525.1	0.5
	4,4-DDT	Insect	OrganoCL	525.1	0.5
	Endrin	Insect	OrganoCL	525.1	0.5
	Heptachlor	Insect	OrganoCL	525.1	0.5
	Heptachlor epoxide	Insect	OrganoCL	525.1	0.5
Velpar	Hexazinone	Herb	Triazine	525.1	0.5
Gamma-mean	Lindane	Insect	OrganoCL	525.1	0.5
Marlate	Methoxychlor	Insect	OrganoCL	525.1	0.5
Dual	Metolachlor	Herb	acetamide	525.1	0.5
Sencor	Metribuzin	Herb	Triazine	525.1	0.5
Treflan	Trifluralin	Herb	OrganoFL	525.1	0.5
Weed B Gone	2,4-D	Herb	PhenoxyAcid	515.2	0.2
Banvel	Dicamba	Herb	BenzoicAcid	515.2	0.1
Kilprop	MCPP	Herb	PhenoxyAcid	515.2	2.0
Agritox	MCPA	Herb	PhenoxyAcid	515.2	2.0
Temik	Aldicarb	Insect	Carbamate	531.1	1.0
	Aldicarb sulfone		Carbamate	531.1	2.0
	Aldicarb sulfoxide		Carbamate	531.1	2.0
Sevin	Carbaryl	Insect	Carbamate	531.1	2.0
Furadan	Carbofuran	Insect	Carbamate	531.1	1.5
	3-Hydroxycarbofuran		Carbamate	531.1	2.0
	Methiocarb	Insect	Carbamate	531.1	4.0
Lannate	Methomyl	Insect	Carbamate	531.1	1.0
DPX	Oxamyl	Insect	Carbamate	531.1	2.0
Baygon	Propoxur	Insect	Carbamate	531.1	1.0

INORGANIC ANALYSIS

Nitrate/Nitrite as N	300	0.5 mg/L

Table 4, continued - Laboratories, Methods and Detection Levels

Colorado State University Soils Laboratory

MINERALS AND DISSOLVED METALS ANALYSIS

Basic Water Quality Parameters	Method	Reporting Limit (mg/L)
Boron	EPA 200.0	0.01
Bicarbonate	APHA 2320B	0.1
Calcium	EPA 200.0	0.1
Carbonate	APHA 2320B	0.1
Chloride	EPA 300.0	0.1
Magnesium	EPA 200.0	0.1
Nitrate	EPA 300.0	0.1
pH	EPA 150.1	0.1 pH unit
Sodium	EPA 200.0	0.1
Specific conductance (TDS)	EPA 120.1	1.0 uS/cm
Sulfate	EPA 300.0	0.1
Potassium	EPA 200.0	0.1
Alkalinity, total	Titration	1.0
Solids, Total Dissolved	Gravimetric	10.0
Hardness, total as $CaCO_3$	Calculation	1.0
Dissolved Metals		
Aluminum	EPA 200.0	0.1
Barium	EPA 200.0	0.01
Cadmium	EPA 200.0	0.01
Chromium	EPA 200.0	0.01
Copper	EPA 200.0	0.01
Iron	EPA 200.0	0.01
Lead	EPA 200.0	0.05
Manganese	EPA 200.0	0.01
Nickel	EPA 200.0	0.01
Molybdenum	EPA 200.0	0.01
Phosphorous, total	EPA 200.0	0.1
Zinc	EPA 200.0	0.01

Sample bottles were provided by the lab and were part of the quality control program. All samples were handled and preserved in accordance with the requirements of the laboratory used for that analysis. Calibration and operation of all monitoring equipment followed the instrument manufacturer's instructions.

CHAIN OF CUSTODY

All samples were handled in accordance with standard laboratory chain of custody protocol after collection and identification.

Appendix A

		conduct	calcium	magnesium	sodium	potassium	boron	carbonate	bicarbonate	chlorine	sulfate	nitrate
WELL ID	pH	E.C.	Ca	Mg	Na	K	B	CO3	HCO3	Cl	SO4	NO3
		umhos/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-001	8.1	775	33.9	12.8	117.5	6.0	0.21	<0.1	178.8	40.7	156.7	0.9
AK94-002	7.7	3920	391.9	106.5	405.9	12.9	0.86	<0.1	272	201.4	1724.9	12.4
AK94-003	7.2	4120	398.8	109.7	413.7	13.7	0.88	<0.1	286.4	301.6	1836.4	16.4
AK94-004	7.8	4700	390.6	126.3	527.4	8.7	0.69	<0.1	254.4	1164	677.4	20.4
AK94-005	8.0	468	49.1	11.7	30.9	3.2	0.11	<0.1	138.3	15.9	114.5	0.9
AK94-006	7.6	4680	392.7	154.6	499.9	18.7	1.18	<0.1	330	520	1875	12.4
AK94-007	8.0	890	85.3	26.2	58.6	6.0	0.2	<0.1	133.3	34.1	235.6	26.6
AK94-008	8.0	844	75.6	20.8	75.8	4.1	0.27	<0.1	158.2	73.4	200.9	18.2
AK94-009	7.6	6850	417.2	195	892.2	9.4	1.32	<0.1	428.6	342.3	3090	15.1
AK94-011	7.7	3920	404.2	117.6	368.7	12.1	0.6	<0.1	372.2	336.4	1625	39.9
AK94-012	7.5	6530	300.6	129.2	412.6	10.3	0.99	<0.1	<0.1	1832.9	2207	163.9
AK94-013	7.2	5650	347.9	157.2	606.7	8.8	0.89	<0.1	448.9	426.6	1940	55.1
AK94-014	7.3	5130	359.7	152.1	559.9	8.0	0.97	<0.1	428.3	306.9	1854.4	<0.1
AK94-015	7.2	4560	367.1	124.2	439.4	28.1	0.85	<0.1	426.5	291.6	1730.4	<0.1
AK94-016	7.2	4060	349.3	120.3	360.8	13.8	0.77	<0.1	491.2	294.9	1266.7	56.6
AK94-017	7.4	3950	319.7	100.4	389	11.5	0.58	<0.1	382.7	179.7	1600	<0.1
AK94-018	7.4	1400	144.6	31.4	81.4	8.5	0.15	<0.1	184.5	116	358.8	<0.1
AK94-018a	7.3	4890	366.9	109.3	542.9	7.6	0.46	<0.1	293	583.1	1393.3	<0.1
AK94-019	7.4	1810	193.4	41.6	126.4	4.8	0.08	<0.1	185.3	175.7	495.2	<0.1
AK94-021	7.4	4220	414.4	101.4	449.9	6.8	0.43	<0.1	241.5	245.2	1865.9	<0.1
AK94-022	7.4	3680	333	112.4	379.5	9.7	0.56	<0.1	343	631.2	1033.3	<0.1
AK94-023	7.3	3010	294	102.1	302.2	6.8	0.49	<0.1	300.7	602.6	830	<0.1
AK94-024	6.8	5010	485.9	162.9	573.2	22.0	0.74	<0.1	484	266.3	2105.1	<0.1
AK94-025	7.0	4750	472.2	171.4	598.6	20.5	0.88	<0.1	448.7	576.6	1987	<0.1
AK94-026	7.1	3700	417.4	138.9	425	12.6	0.7	<0.1	349.9	600.6	1560.6	<0.1
AK94-027	7.2	3930	309.2	111.6	385.4	10.5	0.66	<0.1	417.7	653.2	997.1	<0.1
AK94-028	7.2	4660	310.4	128	497.8	6.6	0.67	<0.1	395.2	140.7	2030	<0.1
AK94-029	7.3	4840	310.6	135.7	531.6	9.3	0.71	<0.1	385	629.7	1310	136.1
AK94-031	7.2	5770	314.8	154.8	659.4	11.0	0.92	<0.1	521.1	584.1	1392.9	<0.1
AK94-032	7.3	4640	311.1	134.5	540.5	11.3	0.73	<0.1	401.4	292.1	1756.8	101.1
AK94-033	7.2	4710	316.8	138.3	516.6	6.8	0.74	<0.1	423.1	333.4	1801.8	<0.1
AK94-034	7.3	4690	311.5	134.9	489.4	4.3	0.68	<0.1	395.4	567.6	1182.4	<0.1
AK94-035	7.3	4780	308	129.3	482.7	7.9	0.69	<0.1	369.8	566.6	1192.4	<0.1
AK94-036	7.3	5040	297	134.8	473.4	7.2	0.67	<0.1	391.1	571.1	1273.5	<0.1
AK94-037	7.4	4200	303.9	124.4	406.8	8.5	0.68	<0.1	370.8	540.6	1138.8	97.1

		conduct	calcium	magnesium	sodium	potassium	boron	carbonate	bicarbonate	chlorine	sulfate	nitrate
WELL ID	pH	E.C.	Ca	Mg	Na	K	B	CO3	HCO3	Cl	SO4	NO3
		umhos/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-038	7.4	3760	304.9	118.8	370.1	8.5	0.59	<0.1	327.5	503.5	897.1	<0.1
AK94-039	8.2	770	43.9	24.3	94.3	2.9	0.23	<0.1	202.7	50.8	182.7	<0.1
AK94-041	7.6	3030	303.4	101.4	281.3	2.5	0.46	<0.1	393	85.9	1434.5	9.2
AK94-042	7.6	4620	345.7	169.3	521.4	4.2	1.18	<0.1	496.9	150	1988.2	12.8
AK94-043	7.6	3940	341.2	126.3	139.4	2.6	0.94	<0.1	297.6	185.9	1780.1	19.3
AK94-044	7.7	2270	210.5	72.3	224.1	3.9	0.4	<0.1	222.6	64.3	1004	9.3
AK94-045	7.7	2020	178.2	74.1	173.3	0.4	0.31	<0.1	219.5	65.3	938.2	<0.1
AK94-046	7.6	3380	268.1	131.4	330.6	5.3	0.76	<0.1	377	81.9	1520.4	10.7
AK94-047	7.7	4660	345.9	134.9	472.4	5.9	1.19	<0.1	383.2	141.5	1938	32.7
AK94-048	7.5	2580	327.9	131.4	346.9	8.8	0.79	<0.1	201.1	54.2	1931.9	16.7
AK94-049	7.5	3800	343.4	113.5	263.7	4.0	0.69	<0.1	282.2	117.2	1645.1	6.4
AK94-050	7.6	3110	343.5	113.6	265.9	3.2	0.69	<0.1	221.5	76.6	1535	4.2
AK94-051	6.5	1670	150.1	59	123.7	2.5	0.18	<0.1	213.3	58.4	593.4	<0.1
AK94-052	6.7	2730	236.6	93.3	226.6	3.2	0.64	<0.1	254	71.8	1220	<0.1
AK94-053	6.9	2500	239.5	75.7	182.8	2.9	0.29	<0.1	312	95	950.1	<0.1
AK94-054	7.0	3650	296.4	109.1	324.2	17.8	0.46	<0.1	391.1	106	1442.1	<0.1
AK94-055	7.0	3600	383.4	99.4	220.7	6.3	0.68	<0.1	419.2	62.8	1398.3	<0.1
AK94-056	7.2	4850	352.5	138.3	495.7	5.4	0.67	<0.1	380.9	132.8	1892.8	<0.1
AK94-057	7.1	3270	319.4	82.2	263.2	6.2	0.37	<0.1	317.5	108.4	1323.4	<0.1
AK94-058	7.7	675	15.6	6.6	111	1.3	0.84	<0.1	242.5	24.4	57.3	<0.1
AK94-059	7.1	4200	347.5	135.1	370.7	6.1	0.55	<0.1	427	151.6	1688.9	<0.1
AK94-061	7.2	4400	377.5	146.1	383.5	6.5	0.55	<0.1	394	138.5	1727.7	<0.1
AK94-062	7.1	5850	388.3	186.1	652.7	12.1	1.37	<0.1	564.1	188.2	2090.3	<0.1
AK94-063	7.2	5070	382.4	153.5	457.7	3.4	1.29	<0.1	392.5	111.7	2192.3	19.7
AK94-064	7.2	3370	405.4	100	184.2	0.2	0.84	<0.1	315.9	45.2	1550.7	12.3
AK94-065	7.2	3210	363.6	102	183.5	4.9	0.58	<0.1	451.3	35	1379.1	<0.1
AK94-066	7.2	2650	219.8	83.1	221	3.6	0.35	<0.1	362.4	87.6	950.5	8.7
AK94-067	7.1	3000	259.8	81.5	225.7	4.8	0.38	<0.1	343.5	59.8	1131.2	11.3
AK94-068	6.9	3890	409.5	98.8	295.7	1.7	0.82	<0.1	344	87.8	1597.9	20.9
AK94-069	7.0	3510	449.2	91	176.5	6.5	0.55	<0.1	350.4	67.6	1522.4	<0.1
AK94-070	7.2	2920	283.1	60.7	243.2	4.6	0.16	<0.1	218.7	91.6	1190.8	<0.1
AK94-071	7.2	2760	232.3	64.7	227.7	4.0	0.28	<0.1	223.9	143.1	944.5	<0.1
AK94-072	7.1	3740	316.8	113.1	303.6	3.3	0.51	<0.1	522.1	75	1271.4	<0.1
AK94-073	6.8	3100	75.4	75.4	346.6	13.3	0.19	<0.1	235.5	102.1	1128.4	<0.1
AK94-074	7.2	4510	376.5	133.9	46.8	8.9	0.93	<0.1	487.8	118.5	2057.7	13

WELL ID	pH	conduct E.C.	calcium Ca	magnesium Mg	sodium Na	potassium K	boron B	carbonate CO3	bicarbonate HCO3	chlorine Cl	sulfate SO4	nitrate NO3
		umhos/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-075	6.6	2290	184.7	72.6	181.3	5.2	0.39	<0.1	245.7	63.1	850.2	50.5
AK94-076	6.8	4870	330.6	131.5	466.2	8.1	1.04	<0.1	453.9	150.9	1885.9	8.5
AK94-077	7.2	4300	311.5	125	394.8	5.4	0.57	<0.1	510.5	123.2	1588.3	<0.1
AK94-078	7.2	3410	272.3	95.4	282.2	4.7	0.47	<0.1	451.1	85.1	1182.3	13.2
AK94-079	7.2	2900	264.5	97.3	259.6	1.5	0.45	<0.1	526.8	58	1082.8	8.5
AK94-081	7.2	3220	401	79.7	182.4	1.5	0.46	<0.1	347.6	38.8	1315.5	23.4
AK94-082	7.3	3230	278.7	83.5	342.8	8.8	0.45	<0.1	381.4	97.5	1174.5	29
AK94-083	7.3	3350	335.3	93.6	285.1	3.6	0.59	<0.1	464.7	54.1	1323.6	23
AK94-084	7.2	2880	310.8	76.3	203.3	7.8	0.43	<0.1	393.1	43.8	1185.5	<0.1
AK94-085	7.3	3070	362.3	78.8	180.1	1.7	0.42	<0.1	304.2	40.3	1251.1	17.7
AK94-086	8.0	1890	1.5	1.3	439.2	2.3	0.15	<0.1	435.8	30.6	561.1	<0.1
AK94-087	7.2	2320	257.6	87.6	202	5.8	0.63	<0.1	373.5	45.5	1029.6	30.1
AK94-088	7.4	2550	253.7	80.9	189.2	2.1	0.43	<0.1	330.9	59.5	1104.9	10.5
AK94-089	7.3	4180	421.1	122.8	334.2	1.2	0.68	<0.1	389.4	71.9	1794.8	31.6
AK94-090	7.2	3740	445.7	110.8	179.8	6.2	0.6	<0.1	341.5	335.3	1299.4	27
AK94-091	7.3	2270	257.3	65	150.2	0.9	0.38	<0.1	353	61.3	939.4	9.9
AK94-092	7.3	3080	369.2	80.3	193.3	1.8	0.54	<0.1	290.8	37.3	1466.3	12.1
AK94-093	7.4	2610	381.6	53.3	93.9	5.6	0.24	<0.1	188.1	21.6	1155.6	<0.1
AK94-094	7.5	3350	266.4	103.5	330.1	7.1	0.43	<0.1	406	119.7	1302.2	<0.1
AK94-095	7.3	3260	325.4	101.8	250.9	4.2	0.57	<0.1	409.6	59	1303.9	22
AK94-096	7.3	2120	200.4	68.9	139.2	5.7	0.34	<0.1	358.8	39.8	735.6	16
AK94-097	7.3	3500	294.4	110.6	302.8	5.9	0.35	<0.1	404.4	75	1366.5	17.5
AK94-098	7.2	2720	303	82.9	155	5.5	0.46	<0.1	368.2	34.8	1178.1	11.6
AK94-099	7.5	2930	303.3	72.8	178.3	3.4	0.4	<0.1	355.9	57.3	1032.4	37
AK94-101	7.6	1190	121.1	30.4	72.8	3.3	0.2	<0.1	216.4	58.9	350.4	8.8
AK94-102	7.4	2090	200.1	62.5	148.9	4.6	0.31	<0.1	333.3	75.7	745	31.3
AK94-103	7.2	3030	293.2	98.8	216.7	5.7	0.61	<0.1	437.7	67.8	1174.5	14.4
AK94-104	7.4	3930	334.1	105.8	349.3	2.3	0.76	<0.1	434.2	229.7	1400	46.8
AK94-105	7.7	1230	129.5	39.4	86.5	5.4	0.2	<0.1	228.9	57.3	444	<0.1
AK94-106	7.5	2070	208.7	63.8	170	5.8	0.3	<0.1	291.2	61.7	851.9	<0.1
AK94-107	7.4	2770	261.7	98.8	238	4.5	0.45	<0.1	336.2	68.5	1219.7	48.9
AK94-108	7.3	2770	303.8	94	186.2	3.9	0.32	<0.1	322.4	64.7	1138.4	161.7
AK94-109	7.3	2390	311.4	67	153.8	3.3	0.21	<0.1	356.4	55	1089.7	12.3
AK94-110	7.4	1490	199.1	46.5	79.5	3.0	0.38	<0.1	293.6	27.7	560.1	9.1
AK94-111	7.4	1140	118.3	34.6	82.2	2.8	0.22	<0.1	229	56.8	383.9	<0.1

WELL ID	pH	conduct E.C.	calcium Ca	magnesium Mg	sodium Na	potassium K	boron B	carbonate CO3	bicarbonate HCO3	chlorine Cl	sulfate SO4	nitrate NO3
		umhos/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-112	7.5	3030	238.9	85.6	291.6	6.6	0.39	<0.1	429.3	101.6	1071	<0.1
AK94-113	7.7	1450	6.2	6.9	288.1	7.7	0.11	<0.1	370.2	31.4	370.6	<0.1
AK94-114	7.3	2450	277.4	73.2	142.1	2.5	0.36	<0.1	409.8	60.8	897	57.5
AK94-115	7.4	3300	327.3	110.4	244.2	1.9	0.55	<0.1	353.6	59.1	1523.6	15.7
AK94-116	7.8	1870	219.4	58.7	90.1	2.1	0.22	<0.1	313.8	59.8	572.4	39.9
AK94-117	7.5	2190	266.4	68.3	95.1	2.7	0.24	<0.1	326.2	35.1	875	16.4
AK94-118	7.4	1580	184.3	45	89.4	2.1	0.17	<0.1	360.8	21	526.5	23.2
AK94-119	7.3	1530	166	47.2	84	3.2	0.17	<0.1	364.1	27.6	498.3	13.5
AK94-121	7.5	3030	309.2	113.3	275.5	5.2	0.41	<0.1	417.8	43.9	1500.3	30.2
AK94-122	7.4	3300	415.1	89.9	230.5	3.9	0.37	<0.1	438	56.2	1450.4	23.6
AK94-123	7.4	1900	215.9	54.6	154.9	1.4	0.22	<0.1	364	30.9	699.4	14
AK94-124	7.1	2950	430.9	85	111	<0.1	0.34	<0.1	333.9	29.3	1375	9.7
AK94-125	7.2	1880	198	61	101.4	<0.1	0.27	<0.1	318.6	29.3	666.9	31.6
AK94-126	7.1	1850	173	58.7	113.3	<0.1	0.23	<0.1	353.9	22.9	646.2	<0.1
AK94-127	7.3	1600	87	31	207	1.3	0.24	<0.1	255.9	33.1	574.3	<0.1
AK94-128	7.5	1540	67.6	26.9	200.9	<0.1	0.27	<0.1	182.1	81.9	435.9	31.4
AK94-129	7.2	1070	107.4	32.4	53.1	0.9	0.1	<0.1	230.7	13.1	324.2	<0.1
AK94-130	6.3	855	85.1	29.6	48.8	9.2	0.13	<0.1	169.2	13.7	287.4	11.2
AK94-131	6.6	929	96.6	30.9	53.1	8.5	0.13	<0.1	202.3	15.9	297.7	14.4
AK94-132	7.0	3400	190.7	132.2	401.5	9.8	0.44	<0.1	300.6	94.7	1451	<0.1
AK94-133	7.2	942	111.6	35	50.9	6.8	0.13	<0.1	244.2	28.9	270.7	8
AK94-134	7.5	2780	204.2	63.1	359.4	10.9	0.24	<0.1	364.8	87.4	1205.1	<0.1
AK94-135	7.6	1910	142.1	39.7	262	11.0	0.21	<0.1	324.1	74.1	703.7	<0.1
AK94-136	7.8	1750	251.3	65.2	61.1	7.1	0.24	<0.1	685.5	72.5	377.1	1.2
AK94-137	7.4	3300	362	119.6	219.5	8.2	0.83	<0.1	310.9	69.6	1647.4	3.1
AK94-138	7.3	735	84.7	24.4	37.8	10.2	0.11	<0.1	159.1	21.8	198.3	<0.1
AK94-139	7.2	6460	365.9	234.6	1000	13.9	0.68	<0.1	494.1	70.5	3354	4.3
AK94-140	7.4	1890	243.4	76.7	73	9.5	0.24	<0.1	499.8	15.9	652.8	83
AK94-141	7.3	2890	454.5	101.5	83.9	5.8	0.58	<0.1	297.8	20.6	1367.8	<0.1
AK94-142	7.5	1700	202.5	70.1	77.6	8.0	0.43	<0.1	220	17.7	700.6	6.9
AK94-143	6.6	1550	92.7	23.1	227.3	3.3	0.16	<0.1	276.4	49.7	522.5	<0.1
AK94-144	6.9	4470	343.5	184	530.1	5.9	0.45	<0.1	405.9	56.6	2250	<0.1
AK94-145	7.3	1460	76.6	19.3	236.1	3.8	0.14	<0.1	339.6	36.9	480	<0.1
AK94-146	7.3	1050	64.5	14.7	152.6	3.9	0.11	<0.1	250.9	23.8	298.2	<0.1

WELL ID	hardness HARD-CACO3 mg/l	alkalinity ALK-CACO3 mg/l	diss. solids TDS mg/l	phosphorus P mg/l	aluminum Al mg/l	iron Fe mg/l	manganese Mn mg/l	copper Cu mg/l	zinc Zn mg/l	nickel Ni mg/l	molybdenum Mo mg/l	cadmium Cd mg/l
AK94-001	137	147	548	<0.1	<0.1	0.04	0.02	<0.01	0.01	<0.01	0.01	<0.01
AK94-002	1416	223	3129	0.3	0.1	0.12	0.08	0.01	0.03	0.03	0.02	<0.01
AK94-003	1446	235	3378	0.3	0.1	0.11	0.02	0.01	0.25	0.04	0.02	0.01
AK94-004	1494	209	3170	0.4	0.2	0.11	0.02	0.01	0.06	0.04	0.02	<0.01
AK94-005	171	113	365	<0.1	<0.1	0.01	0.01	<0.01	0.02	0.01	0.02	<0.01
AK94-006	1615	270	3804	0.5	0.1	0.12	0.02	0.01	0.07	0.04	0.02	<0.01
AK94-007	321	109	606	0.1	0.1	0.06	0.01	<0.01	0.04	0.01	0.02	<0.01
AK94-008	274	130	627	0.1	0.1	0.02	<0.01	<0.01	0.08	0.01	0.01	<0.01
AK94-009	1843	351	5391	0.6	0.2	0.13	0.03	0.01	0.12	0.06	0.03	<0.01
AK94-011	1492	305	3277	0.4	0.2	0.12	0.02	0.01	0.03	0.04	0.02	<0.01
AK94-012	1281	0	5057	0.5	0.1	0.3	0.03	0.02	0.08	0.04	0.03	<0.01
AK94-013	1514	368	3992	0.5	0.2	0.18	0.07	0.02	0.05	0.05	0.03	<0.01
AK94-014	1523	351	3670	0.5	0.2	0.17	0.02	0.01	0.03	0.05	0.03	<0.01
AK94-015	1427	350	3408	0.5	0.2	0.14	0.02	0.02	0.2	0.04	0.03	<0.01
AK94-016	1366	403	2954	0.4	0.2	0.15	0.02	0.02	0.24	0.04	0.03	0.01
AK94-017	1210	314	2984	0.4	0.2	0.14	0.02	0.02	0.04	0.04	0.04	0.01
AK94-018	490	151	925	0.2	0.3	0.53	0.19	0.03	0.04	0.03	0.03	0.03
AK94-018a	1365	240	3297	0.4	0.1	0.67	0.08	0.02	0.03	0.04	0.02	<0.01
AK94-019	654	152	1222	0.1	<0.1	1.03	0.16	<0.01	0.03	0.01	0.02	<0.01
AK94-021	1451	198	3326	0.3	0.1	0.35	0.02	0.05	0.02	0.03	0.02	<0.01
AK94-022	1293	281	2843	0.3	0.1	0.12	0.01	0.01	0.02	0.03	0.02	0.01
AK94-023	1153	246	2439	0.3	0.1	0.1	0.01	<0.01	0.04	0.03	0.02	<0.01
AK94-024	1882	397	4100	0.7	0.6	1.16	0.06	0.06	0.18	0.1	0.07	0.02
AK94-025	1883	368	4276	0.7	0.6	0.21	0.17	0.04	0.04	0.09	0.06	0.02
AK94-026	1613	287	3506	0.5	0.3	0.15	0.02	0.02	0.03	0.06	0.04	0.01
AK94-027	1230	342	2885	0.4	0.1	0.22	0.02	0.01	0.01	0.02	0.02	<0.01
AK94-028	1301	324	3509	0.4	0.1	0.12	0.04	<0.01	0.01	0.03	0.02	<0.01
AK94-029	1333	316	3449	0.4	0.1	0.11	0.02	<0.01	0.02	0.03	0.03	<0.01
AK94-031	1442	427	3639	0.5	0.1	0.11	0.02	0.01	0.02	0.04	0.02	<0.01
AK94-032	1329	329	3550	0.4	0.1	0.1	0.02	<0.01	0.02	0.03	0.02	<0.01
AK94-033	1359	347	3538	0.4	0.1	0.16	0.02	0.01	0.05	0.03	0.02	<0.01
AK94-034	1332	324	3086	0.4	0.1	0.19	0.02	0.01	0.02	0.03	0.02	<0.01
AK94-035	1300	303	3057	0.4	0.1	0.15	0.02	0.01	0.02	0.03	0.02	<0.01
AK94-036	1295	321	3149	0.4	0.1	0.1	0.02	0.01	0.02	0.04	0.02	<0.01
AK94-037	1270	304	2992	0.4	0.1	0.13	0.02	0.01	0.02	0.04	0.02	<0.01

	hardness	alkalinity	diss. solids	phosphorus	aluminum	iron	manganese	copper	zinc	nickel	molybdenum	cadmium
WELL ID	HARD-CACO3	ALK-CACO3	TDS	P	Al	Fe	Mn	Cu	Zn	Ni	Mo	Cd
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-038	1249	268	2531	0.4	0.1	0.11	0.02	0.01	0.01	0.03	0.02	<0.01
AK94-039	209	166	602	<0.1	<0.1	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
AK94-041	1174	322	2612	0.2	<0.1	0.07	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AK94-042	1559	407	3690	0.4	<0.1	0.08	0.06	<0.01	0.01	0.02	<0.01	<0.01
AK94-043	1371	244	3193	0.3	<0.1	0.15	0.01	<0.01	0.01	0.01	<0.01	<0.01
AK94-044	822	182	1811	<0.1	<0.1	0.08	0.01	<0.01	0.22	<0.01	<0.01	<0.01
AK94-045	749	194	1721	<0.1	<0.1	0.22	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AK94-046	1209	309	2726	0.3	<0.1	0.06	0.01	<0.01	0.01	<0.01	<0.01	<0.01
AK94-047	1418	314	3456	0.3	<0.1	0.13	0.01	<0.01	0.05	0.01	<0.01	<0.01
AK94-048	1358	165	3020	0.4	<0.1	0.15	0.18	<0.01	0.01	0.02	0.02	<0.01
AK94-049	1323	231	2776	0.3	<0.1	0.14	0.02	<0.01	0.04	0.01	0.01	<0.01
AK94-050	1324	182	2564	0.3	<0.1	0.14	0.01	<0.01	0.04	0.01	0.01	<0.01
AK94-051	617	175	1201	<0.1	<0.1	0.03	0.01	0.16	0.04	<0.01	<0.01	<0.01
AK94-052	974	208	2106	0.2	<0.1	0.8	0.01	0.02	<0.01	0.01	<0.01	<0.01
AK94-053	909	256	1858	0.1	<0.1	0.04	0.01	0.01	<0.01	<0.01	<0.01	<0.01
AK94-054	1188	321	2687	0.2	<0.1	0.08	0.02	<0.01	0.17	0.01	<0.01	<0.01
AK94-055	1365	344	2591	0.2	<0.1	0.16	0.03	0.01	0.06	0.01	<0.01	<0.01
AK94-056	1448	312	3399	0.4	<0.1	0.14	0.02	<0.01	0.03	0.01	<0.01	<0.01
AK94-057	1135	260	2421	0.2	<0.1	0.24	0.02	<0.01	0.02	<0.01	<0.01	<0.01
AK94-058	66	199	460	<0.1	<0.1	0.3	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
AK94-059	1423	350	3127	0.3	<0.1	0.17	0.02	<0.01	0.06	0.02	0.01	<0.01
AK94-061	1543	323	3174	0.5	0.2	1.76	0.58	<0.01	0.09	0.04	0.02	<0.01
AK94-062	1734	462	4083	0.7	0.1	0.32	0.07	<0.01	0.04	0.05	0.03	<0.01
AK94-063	1585	322	3714	0.4	0.1	0.08	0.02	<0.01	0.07	0.04	0.02	<0.005
AK94-064	1423	259	2615	0.3	0.1	0.06	0.02	<0.01	0.02	0.02	0.02	<0.005
AK94-065	1327	370	2520	0.3	0.1	0.07	0.04	<0.01	0.1	0.02	0.02	<0.005
AK94-066	890	297	1937	0.2	<0.1	0.03	0.24	<0.01	0.01	0.02	<0.01	<0.005
AK94-067	983	282	2118	0.2	<0.1	0.05	0.01	<0.01	0.01	0.02	<0.01	<0.005
AK94-068	1428	282	2857	0.3	0.1	0.07	0.02	<0.01	0.01	0.02	0.01	<0.005
AK94-069	1495	287	2664	0.2	<0.1	0.08	0.02	<0.01	0.01	0.02	0.01	<0.005
AK94-070	956	179	2093	0.1	0.1	0.05	0.03	<0.01	0.04	0.01	0.01	<0.005
AK94-071	846	184	1840	0.1	0.1	0.07	0.03	<0.01	0.01	0.01	0.01	<0.005
AK94-072	1255	428	2606	0.3	0.1	0.07	0.29	<0.01	0.02	0.03	0.01	<0.005
AK94-073	498	193	1977	0.2	<0.1	0.02	0.2	<0.01	<0.01	0.01	0.01	<0.005
AK94-074	1490	400	3658	0.4	0.2	0.12	0.02	0.01	0.03	0.04	0.03	0.005

	hardness	alkalinity	diss. solids	phosphorus	aluminum	iron	manganese	copper	zinc	nickel	molybdenum	cadmium
WELL ID	HARD-CACO3	ALK-CACO3	TDS	P	Al	Fe	Mn	Cu	Zn	Ni	Mo	Cd
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-075	759	201	1654	0.2	0.2	0.07	0.04	<0.01	0.02	0.03	0.02	<0.005
AK94-076	1366	372	3437	0.4	0.2	0.21	0.02	<0.01	0.05	0.04	0.02	0.005
AK94-077	1291	418	3059	0.4	0.1	0.14	1.27	<0.01	0.04	0.04	0.03	<0.005
AK94-078	1072	370	2387	0.3	0.1	0.16	0.02	0.63	0.86	0.02	0.03	<0.005
AK94-079	1060	432	2299	0.3	0.1	0.18	0.13	<0.01	0.04	0.03	0.02	<0.005
AK94-081	1328	285	2390	0.3	0.1	0.14	0.02	<0.01	0.02	0.02	0.01	<0.005
AK94-082	1039	313	2397	0.3	0.1	0.32	0.04	0.01	0.06	0.02	0.02	<0.005
AK94-083	1221	381	2584	0.3	<0.1	0.14	0.02	<0.01	0.05	0.02	0.01	<0.005
AK94-084	1089	322	2221	0.2	0.1	0.14	0.12	<0.01	0.05	0.02	0.02	<0.005
AK94-085	1228	249	2237	0.2	0.1	0.11	0.02	<0.01	0.01	0.01	0.02	<0.005
AK94-086	9	357	1472	0.3	<0.1	0.22	0.02	<0.01	<0.01	<0.01	<0.01	<0.005
AK94-087	1003	306	2032	0.23	0.13	<0.01	0.02	0.02	0.03	0.03	0.03	<0.005
AK94-088	966	271	2032	0.2	0.04	<0.01	0.02	0.01	0.05	0.02	0.01	<0.005
AK94-089	1556	319	3168	0.3	0.07	<0.01	0.03	0.01	0.03	0.04	0.02	<0.005
AK94-090	1568	280	2746	0.41	0.39	0.03	0.04	0.04	0.04	0.07	0.05	<0.005
AK94-091	909	289	1837	0.17	0.11	0.04	0.02	<0.01	0.02	0.01	0.01	<0.005
AK94-092	1251	238	2452	0.22	0.12	<0.01	0.03	0.01	0.02	0.03	0.02	<0.005
AK94-093	1171	154	1900	0.19	0.11	<0.01	0.03	0.01	0.02	0.02	0.03	<0.005
AK94-094	1090	333	2535	0.3	0.13	<0.01	0.03	0.02	0.03	0.04	0.03	<0.005
AK94-095	1230	336	2477	0.3	0.14	<0.01	0.03	0.01	0.03	0.03	0.02	<0.005
AK94-096	783	294	1565	0.21	0.12	<0.01	0.02	0.01	0.02	0.03	0.02	<0.005
AK94-097	1189	331	2577	0.29	0.13	0.02	0.03	0.02	0.04	0.04	0.03	<0.005
AK94-098	1097	302	2140	0.27	0.26	0.05	0.03	0.02	0.09	0.03	0.02	<0.005
AK94-099	1056	292	2041	0.3	0.2	0.17	0.11	0.06	0.03	0.03	0.02	0.005
AK94-101	427	177	862	0.1	0.2	0.08	0.02	0.01	0.03	0.02	0.01	0.004
AK94-102	756	273	1602	0.2	0.2	0.09	0.02	0.04	0.02	0.02	0.02	0.004
AK94-103	1138	359	2309	0.4	0.2	0.1	0.02	0.05	0.03	0.03	0.03	0.005
AK94-104	1269	356	2903	0.4	0.2	0.22	0.05	0.04	0.04	0.04	0.03	0.005
AK94-105	485	188	991	0.2	0.1	0.08	0.01	0.02	0.04	0.01	0.02	0.003
AK94-106	783	239	1653	0.2	0.1	0.11	1.15	0.01	0.02	0.03	0.03	0.005
AK94-107	1059	276	2277	0.3	0.2	0.18	0.03	0.04	0.07	0.03	0.02	0.005
AK94-108	1144	264	2275	0.3	0.2	0.15	0.02	0.01	0.06	0.03	0.02	0.004
AK94-109	1052	292	2049	0.1	0.1	0.08	0.02	0.01	0.03	0.01	0.01	0.001
AK94-110	688	241	1219	0.3	0.1	0.12	0.02	<0.01	0.02	0.02	0.02	0.001
AK94-111	437	188	908	0.2	0.1	0.82	0.04	0.07	0.11	0.01	0.01	0.002

WELL ID	hardness HARD-CACO3	alkalinity ALK-CACO3	diss. solids TDS	phosphorus P	aluminum Al	iron Fe	manganese Mn	copper Cu	zinc Zn	nickel Ni	molybdenum Mo	cadmium Cd
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
AK94-112	948	352	2225	0.3	0.1	1.39	1.17	0.02	0.02	0.02	0.02	<0.005
AK94-113	44	303	1081	<0.1	0.1	0.33	<0.01	0.02	0.01	<0.01	<0.01	<0.005
AK94-114	993	336	1921	0.3	0.1	0.5	0.02	0.01	0.04	0.02	0.01	<0.005
AK94-115	1271	290	2636	0.3	0.1	0.83	0.19	0.01	0.05	0.03	0.04	<0.005
AK94-116	789	257	1356	0.2	0.1	1.72	0.14	0.04	0.03	0.02	0.01	<0.005
AK94-117	946	267	1685	0.2	0.1	0.11	0.02	0.01	0.02	0.02	0.02	<0.005
AK94-118	645	296	1252	0.2	0.1	1.33	0.01	<0.01	0.01	0.01	0.01	<0.005
AK94-119	608	298	1204	0.2	0.1	1.78	0.01	<0.01	0.01	0.01	0.01	<0.005
AK94-121	1237	342	2696	0.4	0.1	1.17	0.02	0.01	0.02	0.03	0.02	<0.005
AK94-122	1405	359	2708	0.3	0.1	2.17	0.03	0.01	0.02	0.03	0.03	<0.005
AK94-123	763	298	1535	0.2	0.1	1.78	0.02	<0.01	0.02	0.01	0.01	<0.005
AK94-124	1425	274	2375	0.3	<0.1	0.35	0.03	0.06	0.03	0.01	0.01	<0.005
AK94-125	745	261	1407	0.1	<0.1	0.14	0.06	<0.01	0.08	<0.01	0.01	<0.005
AK94-126	673	290	1368	0.1	<0.1	0.3	1.4	0.02	0.05	<0.01	<0.01	<0.005
AK94-127	345	210	1190	<0.1	<0.1	0.28	0.01	0.03	0.04	<0.01	<0.01	<0.005
AK94-128	279	149	1027	<0.1	<0.1	0.04	<0.01	0.04	0.03	<0.01	<0.01	<0.005
AK94-129	401	189	762	<0.1	<0.1	0.06	1.09	<0.01	0.01	<0.01	<0.01	<0.005
AK94-130	334	139	655	0.2	0.1	0.11	0.01	0.02	0.05	0.05	0.03	0.011
AK94-131	368	166	720	0.2	0.1	0.15	0.02	0.02	0.08	0.04	0.03	0.013
AK94-132	1019	246	2583	0.4	0.1	1.32	0.27	0.02	0.11	0.04	0.03	0.018
AK94-133	422	200	757	0.2	0.1	0.09	0.01	0.2	0.05	0.09	0.02	0.013
AK94-134	769	299	2296	0.3	0.1	0.26	0.1	0.07	0.05	0.04	0.03	0.013
AK94-135	518	266	1558	0.2	0.2	0.11	0.08	0.03	0.03	0.06	0.04	0.016
AK94-136	895	562	1522	0.3	0.1	0.13	0.02	0.03	0.15	0.06	0.03	0.016
AK94-137	1395	255	2742	0.4	0.2	0.25	0.03	0.03	0.07	0.09	0.04	0.021
AK94-138	312	130	538	0.2	0.1	0.15	0.53	0.02	0.04	0.05	0.03	0.018
AK94-139	1878	405	5540	0.7	0.2	0.2	0.1	0.03	0.21	0.13	0.05	0.026
AK94-140	923	410	1655	0.3	0.1	0.19	0.02	0.08	0.05	0.07	0.03	0.018
AK94-141	1551	244	2334	0.3	0.2	0.18	0.04	0.03	0.04	0.05	0.04	0.008
AK94-142	793	180	1305	0.2	0.2	0.49	0.02	0.1	0.04	0.04	0.04	0.008
AK94-143	326	227	1195	0.1	<0.1	0.05	<0.01	<0.01	<0.01	0.01	<0.01	<0.005
AK94-144	1614	333	3777	0.6	0.1	0.12	0.01	0.01	0.05	0.05	0.01	<0.005
AK94-145	270	278	1193	0.1	<0.1	0.03	<0.01	<0.01	<0.01	0.01	<0.01	<0.005
AK94-146	221	206	809	0.1	<0.1	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005

	DL - Detection limit			DL	DL	DL	DL	DL	DL	DL
	ND - below detection limit of			0.5 mg/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
	chromium	barium	lead	Nitrate as N						
WELL ID	**Cr**	**Ba**	**Pb**	**NO3 - N**	**Alachlor**	**Atrazine**	**Benfluralin**	**Chlorpyrifos**	**Chlorothalonil**	**Cyanazine**
	mg/l	mg/l	mg/l							
AK94-001	0.01	0.02	<0.01	0.25	ND	ND	ND	ND	ND	ND
AK94-002	0.07	0.02	0.04	2.60	ND	ND	ND	ND	ND	ND
AK94-003	0.07	0.02	0.06	3.20	ND	ND	ND	ND	ND	ND
AK94-004	0.07	0.02	0.07	4.10	ND	ND	ND	ND	ND	ND
AK94-005	0.01	0.02	0.02	0.25	ND	ND	ND	ND	ND	ND
AK94-006	0.07	0.01	0.07	2.50	ND	ND	ND	ND	ND	ND
AK94-007	0.02	0.05	0.02	5.50	ND	ND	ND	ND	ND	ND
AK94-008	0.02	0.02	0.02	3.80	ND	ND	ND	ND	ND	ND
AK94-009	0.09	0.02	0.09	3.20	ND	ND	ND	ND	ND	ND
AK94-011	0.07	0.01	0.07	8.70	ND	ND	ND	ND	ND	ND
AK94-012	0.06	0.02	0.12	3.50	ND	ND	ND	ND	ND	ND
AK94-013	0.08	0.02	0.13	3.30	ND	ND	ND	ND	ND	ND
AK94-014	0.08	0.01	0.1	2.50	ND	ND	ND	ND	ND	ND
AK94-015	0.08	0.01	0.12	7.80	ND	ND	ND	ND	ND	ND
AK94-016	0.08	0.01	0.13	2.80	ND	ND	ND	ND	ND	ND
AK94-017	0.07	0.01	0.15	9.80	ND	ND	ND	ND	ND	ND
AK94-018	0.05	0.04	0.16	0.25	ND	ND	ND	ND	ND	ND
AK94-018a	0.07	0.02	0.08	4.10	ND	ND	ND	ND	ND	ND
AK94-019	0.04	0.05	<0.05	0.25	ND	ND	ND	ND	ND	ND
AK94-021	0.07	0.01	<0.05	7.50	ND	ND	ND	ND	ND	ND
AK94-022	0.06	0.01	<0.05	8.10	ND	ND	ND	ND	ND	ND
AK94-023	0.05	0.01	<0.05	3.70	ND	ND	ND	ND	ND	ND
AK94-024	0.15	0.04	0.38	4.00	ND	ND	ND	ND	ND	ND
AK94-025	0.13	0.02	0.3	4.10	ND	ND	ND	ND	ND	ND
AK94-026	0.1	0.02	0.18	4.40	ND	ND	ND	ND	ND	ND
AK94-027	0.06	0.01	<0.05	4.80	ND	**TR**	ND	ND	ND	ND
AK94-028	0.06	0.01	<0.05	12.10	ND	ND	ND	ND	ND	ND
AK94-029	0.07	0.01	<0.05	10.30	ND	ND	ND	ND	ND	ND
AK94-031	0.07	0.01	<0.05	4.00	ND	ND	ND	ND	ND	ND
AK94-032	0.07	0.01	<0.05	8.00	ND	ND	ND	ND	ND	ND
AK94-033	0.07	0.01	<0.05	7.40	ND	ND	ND	ND	ND	ND
AK94-034	0.07	0.01	0.05	9.30	ND	ND	ND	ND	ND	ND
AK94-035	0.07	0.01	0.05	6.40	ND	ND	ND	ND	ND	ND
AK94-036	0.06	0.01	0.07	7.00	ND	ND	ND	ND	ND	ND
AK94-037	0.07	0.01	0.06	8.80	ND	ND	ND	ND	ND	ND

	DL - Detection limit			DL	DL	DL	DL	DL	DL	DL
	ND - below detection limit of			0.5 mg/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
	chromium	barium	lead	Nitrate as N						
WELL ID	**Cr**	**Ba**	**Pb**	**NO3 - N**	**Alachlor**	**Atrazine**	**Benfluralin**	**Chlorpyrifos**	**Chlorothalonil**	**Cyanazine**
	mg/l	mg/l	mg/l							
AK94-038	0.06	0.02	<0.05	6.80	ND	ND	ND	ND	ND	ND
AK94-039	<0.01	0.01	<0.05	0.25	ND	ND	ND	ND	ND	ND
AK94-041	0.02	0.01	<0.05	2.70	ND	ND	ND	ND	ND	ND
AK94-042	0.04	0.01	<0.05	3.20	ND	ND	ND	ND	ND	ND
AK94-043	0.03	<0.01	<0.05	5.30	ND	ND	ND	ND	ND	ND
AK94-044	<0.01	<0.01	<0.05	3.00	ND	ND	ND	ND	ND	ND
AK94-045	<0.01	0.01	<0.05	1.10	ND	ND	ND	ND	ND	ND
AK94-046	0.02	0.01	<0.05	3.50	ND	ND	ND	ND	ND	ND
AK94-047	0.03	0.01	<0.05	10.10	ND	ND	ND	ND	ND	ND
AK94-048	0.05	0.01	<0.05	4.70	ND	**TR**	ND	ND	ND	ND
AK94-049	0.04	0.01	<0.05	1.40	ND	**TR**	ND	ND	ND	ND
AK94-050	0.04	0.01	<0.05	1.60	ND	ND	ND	ND	ND	ND
AK94-051	0.01	0.01	<0.05	0.70	ND	ND	ND	ND	ND	ND
AK94-052	0.03	0.01	<0.05	1.40	ND	ND	ND	ND	ND	ND
AK94-053	0.03	0.01	<0.05	10.10	ND	ND	ND	ND	ND	ND
AK94-054	0.04	0.01	<0.05	12.70	ND	ND	ND	ND	ND	ND
AK94-055	0.05	0.01	<0.05	5.80	ND	ND	ND	ND	ND	ND
AK94-056	0.05	0.01	<0.05	3.30	ND	ND	ND	ND	ND	ND
AK94-057	0.04	0.01	<0.05	6.50	ND	ND	ND	ND	ND	ND
AK94-058	<0.01	0.14	<0.05	0.25	ND	ND	ND	ND	ND	ND
AK94-059	0.04	0.01	<0.05	2.90	ND	ND	ND	ND	ND	ND
AK94-061	0.08	0.01	<0.05	1.10	ND	ND	ND	ND	ND	ND
AK94-062	0.09	0.01	0.06	4.00	ND	ND	ND	ND	ND	ND
AK94-063	0.07	0.01	<0.05	4.90	ND	ND	ND	ND	ND	ND
AK94-064	0.07	<0.01	<0.05	3.30	ND	**TR**	ND	ND	ND	ND
AK94-065	0.06	0.01	<0.05	1.70	ND	**TR**	ND	ND	ND	ND
AK94-066	0.04	0.02	<0.05	1.20	ND	ND	ND	ND	ND	ND
AK94-067	0.04	0.01	<0.05	2.80	ND	ND	ND	ND	ND	ND
AK94-068	0.06	0.01	<0.05	3.40	ND	ND	ND	ND	ND	ND
AK94-069	0.06	0.01	<0.05	6.50	ND	ND	ND	ND	ND	ND
AK94-070	0.04	0.02	<0.05	0.25	ND	ND	ND	ND	ND	ND
AK94-071	0.04	0.03	<0.05	0.25	ND	ND	ND	ND	ND	ND
AK94-072	0.06	0.02	<0.05	1.90	ND	ND	ND	ND	ND	ND
AK94-073	0.03	0.01	<0.05	1.10	ND	ND	ND	ND	ND	ND
AK94-074	0.08	0.01	0.06	4.20	ND	ND	ND	ND	ND	ND

	DL - Detection limit			DL	DL	DL	DL	DL	DL	DL
	ND - below detection limit of			0.5 mg/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
	chromium	barium	lead	Nitrate as N						
WELL ID	**Cr**	**Ba**	**Pb**	**NO3 - N**	**Alachlor**	**Atrazine**	**Benfluralin**	**Chlorpyrifos**	**Chlorothalonil**	**Cyanazine**
	mg/l	mg/l	mg/l							
AK94-075	0.05	0.02	0.12	1.00	ND	ND	ND	ND	ND	ND
AK94-076	0.08	0.02	0.1	2.20	ND	ND	ND	ND	ND	ND
AK94-077	0.07	0.02	0.08	1.70	ND	ND	ND	ND	ND	ND
AK94-078	0.07	0.02	0.03	4.20	ND	ND	ND	ND	ND	ND
AK94-079	0.06	0.01	0.02	2.40	ND	ND	ND	ND	ND	ND
AK94-081	0.07	0.02	0.01	6.80	ND	ND	ND	ND	ND	ND
AK94-082	0.06	0.02	0.03	9.10	ND	ND	ND	ND	ND	ND
AK94-083	0.06	0.02	0.01	5.50	ND	ND	ND	ND	ND	ND
AK94-084	0.06	0.01	0.01	2.30	ND	ND	ND	ND	ND	ND
AK94-085	0.07	0.01	0.02	5.40	ND	ND	ND	ND	ND	ND
AK94-086	<0.01	0.01	0.01	0.25	ND	ND	ND	ND	ND	ND
AK94-087	0.1	0.02	0.7	8.50	ND	ND	ND	ND	ND	ND
AK94-088	0.07	0.01	<0.05	3.60	ND	ND	ND	ND	ND	ND
AK94-089	0.12	0.01	<0.05	9.60	ND	**TR**	ND	ND	ND	ND
AK94-090	0.16	0.02	0.27	7.40	ND	**TR**	ND	ND	ND	ND
AK94-091	0.07	0.01	<0.05	2.90	ND	ND	ND	ND	ND	ND
AK94-092	0.1	0.02	0.06	4.00	ND	ND	ND	ND	ND	ND
AK94-093	0.11	0.03	0.07	1.00	ND	ND	ND	ND	ND	ND
AK94-094	0.1	0.02	0.08	2.50	ND	ND	ND	ND	ND	ND
AK94-095	0.11	0.02	0.08	7.60	ND	**TR**	ND	ND	ND	ND
AK94-096	0.08	0.02	0.07	4.30	ND	ND	ND	ND	ND	ND
AK94-097	0.1	0.02	0.08	5.30	ND	**TR**	ND	ND	ND	ND
AK94-098	0.11	0.05	0.1	3.80	ND	**TR**	ND	ND	ND	ND
AK94-099	0.07	0.02	0.05	11.00	ND	**TR**	ND	ND	ND	ND
AK94-101	0.04	0.03	0.12	2.80	ND	ND	ND	ND	ND	ND
AK94-102	0.06	0.02	0.08	9.90	ND	ND	ND	ND	ND	ND
AK94-103	0.07	0.01	0.09	4.90	ND	ND	ND	ND	ND	ND
AK94-104	0.08	0.01	0.09	12.80	ND	ND	ND	ND	ND	ND
AK94-105	0.04	0.04	0.06	2.10	ND	ND	ND	ND	ND	ND
AK94-106	0.06	0.02	0.05	1.80	ND	ND	ND	ND	ND	ND
AK94-107	0.07	0.02	0.06	16.30	ND	**TR**	ND	ND	ND	ND
AK94-108	0.08	0.02	0.06	39.10	ND	ND	ND	ND	ND	ND
AK94-109	0.03	0.02	0.02	5.30	ND	ND	ND	ND	ND	ND
AK94-110	0.06	0.02	0.02	2.90	ND	ND	ND	ND	ND	ND
AK94-111	0.05	0.03	0.02	1.50	ND	ND	ND	ND	ND	ND

	DL - Detection limit			DL	DL	DL	DL	DL	DL	DL
	ND - below detection limit of			0.5 mg/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
	chromium	barium	lead	Nitrate as N						
WELL ID	**Cr**	**Ba**	**Pb**	**NO3 - N**	**Alachlor**	**Atrazine**	**Benfluralin**	**Chlorpyrifos**	**Chlorothalonil**	**Cyanazine**
	mg/l	mg/l	mg/l							
AK94-112	0.06	0.02	<0.05	1.40	ND	ND	ND	ND	ND	ND
AK94-113	0.01	0.01	<0.05	0.90	ND	ND	ND	ND	ND	ND
AK94-114	0.07	0.01	<0.05	15.00	ND	ND	ND	ND	ND	ND
AK94-115	0.07	0.01	<0.05	4.90	ND	ND	ND	ND	ND	ND
AK94-116	0.06	0.02	<0.05	11.70	ND	ND	ND	ND	ND	ND
AK94-117	0.06	0.02	<0.05	5.40	ND	ND	ND	ND	ND	ND
AK94-118	0.04	0.02	<0.05	7.40	ND	ND	ND	ND	ND	ND
AK94-119	0.04	0.02	<0.05	4.50	ND	ND	ND	ND	ND	ND
AK94-121	0.07	0.02	<0.05	11.00	ND	ND	ND	ND	ND	ND
AK94-122	0.07	0.01	<0.05	8.50	ND	ND	ND	ND	ND	ND
AK94-123	0.04	0.02	<0.05	5.30	ND	ND	ND	ND	ND	ND
AK94-124	0.06	0.02	<0.05	3.70	ND	ND	ND	ND	ND	ND
AK94-125	0.02	0.02	<0.05	10.10	ND	ND	ND	ND	ND	ND
AK94-126	0.02	0.01	<0.05	3.20	ND	ND	ND	ND	ND	ND
AK94-127	0.01	0.01	<0.05	1.40	ND	ND	ND	ND	ND	ND
AK94-128	<0.01	0.04	<0.05	10.60	ND	ND	ND	ND	ND	ND
AK94-129	0.01	0.05	<0.05	3.10	ND	ND	ND	ND	ND	ND
AK94-130	0.08	0.03	0.15	2.30	ND	ND	ND	ND	ND	ND
AK94-131	0.07	0.02	0.13	3.00	ND	ND	ND	ND	ND	ND
AK94-132	0.11	0.02	0.16	5.50	ND	ND	ND	ND	ND	ND
AK94-133	0.08	0.02	0.11	2.00	ND	ND	ND	ND	ND	ND
AK94-134	0.11	0.03	0.15	1.30	ND	ND	ND	ND	ND	ND
AK94-135	0.1	0.02	0.18	1.60	ND	ND	ND	ND	ND	ND
AK94-136	0.13	0.03	0.16	7.70	ND	ND	ND	ND	ND	ND
AK94-137	0.15	0.02	0.19	13.20	ND	ND	ND	ND	ND	ND
AK94-138	0.09	0.07	0.16	3.60	ND	ND	ND	ND	ND	ND
AK94-139	0.18	0.03	0.23	14.80	ND	ND	ND	ND	ND	ND
AK94-140	0.12	0.02	0.18	19.90	ND	ND	ND	ND	ND	ND
AK94-141	0.14	0.02	0.11	8.50	ND	ND	ND	ND	ND	ND
AK94-142	0.09	0.02	0.07	13.50	ND	ND	ND	ND	ND	ND
AK94-143	0.02	0.01	<0.05	0.90	ND	ND	ND	ND	ND	ND
AK94-144	0.09	0.01	0.07	15.30	ND	ND	ND	ND	ND	ND
AK94-145	0.02	0.02	<0.05	0.60	ND	ND	ND	ND	ND	ND
AK94-146	0.01	0.02	<0.05	1.70	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
WELL ID	**p,p-DDT**	**Endrin**	**Heptachlor**	**Heptachlor epoxide**	**Lindane**	**Methoxychlor**	**Metolachlor**	**Metribuzin**	**Trifluralin**
AK94-001	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-002	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-003	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-004	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-005	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-006	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-007	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-008	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-009	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-011	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-012	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-013	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-014	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-015	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-016	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-017	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-018	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-018a	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-019	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-021	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-022	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-023	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-024	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-025	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-026	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-027	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-028	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-029	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-031	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-032	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-033	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-034	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-035	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-036	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-037	ND	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
WELL ID	**p,p-DDT**	**Endrin**	**Heptachlor**	**Heptachlor epoxide**	**Lindane**	**Methoxychlor**	**Metolachlor**	**Metribuzin**	**Trifluralin**
AK94-038	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-039	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-041	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-042	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-043	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-044	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-045	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-046	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-047	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-048	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-049	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-050	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-051	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-052	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-053	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-054	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-055	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-056	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-057	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-058	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-059	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-061	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-062	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-063	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-064	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-065	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-066	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-067	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-068	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-069	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-070	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-071	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-072	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-073	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-074	ND	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
WELL ID	**p,p-DDT**	**Endrin**	**Heptachlor**	**Heptachlor epoxide**	**Lindane**	**Methoxychlor**	**Metolachlor**	**Metribuzin**	**Trifluralin**
AK94-075	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-076	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-077	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-078	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-079	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-081	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-082	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-083	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-084	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-085	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-086	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-087	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-088	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-089	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-090	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-091	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-092	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-093	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-094	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-095	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-096	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-097	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-098	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-099	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-101	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-102	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-103	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-104	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-105	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-106	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-107	ND	ND	ND	ND	ND	ND	**TR**	ND	ND
AK94-108	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-109	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-110	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-111	ND	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L	0.5 ug/L
WELL ID	**p,p-DDT**	**Endrin**	**Heptachlor**	**Heptachlor epoxide**	**Lindane**	**Methoxychlor**	**Metolachlor**	**Metribuzin**	**Trifluralin**
AK94-112	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-113	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-114	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-115	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-116	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-117	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-118	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-119	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-121	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-122	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-123	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-124	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-125	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-126	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-127	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-128	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-129	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-130	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-131	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-132	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-133	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-134	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-135	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-136	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-137	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-138	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-139	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-140	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-141	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-142	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-143	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-144	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-145	ND	ND	ND	ND	ND	ND	ND	ND	ND
AK94-146	ND	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	2.0 ug/L	2.0 ug/L	2.0 ug/L	1.0 ug/L	2.0 ug/L	1.0 ug/L	1.0 ug/L
WELL ID	**Velpar**	**Aldicarb Sulfoxide**	**Aldicarb Sulfone**	**Oxamyl**	**Methomyl**	**3-Hrdroxycarbofuran**	**Aldicarb**	**Baygon**
AK94-001	ND	ND	ND	ND	ND	ND	ND	ND
AK94-002	ND	ND	ND	ND	ND	ND	ND	ND
AK94-003	ND	ND	ND	ND	ND	ND	ND	ND
AK94-004	ND	ND	ND	ND	ND	ND	ND	ND
AK94-005	ND	ND	ND	ND	ND	ND	ND	ND
AK94-006	ND	ND	ND	ND	ND	ND	ND	ND
AK94-007	ND	ND	ND	ND	ND	ND	ND	ND
AK94-008	ND	ND	ND	ND	ND	ND	ND	ND
AK94-009	ND	ND	ND	ND	ND	ND	ND	ND
AK94-011	ND	ND	ND	ND	ND	ND	ND	ND
AK94-012	ND	ND	ND	ND	ND	ND	ND	ND
AK94-013	ND	ND	ND	ND	ND	ND	ND	ND
AK94-014	ND	ND	ND	ND	ND	ND	ND	ND
AK94-015	ND	ND	ND	ND	ND	ND	ND	ND
AK94-016	ND	ND	ND	ND	ND	ND	ND	ND
AK94-017	ND	ND	ND	ND	ND	ND	ND	ND
AK94-018	ND	ND	ND	ND	ND	ND	ND	ND
AK94-018a	ND	ND	ND	ND	ND	ND	ND	ND
AK94-019	ND	ND	ND	ND	ND	ND	ND	ND
AK94-021	ND	ND	ND	ND	ND	ND	ND	ND
AK94-022	ND	ND	ND	ND	ND	ND	ND	ND
AK94-023	ND	ND	ND	ND	ND	ND	ND	ND
AK94-024	ND	ND	ND	ND	ND	ND	ND	ND
AK94-025	ND	ND	ND	ND	ND	ND	ND	ND
AK94-026	ND	ND	ND	ND	ND	ND	ND	ND
AK94-027	ND	ND	ND	ND	ND	ND	ND	ND
AK94-028	ND	ND	ND	ND	ND	ND	ND	ND
AK94-029	ND	ND	ND	ND	ND	ND	ND	ND
AK94-031	ND	ND	ND	ND	ND	ND	ND	ND
AK94-032	ND	ND	ND	ND	ND	ND	ND	ND
AK94-033	ND	ND	ND	ND	ND	ND	ND	ND
AK94-034	ND	ND	ND	ND	ND	ND	ND	ND
AK94-035	ND	ND	ND	ND	ND	ND	ND	ND
AK94-036	ND	ND	ND	ND	ND	ND	ND	ND
AK94-037	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	2.0 ug/L	2.0 ug/L	2.0 ug/L	1.0 ug/L	2.0 ug/L	1.0 ug/L	1.0 ug/L
WELL ID	**Velpar**	**Aldicarb Sulfoxide**	**Aldicarb Sulfone**	**Oxamyl**	**Methomyl**	**3-Hrdroxycarbofuran**	**Aldicarb**	**Baygon**
AK94-038	ND	ND	ND	ND	ND	ND	ND	ND
AK94-039	ND	ND	ND	ND	ND	ND	ND	ND
AK94-041	ND	ND	ND	ND	ND	ND	ND	ND
AK94-042	ND	ND	ND	ND	ND	ND	ND	ND
AK94-043	ND	ND	ND	ND	ND	ND	ND	ND
AK94-044	ND	ND	ND	ND	ND	ND	ND	ND
AK94-045	ND	ND	ND	ND	ND	ND	ND	ND
AK94-046	ND	ND	ND	ND	ND	ND	ND	ND
AK94-047	ND	ND	ND	ND	ND	ND	ND	ND
AK94-048	ND	ND	ND	ND	ND	ND	ND	ND
AK94-049	ND	ND	ND	ND	ND	ND	ND	ND
AK94-050	ND	ND	ND	ND	ND	ND	ND	ND
AK94-051	ND	ND	ND	ND	ND	ND	ND	ND
AK94-052	ND	ND	ND	ND	ND	ND	ND	ND
AK94-053	ND	ND	ND	ND	ND	ND	ND	ND
AK94-054	ND	ND	ND	ND	ND	ND	ND	ND
AK94-055	ND	ND	ND	ND	ND	ND	ND	ND
AK94-056	ND	ND	ND	ND	ND	ND	ND	ND
AK94-057	ND	ND	ND	ND	ND	ND	ND	ND
AK94-058	ND	ND	ND	ND	ND	ND	ND	ND
AK94-059	ND	ND	ND	ND	ND	ND	ND	ND
AK94-061	ND	ND	ND	ND	ND	ND	ND	ND
AK94-062	ND	ND	ND	ND	ND	ND	ND	ND
AK94-063	ND	ND	ND	ND	ND	ND	ND	ND
AK94-064	ND	ND	ND	ND	ND	ND	ND	ND
AK94-065	ND	ND	ND	ND	ND	ND	ND	ND
AK94-066	ND	ND	ND	ND	ND	ND	ND	ND
AK94-067	ND	ND	ND	ND	ND	ND	ND	ND
AK94-068	ND	ND	ND	ND	ND	ND	ND	ND
AK94-069	ND	ND	ND	ND	ND	ND	ND	ND
AK94-070	ND	ND	ND	ND	ND	ND	ND	ND
AK94-071	ND	ND	ND	ND	ND	ND	ND	ND
AK94-072	ND	ND	ND	ND	ND	ND	ND	ND
AK94-073	ND	ND	ND	ND	ND	ND	ND	ND
AK94-074	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	2.0 ug/L	2.0 ug/L	2.0 ug/L	1.0 ug/L	2.0 ug/L	1.0 ug/L	1.0 ug/L
WELL ID	**Velpar**	**Aldicarb Sulfoxide**	**Aldicarb Sulfone**	**Oxamyl**	**Methomyl**	**3-Hrdroxycarbofuran**	**Aldicarb**	**Baygon**
AK94-075	ND	ND	ND	ND	ND	ND	ND	ND
AK94-076	ND	ND	ND	ND	ND	ND	ND	ND
AK94-077	ND	ND	ND	ND	ND	ND	ND	ND
AK94-078	ND	ND	ND	ND	ND	ND	ND	ND
AK94-079	ND	ND	ND	ND	ND	ND	ND	ND
AK94-081	ND	ND	ND	ND	ND	ND	ND	ND
AK94-082	ND	ND	ND	ND	ND	ND	ND	ND
AK94-083	ND	ND	ND	ND	ND	ND	ND	ND
AK94-084	ND	ND	ND	ND	ND	ND	ND	ND
AK94-085	ND	ND	ND	ND	ND	ND	ND	ND
AK94-086	ND	ND	ND	ND	ND	ND	ND	ND
AK94-087	ND	ND	ND	ND	ND	ND	ND	ND
AK94-088	ND	ND	ND	ND	ND	ND	ND	ND
AK94-089	ND	ND	ND	ND	ND	ND	ND	ND
AK94-090	ND	ND	ND	ND	ND	ND	ND	ND
AK94-091	ND	ND	ND	ND	ND	ND	ND	ND
AK94-092	ND	ND	ND	ND	ND	ND	ND	ND
AK94-093	ND	ND	ND	ND	ND	ND	ND	ND
AK94-094	ND	ND	ND	ND	ND	ND	ND	ND
AK94-095	ND	ND	ND	ND	ND	ND	ND	ND
AK94-096	ND	ND	ND	ND	ND	ND	ND	ND
AK94-097	ND	ND	ND	ND	ND	ND	ND	ND
AK94-098	ND	ND	ND	ND	ND	ND	ND	ND
AK94-099	ND	ND	ND	ND	ND	ND	ND	ND
AK94-101	ND	ND	ND	ND	ND	ND	ND	ND
AK94-102	ND	ND	ND	ND	ND	ND	ND	ND
AK94-103	ND	ND	ND	ND	ND	ND	ND	ND
AK94-104	ND	ND	ND	ND	ND	ND	ND	ND
AK94-105	ND	ND	ND	ND	ND	ND	ND	ND
AK94-106	ND	ND	ND	ND	ND	ND	ND	ND
AK94-107	ND	ND	ND	ND	ND	ND	ND	ND
AK94-108	ND	ND	ND	ND	ND	ND	ND	ND
AK94-109	ND	ND	ND	ND	ND	ND	ND	ND
AK94-110	ND	ND	ND	ND	ND	ND	ND	ND
AK94-111	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL	DL
	0.5 ug/L	2.0 ug/L	2.0 ug/L	2.0 ug/L	1.0 ug/L	2.0 ug/L	1.0 ug/L	1.0 ug/L
WELL ID	**Velpar**	**Aldicarb Sulfoxide**	**Aldicarb Sulfone**	**Oxamyl**	**Methomyl**	**3-Hrdroxycarbofuran**	**Aldicarb**	**Baygon**
AK94-112	ND	ND	ND	ND	ND	ND	ND	ND
AK94-113	ND	ND	ND	ND	ND	ND	ND	ND
AK94-114	ND	ND	ND	ND	ND	ND	ND	ND
AK94-115	ND	ND	ND	ND	ND	ND	ND	ND
AK94-116	ND	ND	ND	ND	ND	ND	ND	ND
AK94-117	ND	ND	ND	ND	ND	ND	ND	ND
AK94-118	ND	ND	ND	ND	ND	ND	ND	ND
AK94-119	ND	ND	ND	ND	ND	ND	ND	ND
AK94-121	ND	ND	ND	ND	ND	ND	ND	ND
AK94-122	ND	ND	ND	ND	ND	ND	ND	ND
AK94-123	ND	ND	ND	ND	ND	ND	ND	ND
AK94-124	ND	ND	ND	ND	ND	ND	ND	ND
AK94-125	ND	ND	ND	ND	ND	ND	ND	ND
AK94-126	ND	ND	ND	ND	ND	ND	ND	ND
AK94-127	ND	ND	ND	ND	ND	ND	ND	ND
AK94-128	ND	ND	ND	ND	ND	ND	ND	ND
AK94-129	ND	ND	ND	ND	ND	ND	ND	ND
AK94-130	ND	ND	ND	ND	ND	ND	ND	ND
AK94-131	ND	ND	ND	ND	ND	ND	ND	ND
AK94-132	ND	ND	ND	ND	ND	ND	ND	ND
AK94-133	ND	ND	ND	ND	ND	ND	ND	ND
AK94-134	ND	ND	ND	ND	ND	ND	ND	ND
AK94-135	ND	ND	ND	ND	ND	ND	ND	ND
AK94-136	ND	ND	ND	ND	ND	ND	ND	ND
AK94-137	ND	ND	ND	ND	ND	ND	ND	ND
AK94-138	ND	ND	ND	ND	ND	ND	ND	ND
AK94-139	ND	ND	ND	ND	ND	ND	ND	ND
AK94-140	ND	ND	ND	ND	ND	ND	ND	ND
AK94-141	ND	ND	ND	ND	ND	ND	ND	ND
AK94-142	ND	ND	ND	ND	ND	ND	ND	ND
AK94-143	ND	ND	ND	ND	ND	ND	ND	ND
AK94-144	ND	ND	ND	ND	ND	ND	ND	ND
AK94-145	ND	ND	ND	ND	ND	ND	ND	ND
AK94-146	ND	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL
	1.5 ug/L	2.0 ug/L	4.0 ug/L	0.2 ug/L	0.1 ug/L	2.0 ug/L	2.0 ug/L
WELL ID	**Carbofuran**	**Carbaryl**	**Methiocarb**	**2,4-D**	**Dicamba**	**MCPP**	**MCPA**
AK94-001	ND	ND	ND	ND	ND	ND	ND
AK94-002	ND	ND	ND	ND	ND	ND	ND
AK94-003	ND	ND	ND	ND	ND	ND	ND
AK94-004	ND	ND	ND	ND	ND	ND	ND
AK94-005	ND	ND	ND	ND	ND	ND	ND
AK94-006	ND	ND	ND	ND	ND	ND	ND
AK94-007	ND	ND	ND	ND	ND	ND	ND
AK94-008	ND	ND	ND	ND	ND	ND	ND
AK94-009	ND	ND	ND	ND	ND	ND	ND
AK94-011	ND	ND	ND	ND	ND	ND	ND
AK94-012	ND	ND	ND	ND	ND	ND	ND
AK94-013	ND	ND	ND	ND	ND	ND	ND
AK94-014	ND	ND	ND	ND	ND	ND	ND
AK94-015	ND	ND	ND	ND	ND	ND	ND
AK94-016	ND	ND	ND	ND	ND	ND	ND
AK94-017	ND	ND	ND	ND	ND	ND	ND
AK94-018	ND	ND	ND	ND	ND	ND	ND
AK94-018a	ND	ND	ND	ND	ND	ND	ND
AK94-019	ND	ND	ND	ND	ND	ND	ND
AK94-021	ND	ND	ND	ND	ND	ND	ND
AK94-022	ND	ND	ND	ND	ND	ND	ND
AK94-023	ND	ND	ND	ND	ND	ND	ND
AK94-024	ND	ND	ND	ND	ND	ND	ND
AK94-025	ND	ND	ND	ND	ND	ND	ND
AK94-026	ND	ND	ND	ND	ND	ND	ND
AK94-027	ND	ND	ND	ND	ND	ND	ND
AK94-028	ND	ND	ND	ND	ND	ND	ND
AK94-029	ND	ND	ND	ND	ND	ND	ND
AK94-031	ND	ND	ND	ND	ND	ND	ND
AK94-032	ND	ND	ND	ND	ND	ND	ND
AK94-033	ND	ND	ND	ND	ND	ND	ND
AK94-034	ND	ND	ND	ND	ND	ND	ND
AK94-035	ND	ND	ND	ND	ND	ND	ND
AK94-036	ND	ND	ND	ND	ND	ND	ND
AK94-037	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL
	1.5 ug/L	2.0 ug/L	4.0 ug/L	0.2 ug/L	0.1 ug/L	2.0 ug/L	2.0 ug/L
WELL ID	**Carbofuran**	**Carbaryl**	**Methiocarb**	**2,4-D**	**Dicamba**	**MCPP**	**MCPA**
AK94-038	ND	ND	ND	ND	ND	ND	ND
AK94-039	ND	ND	ND	ND	ND	ND	ND
AK94-041	ND	ND	ND	ND	ND	ND	ND
AK94-042	ND	ND	ND	ND	ND	ND	ND
AK94-043	ND	ND	ND	ND	ND	ND	ND
AK94-044	ND	ND	ND	ND	ND	ND	ND
AK94-045	ND	ND	ND	ND	ND	ND	ND
AK94-046	ND	ND	ND	ND	ND	ND	ND
AK94-047	ND	ND	ND	ND	ND	ND	ND
AK94-048	ND	ND	ND	ND	ND	ND	ND
AK94-049	ND	ND	ND	ND	ND	ND	ND
AK94-050	ND	ND	ND	ND	ND	ND	ND
AK94-051	ND	ND	ND	ND	ND	ND	ND
AK94-052	ND	ND	ND	ND	ND	ND	ND
AK94-053	ND	ND	ND	ND	ND	ND	ND
AK94-054	ND	ND	ND	ND	ND	ND	ND
AK94-055	ND	ND	ND	ND	ND	ND	ND
AK94-056	ND	ND	ND	ND	ND	ND	ND
AK94-057	ND	ND	ND	ND	ND	ND	ND
AK94-058	ND	ND	ND	ND	ND	ND	ND
AK94-059	ND	ND	ND	ND	ND	ND	ND
AK94-061	ND	ND	ND	ND	ND	ND	ND
AK94-062	ND	ND	ND	ND	ND	ND	ND
AK94-063	ND	ND	ND	ND	ND	ND	ND
AK94-064	ND	ND	ND	ND	ND	ND	ND
AK94-065	ND	ND	ND	ND	ND	ND	ND
AK94-066	ND	ND	ND	ND	ND	ND	ND
AK94-067	ND	ND	ND	ND	ND	ND	ND
AK94-068	ND	ND	ND	ND	ND	ND	ND
AK94-069	ND	ND	ND	ND	ND	ND	ND
AK94-070	ND	ND	ND	ND	ND	ND	ND
AK94-071	ND	ND	ND	ND	ND	ND	ND
AK94-072	ND	ND	ND	ND	ND	ND	ND
AK94-073	ND	ND	ND	ND	ND	ND	ND
AK94-074	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL
	1.5 ug/L	2.0 ug/L	4.0 ug/L	0.2 ug/L	0.1 ug/L	2.0 ug/L	2.0 ug/L
WELL ID	**Carbofuran**	**Carbaryl**	**Methiocarb**	**2,4-D**	**Dicamba**	**MCPP**	**MCPA**
AK94-075	ND	ND	ND	ND	ND	ND	ND
AK94-076	ND	ND	ND	ND	ND	ND	ND
AK94-077	ND	ND	ND	ND	ND	ND	ND
AK94-078	ND	ND	ND	ND	ND	ND	ND
AK94-079	ND	ND	ND	ND	ND	ND	ND
AK94-081	ND	ND	ND	ND	ND	ND	ND
AK94-082	ND	ND	ND	ND	ND	ND	ND
AK94-083	ND	ND	ND	ND	ND	ND	ND
AK94-084	ND	ND	ND	ND	ND	ND	ND
AK94-085	ND	ND	ND	ND	ND	ND	ND
AK94-086	ND	ND	ND	ND	ND	ND	ND
AK94-087	ND	ND	ND	**0.4**	ND	ND	ND
AK94-088	ND	ND	ND	ND	ND	ND	ND
AK94-089	ND	ND	ND	ND	ND	ND	ND
AK94-090	ND	ND	ND	ND	ND	ND	ND
AK94-091	ND	ND	ND	ND	ND	ND	ND
AK94-092	ND	ND	ND	ND	ND	ND	ND
AK94-093	ND	ND	ND	ND	ND	ND	ND
AK94-094	ND	ND	ND	ND	ND	ND	ND
AK94-095	ND	ND	ND	ND	ND	ND	ND
AK94-096	ND	ND	ND	ND	ND	ND	ND
AK94-097	ND	ND	ND	ND	ND	ND	ND
AK94-098	ND	ND	ND	ND	ND	ND	ND
AK94-099	ND	ND	ND	ND	ND	ND	ND
AK94-101	ND	ND	ND	ND	ND	ND	ND
AK94-102	ND	ND	ND	ND	ND	ND	ND
AK94-103	ND	ND	ND	ND	ND	ND	ND
AK94-104	ND	ND	ND	ND	ND	ND	ND
AK94-105	ND	ND	ND	ND	ND	ND	ND
AK94-106	ND	ND	ND	ND	ND	ND	ND
AK94-107	ND	ND	ND	ND	ND	ND	ND
AK94-108	ND	ND	ND	ND	ND	ND	ND
AK94-109	ND	ND	ND	ND	ND	ND	ND
AK94-110	ND	ND	ND	ND	ND	ND	ND
AK94-111	ND	ND	ND	ND	ND	ND	ND

	DL	DL	DL	DL	DL	DL	DL
	1.5 ug/L	2.0 ug/L	4.0 ug/L	0.2 ug/L	0.1 ug/L	2.0 ug/L	2.0 ug/L
WELL ID	**Carbofuran**	**Carbaryl**	**Methiocarb**	**2,4-D**	**Dicamba**	**MCPP**	**MCPA**
AK94-112	ND	ND	ND	ND	ND	ND	ND
AK94-113	ND	ND	ND	ND	ND	ND	ND
AK94-114	ND	ND	ND	ND	ND	ND	ND
AK94-115	ND	ND	ND	ND	ND	ND	ND
AK94-116	ND	ND	ND	ND	ND	ND	ND
AK94-117	ND	ND	ND	ND	ND	ND	ND
AK94-118	ND	ND	ND	ND	ND	ND	ND
AK94-119	ND	ND	ND	ND	ND	ND	ND
AK94-121	ND	ND	ND	ND	ND	ND	ND
AK94-122	ND	ND	ND	ND	ND	ND	ND
AK94-123	ND	ND	ND	ND	ND	ND	ND
AK94-124	ND	ND	ND	ND	ND	ND	ND
AK94-125	ND	ND	ND	ND	ND	ND	ND
AK94-126	ND	ND	ND	ND	ND	ND	ND
AK94-127	ND	ND	ND	ND	ND	ND	ND
AK94-128	ND	ND	ND	ND	ND	ND	ND
AK94-129	ND	ND	ND	ND	ND	ND	ND
AK94-130	ND	ND	ND	ND	ND	ND	ND
AK94-131	ND	ND	ND	ND	ND	ND	ND
AK94-132	ND	ND	ND	ND	ND	ND	ND
AK94-133	ND	ND	ND	ND	ND	ND	ND
AK94-134	ND	ND	ND	ND	ND	ND	ND
AK94-135	ND	ND	ND	ND	ND	ND	ND
AK94-136	ND	ND	ND	ND	ND	ND	ND
AK94-137	ND	ND	ND	ND	ND	ND	ND
AK94-138	ND	ND	ND	ND	ND	ND	ND
AK94-139	ND	ND	ND	ND	ND	ND	ND
AK94-140	ND	ND	ND	ND	ND	ND	ND
AK94-141	ND	ND	ND	ND	ND	ND	ND
AK94-142	ND	ND	ND	ND	ND	ND	ND
AK94-143	ND	ND	ND	ND	ND	ND	ND
AK94-144	ND	ND	ND	ND	ND	ND	ND
AK94-145	ND	ND	ND	ND	ND	ND	ND
AK94-146	ND	ND	ND	ND	ND	ND	ND