

State of Delaware
DELAWARE GEOLOGICAL SURVEY

Robert R. Jordan, State Geologist

OPEN FILE REPORT NO. 33

**GROUND-WATER LEVEL
AND CHEMISTRY DATA FROM THE
COASTAL SUSSEX COUNTY, DELAWARE,
GROUND-WATER QUALITY SURVEY**

By

A. Scott Andres

University of Delaware
Newark, Delaware

April 1991

CONTENTS

INTRODUCTION.....	Page 1
WATER QUALITY DATA COLLECTION METHODS.....	1
Sampling and field analytical methods.....	1
Laboratory notes.....	1
Quality assurance.....	4
REFERENCES CITED.....	4

ILLUSTRATIONS

Figure 1.	Map showing locations of wells sampled.....	Page 2
2.	Hydrographs for wells Oi22-05, -07, -08; Oi32-01, -02, -13.....	21
3.	Hydrographs for wells Oi32-04, -05, -06; Oi32-10, -11, -12.....	23
4.	Hydrographs for wells Oi43-05, -06, -07; Ph22-17, -18, -19.....	25
5.	Hydrographs for wells Ph42-03, -04, -05; Qh15-04, -06, -07.....	27
6.	Hydrographs for wells Qh34-02, -03, -04; Qh55-03, -04, -05.....	29
7.	Hydrographs for wells Qi31-03, -04, -05.....	31

TABLES

Table 1.	Statistical summary of water-quality data.....	Page 3
2.	Water-quality data from selected monitoring and domestic wells.....	5
3.	Water-quality data from domestic and agricultural wells.....	11
4.	Water-quality data from selected public supply wells.....	16
5.	Ground-water levels from wells Nh45-02, -03, -04, -05, -06, -10, -11, -12.....	18
6.	Ground-water levels from wells Nh45-13, -14, -15, -16, -17; Nh55-01, -02, -03.....	19
7.	Ground-water levels from wells Oi22-05, -07, -08; Oi32-01, -02, -13.....	20
8.	Ground-water levels from wells Oi32-04, -05, -06, -07, -08, -09, -10, -11, -12.....	22
9.	Ground-water levels from wells Oi43-05, -06, -07; Ph22-17, -18, -19.....	24
10.	Ground-water levels from wells Ph42-03, -04, -05; Qh15-04, -06, -07.....	26
11.	Ground-water levels from wells Qh34-02, -03, -04; Qh55-03, -04, -05.....	28
12.	Ground-water levels from wells Qi31-03, -04, -05.....	30

INTRODUCTION

This report contains the supporting ground-water level and chemistry data and the data collection methodology for Delaware Geological Survey Report of Investigations No. 49, "Results of the Coastal Sussex County, Delaware, Ground-Water Quality Survey" (Andres, 1991). Because raw data are commonly requested, they are published here in open-file format to accommodate those needing it for further analysis.

Figure 1 shows the locations of the wells sampled during this study and the Delaware Geological Survey (DGS) 5-minute well numbering grid for the study area. The DGS well numbering system is described by Talley and Windish (1984). Well locations plotted on 1:24,000-scale base maps are available at the DGS offices. Table 1 contains a brief statistical summary of the water-quality data. Tables 2 through 4 contain the water-quality data from the analyses of well samples. Tables 5 through 12 and figures 2 through 7 contain ground-water level data and hydrographs. The water-quality and water-level data are identified by the Delaware Geological Survey well number (DGSID) and the date collected.

WATER-QUALITY DATA COLLECTION METHODS

Sampling and Field Analytical Methods

Samples for water-quality analyses were collected by personnel from three separate agencies, Delaware Geological Survey (DGS), U. S. Geological Survey (USGS), and Delaware Division of Public Health (DPH). All samples from domestic and agricultural wells were collected by the DGS. Monitoring wells were sampled by the DGS and USGS. Public wells were sampled by DPH.

For monitoring wells sampled by the DGS, a minimum of either three to five times the volume of water in the well or approximately 50 gallons of water were removed by pumping with a gasoline-powered suction pump. In some wells, it was necessary to pump more water in order to clear the discharge of fine-grained material. When temperature, pH, and specific conductance stabilized, the discharge was free of fine-grained material, and if a representative temperature was observed, the pump discharge was sampled. The wells that yielded less than two gallons per minute (gpm) were bail sampled after pumping. Samples for dissolved oxygen and isotope analyses were collected with a point-source bail sampler. Sampling equipment (except pump) was rinsed thoroughly with distilled water and water from the well being sampled to minimize the chances of cross-contaminating samples.

Field measurements of pH and temperature were made with a Cole-Parmer 5985-80 meter; specific conductance was measured with a YSI model 33 meter. Meters were calibrated with reference solutions on a regular basis. Dissolved oxygen was determined in the field using the modified Winkler method (Hach Co., 1985). The use of brand names in this report does not constitute endorsement by the DGS.

Samples for laboratory analyses were collected in new polyethylene bottles and packed in ice. Duplicate samples were also collected at each well. Nitrate samples were preserved in the field (to pH 2) with concentrated sulfuric acid. Metals samples were preserved in the field (to pH 2) with concentrated nitric acid. Samples were transported to the laboratory within 24 hours. Samples held overnight were kept in a refrigerator at 2° C.

The sample collection procedure for domestic and agricultural wells was slightly different from that used for monitoring wells in that the sample was collected from the existing water system. In almost all cases, water from the tap closest to the pump and before treatment was sampled. The standard procedure was to measure the discharge rate and monitor water temperature, pH, and specific conductance until they stabilized and a representative water temperature was observed. Samples were collected, preserved, and transported to the laboratory in a manner similar to monitoring well samples.

Some of the analyses from monitoring wells sampled by the USGS (Ph12-05, -06, -08, -09; Ph13-03, -04, -14, -16, -18, -23, -25, -28, -29, -30, -31; Ph21-07; Ph22-08, -09, -10, -11, -12, -13, -15; Ph23-08, -10, -12, -14) were reported by James et al. (1989, 1990) and are not repeated in this report. Samples from public wells were collected by the Division of Public Health using internally established procedures.

Results of analyses of samples taken from selected public supply wells were obtained from the records of the Delaware Division of Public Health. When available, results from two successive years were acquired. In all cases the sample was collected before any type of water treatment. In almost all cases, samples were collected at the well head. Well construction details were obtained for all wells included in the study.

Laboratory Notes

Water-quality analyses were done by five laboratories: Artesian Laboratories, Inc. (ALI); Delaware Division of Public Health (DPH) (public supply wells only); University of Delaware, College of Marine Studies (UDCMS); USGS Denver Laboratory; and the DGS. The analytical methods for some of the chemical constituents (nitrate, chloride, sulfate, iron) used by the laboratories were not always the same. In order to assess the reliability of data from any laboratory several checks were completed. In some cases replicate samples were analyzed by different laboratories (e.g., DGS and ALI, ALI and UDCMS). In other cases results were compared to results of field tests from the same sample or to previous and subsequent samples. When analytical methods were markedly different and these checks indicated a problem, the data

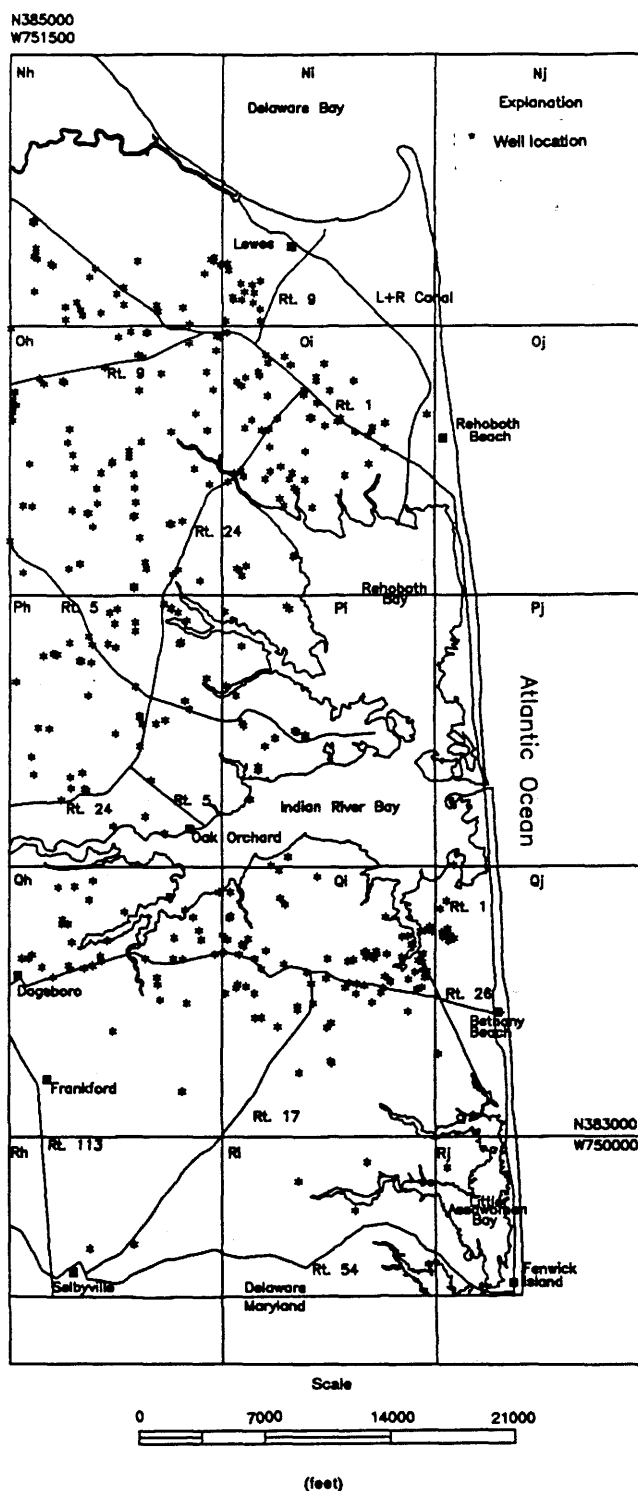


Figure 1. Map showing locations of wells sampled.

Table 1. Statistical summary of water-quality data.

Well Type	Water Level ft bls	Flow Rate gpm	Temp. deg. C	pH	Spec. Cond. umho	Dis- solved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fe total mg/l
DOMESTIC																		
Number of Samples	--	273	287	303	302	--	289	295	300	90	281	281	--	--	--	--	--	--
Minimum	--	1	7.6	4.23	40	--	<1	1	<0.5	26	20	25	--	--	--	--	--	--
Maximum	--	60	23	7.37	14000	--	188	9875	34	11000	130	140	--	--	--	--	--	--
Mean	--	5.64	15.19	5.48	192.84	--	10.07	58.48	6.33	264.10	62.88	70.12	--	--	--	--	--	--
Median	--	5	15.2	5.51	105	--	6	15	4.8	100	60	68	--	--	--	--	--	--
Variance	--	15.4544	1.6078	0.2007	739231.90	--	308.8717	332134.19	36.7827	1329730.18	259.3719	265.6153	--	--	--	--	--	--
MONITORING																		
Number of Samples	81	81	81	81	62	74	80	80	80	51	81	81	84	80	78	79	80	80
Minimum	0.00	<0.1	11.35	4.1	62	<0.5	<1	7.3	<0.5	57	2	7	<1	0.65	2.85	0.6	1.45	<0.003
Maximum	22.02	60	18.75	7.51	9910	11.6	133	2496.9514	33	700	88	100	900	45	2906	390	260	80
Mean	8.71	5.30	14.71	5.32	526.06	5.93	12.06	79.04	9.71	148.16	36.92	42.56	32.12	4.45	52.64	11.56	15.60	2.53
Median	8.61	1.64	14.5	5.2225	120.25	6.9	5.66	18.0833	7.6	120.66666	32	39	14.73847	2.46666	10.5	6.1	8.4	0.037
Variance	27.3798	109.6158	1.1211	0.3583	2328065.72	8.8727	617.6654	126615.7628	76.5173	9127.5294	607.5241	672.2866	11606.87	45.6720	113461.56	2007.09	931.14	42.7404
PUBLIC																		
Number of Samples	--	--	--	58	--	--	59	57	61	49	58	60	--	--	52	--	--	51
Minimum	--	--	--	5.2	--	--	5.5	10	<0.5	46	25	35	--	--	6.5	--	--	<0.01
Maximum	--	--	--	7.3	--	--	152	101	14	271.5	125	147	--	--	85	--	--	4.17
Mean	--	--	--	6.0200	--	--	16.9400	24.6754	5.1000	104.0612	75.7000	93.2000	--	--	13.2800	--	--	0.2860
Median	--	--	--	5.95	--	--	12	20	5.65	94.5	82	97	--	--	11	--	--	<0.01
Variance	--	--	--	0.1563	--	--	540.8074	322.4780	12.2188	1658.9040	434.7934	584.3600	--	--	112.8597	--	--	0.892316
ALL																		
Number of Samples	--	354	368	442	364	--	428	432	441	190	420	422	--	--	130	--	--	131
Minimum	--	0.00	7.6	4.1	40	--	<1	1	<0.5	26	2	7	--	--	2.85	--	--	<0.003
Maximum	--	60	23	7.51	14600	--	188	9875	34	11000	130	147	--	--	2906	--	--	80
Mean	--	5.56	15.08	5.52	249.59	--	11.39	57.83	6.76	193.01	59.59	68.10	--	--	37.1527	--	--	1.653531
Median	--	5	15	5.53	110	--	7	16	5.60	110	60	68	--	--	10.35	--	--	0.025
Variance	--	37.0206	1.5398	0.2646	1025548.72	--	405.0832	250523.1186	42.7778	637820.8099	493.5592	607.6598	--	--	65252.17	--	--	72.43311
Standard Deviation	--	6.0845	1.2409	0.5144	1012.69	--	20.1267	500.5228	6.5405	798.6368	22.2162	24.6508	--	--	255.4450	--	--	8.510764

Notes:

Multiple samples from any well have been averaged.

Includes selected data reported in James et al. (1989, 1990).

Sulfate and metals results from domestic wells are included in the monitoring well data set.

mg/l = milligrams per liter, ft bls = feet below land surface, umho = micromhos, deg C = degrees Celsius, gpm = gallons per minute

All analyses with the result non-detectable are treated as 0 s in calculations.

were not used (e.g., specific conductance and dissolved solids measured by USGS, and pH measured by DPH).

The DPH and ALI laboratories used the testing and quality control methods described by the U. S. Environmental Protection Agency (U. S. EPA, 1983) and participate in the U. S. EPA and State laboratory certification programs. The USGS laboratory follows analytical and quality control methods described by Skougstad et al. (1979).

The UDCMS laboratory, supervised by William Ullman, performed analyses for chloride, sulfate, and nitrate (prior to October 1988) by suppressed anion chromatography with a Dionex Model 4000i ion chromatograph using a bicarbonate - carbonate eluent. Nitrate analyses done after October 1988 were analyzed by the automated cadmium-reduction method. Alkalinity and chloride titrations were performed in the DGS laboratory using a Hach Company digital titrator and manufacturer-standardized titrant cartridges (Hach Company, 1985). Alkalinity analyses were performed within 24 hours of sample collection. Chloride analyses were always performed within 48 hours of sample collection and usually within 24 hours. Geochron Laboratories, Cambridge, Massachusetts, performed isotopic analyses.

Quality Assurance

Several quality assurance steps were employed to check the reliability of laboratory and sample-collection procedures. Laboratory results were first checked by comparing results to other samples from the area and to field-measured constituents. Replicate samples were retested if the reported results did not appear to be representative. Blind replicate samples also were analyzed for nitrate and chloride. The accuracy of the DGS laboratory chloride analyses was checked by having duplicate analyses of replicate samples done by ALI. The effect of holding time on reported nitrate concentration was also checked. Replicate samples of unpreserved, refrigerated samples were retested at time intervals ranging from one to four weeks. The results of statistical comparisons show that there are no differences between laboratories for both chloride and nitrate replicate samples. The results of laboratory comparisons are available from the author.

REFERENCES CITED

- Andres, A. S., 1991, Results of the coastal Sussex County, Delaware, ground-water quality survey: Delaware Geological Survey Report of Investigations No. 49, 28 p.
- Hach Company, 1985, Digital titrator methods manual, Loveland, Colorado, Hach Company, 65 p.
- James, R. W., Simmons, R. H., Strain, B. F., and Smigaj, M. J., 1989, Water resources data Maryland and Delaware Water Year 1988: U. S. Geological Survey Water-Data Report MD-DE-88-1, 590 p.
- _____, 1990, Water resources data Maryland and Delaware Water Year 1989: U. S. Geological Survey Water-Data Report MD-DE-89-1, 587 p.
- Skougstad, M. W., Fishman, M. J., Friedman, L. C., Erdmann, D. E., and Duncan, S. S., 1979, Methods for determination of inorganic substances in water and fluvial sediments: U. S. Geological Survey Techniques of Water-Resources Investigations, Book 5, Chapter A1, 626 p.
- Talley, J. H., and Windish, D. C., 1984, Instructions for preparation of DGS data base schedules: Delaware Geological Survey Special Publication No. 11, 119 p.
- U. S. EPA, 1983, Methods for chemical analysis of water and waste: U. S. EPA, EPA600/4-79-020, 460 p.

Table 2. Water-quality data from selected monitoring and domestic wells.

Well DGSID	Date yrmmdd	Water level ft b/s	Flow rate gpm	Temp. deg C	pH	Spec. Cond. umho	Diss- olved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fe total dissolved mg/l	Dissolved Solids mg/l	Well type	Screen top ft b/s	Screen bottom ft b/s
NH45-02	871201	10.16	3.3	14.0	5.80	96	<0.1	29	23	<0.05	1	--	--	--	--	--	--	M	24	29
NH45-02	880304	9.58	4.5	14.0	6.30	65	1.6	4	18	<0.05	8	1.29	12	1.3	3.3	6.3	83	M	24	29
NH45-02	880614	10.28	3.0	14.1	6.17	93	<0.1	31	17	<0.05	<1	1.32	13	1.4	3.4	6.5	--	M	24	29
NH45-02	881026	10.60	5.0	13.2	5.90	90	<0.1	31	17	<0.05	<1	1.1	12	1.3	3.3	6.1	94	M	24	29
NH45-02	890405	8.78	2.6	13.6	6.06	93	--	--	17	<0.05	<1	--	--	--	--	--	--	M	24	29
NH45-03	871201	8.65	3.7	13.4	5.10	77	5.31	16	16	0.50	7	--	--	--	--	--	--	M	40	45
NH45-03	880304	8.07	5.0	13.0	6.30	55	4.7	6	16	0.90	11	1.67	12	1.2	2.3	0.29	80	M	40	45
NH45-03	880614	8.72	4.0	14.5	4.80	82	2.4	13	15	1.04	12	1.72	12	1.3	2.7	0.20	--	M	40	45
NH45-03	881026	--	5.0	13.2	4.74	79	4.4	4	15	1.34	13	1.5	12	1.4	3.1	0.09	130	M	40	45
NH45-03	890405	6.10	5.0	13.7	4.88	89	--	--	15	0.90	17	--	--	--	--	--	--	M	40	45
NH45-04	871201	8.35	9.5	12.2	5.20	77	1.5	14	14	3.17	1	--	--	--	--	--	--	M	69	74
NH45-04	880304	7.80	12.0	14.0	5.70	75	8.2	6	13	3.17	2	1.19	11	1.2	2.7	<0.01	76	M	69	74
NH45-04	880614	8.46	8.5	14.2	5.04	74	7.4	10	14	3.40	<1	1.33	11	1.2	2.8	<0.01	--	M	69	74
NH45-04	881026	9.73	10.0	13.3	5.27	74	6.0	10	14	3.18	<1	1.1	11	1.2	2.7	0.01	--	M	69	74
NH45-04	890405	6.95	7.5	13.7	5.24	70	--	--	14	3.15	<1	--	--	--	--	--	--	M	69	74
NH45-05	871201	3.08	0.1	11.7	5.00	4840	--	6	--	--	--	--	--	--	--	--	--	M	2	7
NH45-05	880614	3.99	0.1	--	--	--	--	--	1320	<0.05	181	--	--	--	--	--	--	M	2	7
NH45-05	890405	2.79	0.1	11.0	--	2690	--	--	--	--	--	--	--	--	--	--	--	M	2	7
NH45-06	871201	1.57	1.6	14.1	6.20	140	--	49	24	<0.05	3	--	--	--	--	--	--	M	20	25
NH45-06	880614	1.75	2.0	15.0	6.18	142	<0.1	48	22	<0.05	<1	--	--	--	--	--	--	M	20	25
NH45-06	881026	1.95	2.5	13.7	6.20	135	--	--	22	0.02	<1	--	--	--	--	--	--	M	20	25
NH45-06	890405	0.34	2.6	14.0	6.42	197	--	--	22	<0.05	<1	--	--	--	--	--	--	M	20	25
NH45-10	871211	3.88	1.1	17.2	4.00	1800	<0.1	<1	--	--	--	--	--	--	--	--	--	M	2	7
NH45-10	880614	4.80	1.0	15.3	4.12	4650	<0.1	<1	1690	<0.05	195	--	--	--	--	--	--	M	2	7
NH45-10	881026	4.08	1.0	16.0	3.78	16000	--	--	6330	1.02	730	--	--	--	--	--	--	M	2	7
NH45-10	890405	--	1.4	12.2	4.20	5900	--	--	2497	0.26	282	--	--	--	--	--	--	M	2	7
NH45-11	871211	2.26	4.2	16.1	5.60	82	4.96	3	25	1.81	2	--	--	--	--	--	--	M	23	28
NH45-11	880614	2.04	5.0	13.9	5.30	82	2.5	9	21	1.44	<1	--	--	--	--	--	--	M	23	28
NH45-11	881026	2.22	8.6	13.3	5.28	78	--	--	21	1.85	<1	--	--	--	--	--	--	M	23	28
NH45-11	890405	0.59	8.6	13.5	5.86	81	--	--	20	1.60	<1	--	--	--	--	--	--	M	23	28
NH45-12	871201	6.28	1.9	15.0	4.90	182	--	14	>35	<0.05	9	--	--	--	--	--	--	M	3	8
NH45-12	880304	--	3.0	10.0	5.12	113	<0.1	8	57	<0.05	11	--	--	--	--	--	--	M	3	8
NH45-12	880614	6.29	1.5	14.4	5.18	154	5.2	7	45	<0.05	13	--	--	--	--	--	--	M	3	8
NH45-12	881026	7.42	0.8	14.7	5.30	180	--	7	56	0.02	13	1.7	23	5.5	6.1	0.04	--	M	3	8
NH45-12	890405	3.96	4.0	10.3	5.03	190	--	--	67	<0.05	12	--	--	--	--	--	--	M	3	8
NH45-13	880614	3.04	1.5	15.4	4.27	3490	--	<1	1300	<0.05	168	--	--	--	--	--	--	M	2.5	7.5
NH45-13	890405	1.77	1.6	11.3	4.27	4720	--	--	2064	0.02	268	--	--	--	--	--	--	M	2.5	7.5
NH45-15	871201	1.10	10.0	13.0	5.80	101	--	10	17	0.29	12	--	--	--	--	--	--	M	23	27.5
NH45-15	880614	1.16	6.5	15.3	5.86	109	<0.1	22	17	<0.05	16	--	--	--	--	--	--	M	23	27.5
NH45-15	881026	1.34	6.6	13.1	5.88	98	--	--	17	<0.05	15	--	--	--	--	--	--	M	23	27.5
NH45-15	890405	1	6.0	14.1	5.88	109	--	--	17	<0.05	16	--	--	--	--	--	--	M	23	27.5
NH45-17	871211	0.27	4.5	14.0	6.10	92	5.56	4	19	4.30	1	--	--	--	--	--	--	M	23	26
NH45-17	880614	0.40	4.0	15.0	5.40	97	5.3	13	18	4.20	<1	--	--	--	--	--	--	M	23	26
NH45-17	881026	0.57	5.0	13.4	5.30	87	--	--	18	4.31	<1	--	--	--	--	--	--	M	23	26
NH45-17	890405	1.16	5.0	13.9	5.88	91	--	--	19	3.36	<1	--	--	--	--	--	--	M	23	26
NH55-01	871201	15.87	0.0	12.5	5.70	220	9.3	16	26	10.48	36	--	--	--	--	--	--	M	20	25
NH55-01	880614	15.79	0.5	14.4	5.70	248	7.6	22	26	12.53	42	7.1	11	13	21	0.36	--	M	20	25
NH55-01	881026	16.37	0.9	16.0	5.61	232	9.0	31	23	10.88	39	5.9	10	12	18	0.43	190	M	20	25
NH55-01	890405	13.92	1.2	15.4	5.61	247	--	--	27	12.11	37	--	--	--	--	--	--	M	20	25
NH55-01	891024	13.65	1.3	16.0	6.14	230	--	10	27	10.50	--	--	--	--	--	--	200	M	20	25

Table 2. Water-quality data from selected monitoring and domestic wells (continued).

Well DGSID	Date yymmdd	Water level ft b/s	Flow rate gpm	Temp. deg C	pH	Spec. Cond. umho	Diss- olved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fetotal dissolved mg/l	Dissolved Solids mg/l	Well type	Screen top ft b/s	Screen bottom ft b/s
NH55-02	871201	16.18	3.3	14.9	5.40	230	8.07	14	24	7.90	35	--	--	--	--	--	--	M	32	42
NH55-02	880614	16.11	2.5	16.1	5.96	240	7.3	24	22	9.54	38	11	11	9.4	18	0.20	--	M	32	42
NH55-02	881026	16.69	3.5	14.1	5.90	210	8.0	23	21	9.42	35	9.4	9.4	9.5	17	0.18	180	M	32	42
NH55-02	890405	13.36	4.6	14.3	5.83	220	--	--	23	9.86	32	--	--	--	--	--	--	M	32	42
NH55-02	891024	--	4.0	14.5	6.12	230	--	13	13	11.20	--	--	--	--	--	--	200	M	32	42
NH55-03	871201	15.53	5.0	14.5	4.90	200	--	18	25	8.68	28	--	--	--	--	--	--	M	65	70
NH55-03	880614	15.44	2.0	15.8	5.50	210	7.3	10	24	9.08	32	1.7	12	11	12	0.39	--	M	65	70
NH55-03	881026	15.99	6.0	14.0	5.45	181	7.0	19	24	7.83	36	1.4	12	10	11	0.22	729	M	65	70
NH55-03	890405	13.72	6.0	14.1	5.30	180	--	--	23	8.45	29	--	--	--	--	--	--	M	65	70
NH55-03	891024	13.36	4.3	14.8	--	195	--	6	25	8.70	--	--	--	--	--	--	160	M	65	70
Oh24-03	890315	12.70	1.7	13.4	5.17	102	--	3	23	1.3	11	2	5.1	4.3	3.8	0.24	57	M	14	19
Oh24-03	900321	10.73	4.0	14.5	5.72	48	--	6	9	0.9	--	--	--	--	--	--	--	M	14	19
Oh14-04	890629	--	4.3	14.8	5.05	105	--	3	16	4.6	<1	2	--	--	4.5	0.02	110	D	84	92
Oh25-09	900321	10.05	60.0	14.4	5.42	70	--	6	19	2.7	--	--	--	--	--	--	--	M	64.5	74.5
Oh41-04	890515	--	5.0	--	5.82	75	--	4	9	3.9	<1	5.4	8.3	1.3	5.1	0.17	80	D	64	70
O122-05	880304	22.62	50.0	14.0	5.52	90	8.8	4	18	8.4	8	1.71	10	6.1	6.2	0.17	98	M	70	100
O122-05	880809	22.82	42.8	14.7	5.70	147	--	8	20	8.7	--	--	--	--	--	--	--	M	70	100
O122-05	881013	23.06	42.9	13.8	5.13	125	8.9	4	20	8.6	15	1.7	11	6.4	7.0	0.04	--	M	70	100
O122-05	891018	17.96	50.0	14.0	5.77	149	--	4	25	9.6	--	--	--	--	--	--	120	M	70	100
O122-05	900509	17.93	50.0	14.2	5.62	153	--	10	22	11.0	14	2	12.1	8.5	12	<0.01	120	M	70	100
O122-07	880304	22.77	5.0	16.0	5.40	128	8.8	4	18	13.5	17	2.48	9.6	11	7.3	0.06	120	M	47	57
O122-07	880809	23.15	31.6	15.3	5.30	172	--	5	22	12.7	--	--	--	--	--	--	--	M	47	57
O122-07	881013	23.86	30.0	14.0	4.90	160	9.2	3	19	13.6	16	2.5	11	11	7.5	0.07	--	M	47	57
O122-07	890314	24.44	5.0	--	5.20	155	--	5	23	11.8	--	--	--	--	--	--	110	M	47	57
O122-07	891018	18.68	6.7	14.5	5.42	185	--	5	23	14.2	--	--	--	--	--	--	140	M	47	57
O122-07	900509	18.14	7.6	15.0	5.44	150	--	7	22	12.4	9	3.2	14.6	9.6	7.6	<0.01	110	M	47	57
O122-08	880304	22.88	0.2	14.0	5.70	258	7.5	14	40	9.1	80	30	26	9.4	7.4	1.4	250	M	27	32
O122-08	880809	23.06	<1	15.5	5.70	275	--	10	43	4.4	--	--	--	--	--	--	--	M	27	32
O122-08	881013	23.95	<1	14.1	--	220	--	4	39	6.0	44	36	18	6.3	5.2	0.10	--	M	27	32
O122-08	890314	24.67	<1	--	5.20	260	--	53	36	4.8	--	--	--	--	--	--	130	M	27	32
O122-08	891018	18.78	0.7	14.6	5.63	220	--	5	31	5.4	--	--	--	--	--	--	180	M	27	32
O122-08	900509	18.75	0.7	14.2	5.30	220	--	8	29	5.4	46	33	15.6	5.1	4.4	<0.01	170	M	27	32
O132-01	880526	9.28	0.5	13.0	4.76	82	--	4	17	1.3	30	0.72	10	4.4	1.8	0.20	120	M	9	14
O132-01	880809	10.26	<5	17.9	5.20	120	--	6	19	1.1	--	--	--	--	--	--	--	M	9	14
O132-01	881011	11.14	0.1	18.2	5.05	106	--	10	15	0.7	32	0.91	19	2.3	1.2	0.08	--	M	9	14
O132-01	890302	10.97	<1	11.4	--	150	--	--	15	0.5	--	--	--	--	--	--	120	M	9	14
O132-01	891018	7.14	<1	18.7	5.49	90	--	5	18	<0.5	--	--	--	--	--	--	100	M	9	14
O132-01	900516	8.65	0.1	13.5	5.40	80	--	10	13	<0.5	--	0.5	11.7	4.6	2	0.12	87	M	9	14
O132-02	880307	9.68	7.5	14.7	5.18	140	7.4	2	19	11.7	4	2.35	14	4.1	6.1	<0.01	120	M	70	75
O132-02	880526	10.39	6.7	13.8	4.91	125	--	--	--	11.5	--	--	--	--	--	--	--	M	70	75
O132-02	880809	11.42	6.7	14.9	5.08	132	--	5	21	10.7	--	--	--	--	--	--	--	M	70	75
O132-02	881011	11.47	6.7	14.7	4.78	122	8.4	3	20	11.8	6	2.2	14	4.2	6.4	0.03	--	M	70	75
O132-02	890302	11.27	7.5	14.4	5.30	142	--	4	20	11.2	--	--	--	--	--	--	110	M	70	75
O132-02	891018	9.62	8.3	14.4	5.19	130	--	2	21	10.8	--	--	--	--	--	--	110	M	70	75
O132-02	900516	9.98	7.5	15.2	5.32	132	--	8	21	11.7	--	2	14.1	4.3	7.5	<0.01	130	M	70	75
O132-04	880307	19.82	0.2	13.8	5.84	102	8.0	12	21	1.5	70	4.28	11	4.5	5.6	5.5	160	M	21	26
O132-04	880809	20.67	1.3	15.3	5.40	75	--	9	11	1.6	--	--	--	--	--	--	--	M	21	26
O132-04	881013	21.44	1.0	15.2	5.45	48	8.1	8	28	1.8	18	4.4	7.7	2.6	2.8	0.16	--	M	21	26
O132-04	890302	21.80	1.0	13.7	5.60	80	--	10	12	1.6	--	--	--	--	--	--	92	M	21	26
O132-04	891018	17.38	3.3	16.1	5.94	80	--	7	9	1.4	--	--	--	--	--	--	79	M	21	26

Table 2. Water—quality data from selected monitoring and domestic wells (continued).

Well DWSID	Date ymmdd	Water level ft bls	Flow rate gpm	Temp. deg C	pH	Spec. Cond. umho	Diss- olved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fetotal dissolved mg/l	Dissolved Solids mg/l	Well type	Screen top ft bls	Screen bottom ft bls
O132-04	900509	18.05	3.1	14.9	5.77	75	--	13	11	2.3	13	4.1	6.8	3.2	3.7	0.14	78	M	21	26
O132-05	880809	20.22	<5	15.1	5.50	290	--	12	30	23	--	--	--	--	--	--	--	M	44	49
O132-05	881013	20.99	0.6	14.5	5.79	258	8.9	6	29	21	30	2.7	11	20	15	0.03	--	M	44	49
O132-05	890302	21.47	1.0	14.1	5.60	242	--	7	28	16.8	39	2.7	11	17	14	0.15	170	M	44	49
O132-05	891018	16.98	1.1	--	5.40	200	--	2	21	8.8	--	--	--	--	--	--	140	M	44	49
O132-05	900509	17.77	1.2	14.9	5.34	172	--	8	18	10.9	39	2	5.3	16	10.1	<0.01	130	M	44	49
O132-06	880307	20.42	6.0	14.0	5.60	160	6.7	4	21	13.4	2	2.32	11	6.1	11	<0.01	110	M	72	77
O132-06	880809	20.22	<5	15.3	5.60	132	--	4	24	12.8	--	--	--	--	--	--	--	M	72	77
O132-06	881013	22.00	5.0	14.8	5.15	152	7.7	3	23	12.5	4	2.2	11	6.2	12	0.01	--	M	72	77
O132-06	890302	22.16	5.0	14.8	5.60	160	--	5	26	12.8	--	--	--	--	--	--	130	M	72	77
O132-06	891018	18.42	5.9	14.4	5.68	149	--	5	23	12.0	--	--	--	--	--	--	140	M	72	77
O132-06	900509	18.7	6.4	15.0	5.46	150	--	10	30	13.9	4	2.2	10.7	6.6	14.1	<0.01	140	M	72	77
O132-07	880524	10.30	5.6	16.5	4.75	195	--	2	14	19.0	26	1.92	7.4	14	11	0.04	150	M	13.5	18.5
O132-07	880817	11.03	5.5	14.5	4.85	178	--	<1	20	14.0	--	--	--	--	--	--	--	M	13.5	18.5
O132-07	881103	11.25	6.0	15.9	5.04	180	8.3	1	18	13.3	26	2.3	5.6	14	11	0.01	130	M	13.5	18.5
O132-07	891024	9.30	8.6	16.0	4.90	200	--	<1	18	15.4	--	--	--	--	--	--	170	M	13.5	18.5
O132-08	880524	9.89	5.9	17.0	5.04	185	--	4	23	15.5	22	2.68	11	12	9.2	0.10	160	M	25	30
O132-08	880817	11.04	6.5	13.7	4.80	200	--	<1	28	13.5	--	--	--	--	--	--	--	M	25	30
O132-08	881103	11.05	4.3	14.7	5.17	182	7.0	2	27	13.1	19	2.6	9.7	13	10	0.01	140	M	25	30
O132-08	891024	9.06	7.9	14.4	5.10	197	--	2	25	12.0	--	--	--	--	--	--	160	M	25	30
O132-09	880524	10.10	6.7	17.5	5.39	125	--	5	6	11.8	6	2.16	15	3.1	6.6	0.06	130	M	67	72
O132-09	880817	9.94	7.0	14.5	5.10	100	--	2	25	9.0	--	--	--	--	--	--	--	M	67	72
O132-09	881103	11.06	7.5	14.2	5.20	110	7.9	4	19	8.9	4	1.8	13	3.1	6.4	0.03	110	M	67	72
O132-09	891024	8.60	8.3	14.1	5.56	122	--	3	18	10.1	--	--	--	--	--	--	120	M	67	72
O132-10	880429	3.30	8.6	12.3	5.13	182	5.9	7	22	6.9	23	3.02	6.2	12	5.8	0.06	120	M	9.5	14.5
O132-10	880817	4.68	7.5	15.7	4.80	160	--	<1	25	6.5	--	--	--	--	--	--	--	M	9.5	14.5
O132-10	881013	4.72	7.5	15.9	4.67	145	7.1	1	21	6.0	24	2.7	6.9	11	3.5	0.04	--	M	9.5	14.5
O132-10	890314	3.11	7.1	11.9	4.90	147	--	3	21	4.7	--	--	--	--	--	--	95	M	9.5	14.5
O132-10	891024	2.41	10.0	16.4	5.15	185	--	1	26	10.8	--	--	--	--	--	--	150	M	9.5	14.5
O132-10	900516	3.2	10.0	12.7	4.78	150	--	4	25	8.9	--	3.1	8.1	12.4	7.2	0.01	120	M	9.5	14.5
O132-11	880429	3.50	2.9	14.1	5.86	105	11.7	5	12	6.9	6	1.75	13	1.7	2.7	0.17	100	M	27.4	32.4
O132-11	880817	4.86	3.8	--	5.20	89	--	4	14	7.6	--	--	--	--	--	--	--	M	27.4	32.4
O132-11	881013	5.01	3.8	14.2	5.27	86	8.5	4	13	8.5	4	1.6	14	1.8	3.1	0.08	--	M	27.4	32.4
O132-11	890314	3.43	3.8	14.2	5.60	110	--	5	15	4.7	--	--	--	--	--	--	82	M	27.4	32.4
O132-11	891024	2.34	5.4	14.0	5.56	90	--	3	13	7.0	--	--	--	--	--	--	--	M	27.4	32.4
O132-11	900516	3.38	5.8	14.5	5.38	85	--	10	12	7.7	--	1.5	12	1.6	3.2	0.02	97	M	27.4	32.4
O132-12	880429	3.18	2.2	12.0	5.11	98	9.8	10	12	5.5	8	1.89	11	1.4	3.0	0.74	100	M	55	60
O132-12	880817	4.53	3.0	14.8	5.20	82	--	4	13	5.8	--	--	--	--	--	--	--	M	55	60
O132-12	881013	4.69	3.5	14.5	4.62	79	8.6	2	12	7.0	8	1.6	12	1.4	3.2	0.28	--	M	55	60
O132-12	890314	3.15	3.8	14.1	5.10	125	--	2	14	5.1	--	--	--	--	--	--	78	M	55	60
O132-12	891024	2.05	4.6	14.3	4.76	81	--	5	12	5.1	--	--	--	--	--	--	81	M	55	60
O132-12	900516	3.06	5.0	14.9	4.05	90	--	<1	12	6.3	--	1.2	10.8	1.2	3.3	0.06	88	M	55	60
O132-13	880429	10.67	4.0	15.1	4.75	180	14.5	4	23	8.1	14	2.4	8.3	10	6.8	0.02	120	M	42.5	47.5
O132-13	880526	10.82	4.5	15.4	4.86	159	--	--	--	8.3	--	--	--	--	--	--	--	M	42.5	47.5
O132-13	880809	11.88	5.5	15.1	4.90	162	--	4	25	8.1	--	--	--	--	--	--	--	M	42.5	47.5
O132-13	881011	12.14	6.0	14.9	4.71	139	8.8	3	22	7.9	20	2.2	7.9	9.8	7.0	0.01	--	M	42.5	47.5
O132-13	890307	11.77	5.5	14.9	5.00	147	--	4	24	7.6	--	--	--	--	--	--	96	M	42.5	47.5
O132-13	891018	10.03	7.0	14.9	5.23	140	--	2	22	7.2	--	--	--	--	--	--	110	M	42.5	47.5
O132-13	900516	10.38	5.0	15.7	4.93	141	--	4	23	8.5	--	2.1	7.9	9.9	7.6	0.01	100	M	42.5	47.5
O132-13	880307	8.20	0.2	14.9	5.61	175	6.6	8	10	9.1	75	3.6	6.4	10	13	8.4	150	M	20	25
O132-13	880817	9.10	<1	15.6	5.30	162	--	3	13	10.3	--	--	--	--	--	--	--	M	20	25

Table 2. Water—quality data from selected monitoring and domestic wells (continued).

Well DGSID	Date yyymmdd	Water level ft bls	Flow rate gpm	Temp. deg C	pH	Spec. Cond. umho	Diss- olved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fe total dissolved mg/l	Dissolved Solids mg/l	Well type	Screen top ft bls	Screen bottom ft bls
Oh43-05	881011	8.88	0.8	16.0	5.03	168	8.5	6	10	9.7	36	3	26	9.6	12	0.08	--	M	20	25
Oh43-05	890314	7.50	1.0	13.0	5.40	190	--	6	14	9.6	--	--	--	--	--	--	120	M	20	25
Oh43-05	891024	7.34	1.0	18.0	5.51	172	--	1	16	7.7	--	--	--	--	--	--	--	M	20	25
Oh43-05	900509	8.03	1.2	14.3	5.36	201	--	6	26	13.9	26	3.1	5.6	12.9	18.3	0.05	170	M	20	25
Oh43-06	880429	8.04	6.0	14.9	4.85	223	9.8	15	47	6.4	4	2.36	28	5.9	7.8	0.02	180	M	44	49
Oh43-06	880817	9.03	5.7	15.3	5.00	215	--	3	63	5.2	--	--	--	--	--	--	--	M	44	49
Oh43-06	881011	8.78	6.3	14.9	4.88	182	2.2	3	60	5.0	6	1.8	26	5.7	7.7	0.02	--	M	44	49
Oh43-06	890314	7.46	7.0	14.7	5.20	202	--	6	48	4.7	--	--	--	--	--	--	130	M	44	49
Oh43-06	891024	7.34	7.1	14.8	5.31	225	--	3	50	10.9	--	--	--	--	--	--	180	M	44	49
Oh43-06	900509	7.9	8.6	15.0	5.07	232	--	12	64	7.5	2	2.1	30.4	6.7	10.2	<0.01	180	M	44	49
Oh43-07	880307	8.24	10.0	16.0	5.70	105	3.8	8	24	4.4	2	2.1	16	1.8	4.3	0.05	82	M	82	87
Oh43-07	880817	8.93	7.5	14.6	5.30	101	--	6	25	4.6	--	--	--	--	--	--	--	M	82	87
Oh43-07	881011	8.80	8.1	14.5	5.11	95	--	6	22	3.8	6	1.9	15	1.7	4.2	0.05	--	M	82	87
Oh43-07	890314	7.55	8.6	14.3	5.50	122	--	9	24	3.5	--	--	--	--	--	--	91	M	82	87
Oh43-07	891024	7.38	9.1	14.4	5.33	110	--	8	25	3.7	--	--	--	--	--	--	--	M	82	87
Oh43-07	900509	8.01	9.1	14.8	5.60	100	--	15	29	5.0	<1	2.2	16.9	2.2	5.9	<0.01	100	M	82	87
Ph13-29	890328	3.07	2.4	14.5	4.87	165	--	3	--	15.2	--	--	--	--	--	--	190	M	75	78
Ph13-30	890328	--	<1	11.2	4.35	62	--	1	16	<0.5	--	--	--	--	--	--	74	M	12	15
Ph13-31	890328	3.42	6.7	14.6	4.83	202	--	3	21	18.0	<1	2.3	11	5.8	19	0.04	240	M	34	39
Ph13-31	891030	3.24	8.1	14.1	5.55	178	--	4	20	19.4	--	--	--	--	--	--	180	M	34	39
Ph13-31	900124	3.67	7.5	13.8	5.92	180	--	5	21	19.0	--	--	--	--	--	--	--	M	34	39
Ph22-11	890328	7.30	--	15.2	5.12	122	--	3	21	8.5	--	--	--	--	--	--	130	M	51	54
Ph22-12	890328	7.50	5.0	12.2	4.25	197	--	<1	22	21	--	--	--	--	--	--	210	M	12	15
Ph22-13	890328	8.31	4.3	14.8	4.70	362	--	2	22	30	44	5.5	15	14	43	0.38	370	M	31	36
Ph22-13	891030	4.80	7.0	14.8	5.02	350	--	4	20	35	--	--	--	--	--	--	320	M	31	36
Ph22-13	900124	7.21	6.0	14.5	5.25	340	--	6	20	32	--	--	--	--	--	--	--	M	--	--
Ph22-15	890328	7.17	5.0	14.9	5.58	90	--	10	11	3.6	2	1.4	11	1.5	4.7	0.32	100	M	83	88
Ph22-15	891030	3.73	9.1	14.6	5.77	100	--	9	11	8.1	--	--	--	--	--	--	110	M	83	88
Ph22-17	890627	3.79	0.8	15.8	4.98	131	--	5	10	2.9	18	6.2	8.8	4.7	15	0.20	89	M	7.5	12.5
Ph22-17	891030	1.09	1.2	16.4	5.90	162	--	4	15	10.8	15	10	6.9	2.9	13	0.02	140	M	7.5	12.5
Ph22-17	900124	2.09	1.0	10.1	6.20	130	9.5	13	10	6.7	--	--	--	--	--	--	--	M	7.5	12.5
Ph22-17	900516	2.82	1.0	13.6	5.67	190	--	17	14	14.1	--	7.6	7.6	4.3	18.9	0.01	160	M	7.5	12.5
Ph22-18	890627	4.00	10.0	14.5	5.22	179	--	10	19	9.0	22	3.5	11	14	22	0.03	180	M	42	47
Ph22-18	891030	1.18	11.5	14.3	5.71	200	--	4	18	17.3	24	2.4	6.4	12	17	<0.01	170	M	42	47
Ph22-18	900124	1.91	10.0	14.6	6.12	190	7.85	6	19	17.3	--	--	--	--	--	--	--	M	42	47
Ph22-18	900516	2.69	12.0	14.8	5.75	201	--	8	19	18.1	--	2.6	7.6	12.2	17.6	<0.01	180	M	42	47
Ph22-19	890627	3.95	10.0	14.4	5.22	81	--	12	11	3.9	<1	1	9.6	0.90	4.5	0.02	110	M	73	78
Ph22-19	891030	1.07	10.3	14.4	5.80	81	--	8	10	6.3	<1	1.1	12	1.1	5.0	<0.01	93	M	73	78
Ph22-19	900124	1.86	10.0	14.3	6.10	80	8.9	13	7	6.2	--	--	--	--	--	--	--	M	73	78
Ph22-19	900516	2.64	12.0	14.6	5.90	81	--	13	9	6.2	--	1	13	1	5.3	<0.01	100	M	73	78
Ph31-06	890515	--	5.0	--	--	--	--	3	10	2.5	29	2.1	7.5	4.6	4.0	0.24	72	D	30	40
Ph42-03	890627	9.85	<1.0	16.2	5.22	85	--	6	12	1.4	21	1.5	4.5	4.2	4.0	0.22	90	M	8.6	17
Ph42-03	891030	6.22	5.2	18.4	5.08	125	--	1	11	4.7	24	3.3	9.8	4.6	6.2	<0.01	90	M	8.6	17
Ph42-03	900124	7.48	4.3	11.4	5.26	105	9.2	7	8	5.3	--	--	--	--	--	--	--	M	8.6	17
Ph42-03	900516	8.74	2.0	13.0	5.13	112	--	9	12	4.8	--	2.1	7.7	6.3	6.9	0.01	100	M	8.6	17
Ph42-04	890627	9.81	4.6	15.8	4.98	182	--	6	18	5.6	28	2.1	4.2	9.8	9.1	0.04	140	M	29.5	34.5

Table 2. Water—quality data from selected monitoring and domestic wells (continued).

Well DCSID	Date yymmdd	Water level ft bls	Flow rate gpm	Temp. deg C	pH	Spec. Cond. umho	Dis- olved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fe total dissolved mg/l	Dissolved Solids mg/l	Well type	Screen top ft bls	Screen bottom ft bls
Ph42-04	891030	6.16	6.5	15.8	5.49	160	--	4	16	8.4	49	2.5	5.5	10	10	<0.01	140	M	29.5	34.5
Ph42-04	900124	7.4	7.5	15.2	5.23	160	9.8	<1	15	7.2	--	--	--	--	--	--	--	M	29.5	34.5
Ph42-04	900516	8.71	6.4	15.1	5.12	152	--	5	17	9.2	--	2.3	5.7	11	10	<0.01	120	M	29.5	34.5
Ph42-05	890627	10.35	4.0	14.6	5.55	115	--	9	16	4.4	1	2.2	7.6	4.4	9.7	0.5	130	M	40	45
Ph42-05	891030	6.49	5.4	14.8	5.15	95	--	<1	12	8.3	<1	1.4	6.5	3.4	7.6	<0.01	110	M	40	45
Ph42-05	900124	7.76	4.0	14.6	5.37	90	8.8	<1	10	6.8	--	--	--	--	--	--	--	M	40	45
Ph42-05	900516	9.65	4.2	15.5	4.82	91	--	7	14	8.2	--	1.3	6.9	3.5	7.5	0.01	100	M	40	45
Qh15-04	890811	6.03	<5	16.6	4.90	90	--	5	11	0.9	--	--	--	--	--	--	--	M	11	16
Qh15-04	881103	5.75	0.8	17.1	5.90	85	3.3	4	11	2.0	16	7.8	5.4	1.8	4.2	0.14	77	M	11	16
Qh15-04	890309	3.97	1.0	10.1	5.50	100	--	4	14	1.1	21	7.1	5.8	2.0	4.7	0.33	75	M	11	16
Qh15-04	891026	4.54	0.8	17.9	5.83	100	--	3	19	1.0	--	--	--	--	--	--	78	M	11	16
Qh15-04	900502	5.39	0.9	12.9	5.25	95	--	--	--	0.7	--	--	--	--	--	--	79	M	11	16
Qh15-05	880928	--	8.6	14.9	4.26	15200	--	<1	10750	<0.5	900	45	2906	300	260	38	11000	D	57	62
Qh15-06	880811	--	4.3	15.0	5.00	167	--	11	21	8.4	--	--	--	--	--	--	--	M	25	30
Qh15-06	881103	5.40	5.5	14.8	5.80	160	3.6	4	15	5.5	24	17	8.3	3.4	9.8	0.02	190	M	25	30
Qh15-06	890309	3.60	5.0	14.2	5.20	160	--	4	20	8.8	30	17	7.9	3.8	9.2	<0.01	140	M	25	30
Qh15-06	891026	4.21	5.4	14.9	5.35	190	--	3	15	12.8	--	--	--	--	--	--	160	M	25	30
Qh15-06	900502	5.06	5.8	14.9	5.37	202	--	6	19	16.0	20	22	9	4.7	12.3	<0.01	160	M	25	30
Qh15-07	881103	5.31	10.0	14.4	5.95	91	4.3	10	17	9.4	2	11	13	0.83	5.5	0.05	100	M	72.5	77.5
Qh15-07	890309	3.67	10.0	13.7	5.70	100	--	11	16	5.0	1	1.07	13	0.79	5.0	0.07	98	M	72.5	77.5
Qh15-07	891026	4.31	10.0	14.7	5.75	80	--	10	13	4.6	--	--	--	--	--	--	89	M	72.5	77.5
Qh15-07	900502	5.12	10.3	14.4	5.85	85	--	10	20	5.5	<1	1.2	13.5	0.8	5.6	<0.01	99	M	72.5	77.5
Qh23-01	900314	10.36	1.0	15.0	5.50	130	--	12	27	2.0	--	3.5	17.1	2.4	5.7	0.06	--	M	14	19
Qh23-07	900315	--	10.0	15.0	5.66	92	--	13	10	8.0	--	1.9	12.7	1.5	5.6	0.05	--	D	72	78
Qh34-02	880811	9.50	1.0	18.1	4.25	175	--	<1	21	14.8	--	--	--	--	--	--	--	M	17	22
Qh34-02	881103	10.12	0.8	17.6	4.88	210	7.2	2	22	14.6	12	2.5	6.3	10	10	0.06	140	M	17	22
Qh34-02	890309	7.94	<1	9.6	4.80	150	--	1	24	16.0	17	1.6	6.3	10	13	0.08	140	M	17	22
Qh34-02	891026	7.68	1.0	18.7	4.45	200	--	<1	16	15.6	--	--	--	--	--	--	130	M	17	22
Qh34-02	900502	9.11	0.8	12.0	4.71	320	--	<1	26	39	7	2.9	10.9	18.9	28	<0.01	260	M	17	22
Qh34-03	880811	9.73	6.7	14.9	4.85	135	--	6	23	7.8	--	--	--	--	--	--	--	M	35	39
Qh34-03	881103	10.37	7.5	15.1	5.56	132	6.0	3	19	8.5	10	1.9	11	6.2	7.1	0.59	130	M	35	39
Qh34-03	890309	8.53	7.6	14.3	4.70	181	--	1	23	7.3	14	1.5	9.8	6.6	6.9	0.16	104	M	35	39
Qh34-03	891026	8.20	7.5	15.5	4.35	160	--	<1	21	9.5	--	--	--	--	--	--	120	M	35	39
Qh34-03	900502	9.47	7.5	13.8	4.66	150	--	<1	23	10.0	16	1.6	9.1	8.4	8.4	0.11	120	M	35	39
Qh34-04	881103	11.35	2.5	15.1	5.96	117	7.3	5	17	9.2	4	1.6	15	2.3	6.1	0.28	120	M	61	66
Qh34-04	890309	8.41	3.3	14.0	5.81	153	--	4	17	8.7	2	1.2	14	2.3	5.8	0.02	105	M	61	66
Qh34-04	891026	8.09	2.8	15.5	5.55	110	--	4	13	9.9	--	--	--	--	--	--	110	M	61	66
Qh34-04	900502	9.32	3.2	15.2	5.66	101	--	7	13	9.1	1	1.5	14.2	2.2	5.6	<0.01	100	M	61	66
Qh35-01	891008	--	6.3	14.2	4.90	115	--	2	19	4.5	26	1.92	6.5	7.3	6.1	<0.01	--	D	55	60
Qh55-03	880310	3.01	0.2	14.0	7.51	195	<0.1	121	10	0.3	32	2.8	9.00	2.80	49	1.99	380	M	13	18
Qh55-04	880310	11.02	0.2	14.0	7.50	190	<0.1	104	14	0.2	14	1.4	7.90	1.30	38	0.53	240	M	36	41
Qh55-05	880310	13.51	9.0	15.0	6.63	233	<0.1	133	13	0.3	20	1.2	9.70	2.10	36	14.00	210	M	84	89
Qh11-02	900314	3.82	1.7	14.6	5.40	152	--	7	8	15.0	--	--	--	--	--	--	--	M	9.5	14.5
Qh11-05	890322	--	60.0	14.4	5.60	1700	--	--	800	--	100	7.6	319	21	53	80	1600	D	62	67

Table 2. Water—quality data from selected monitoring and domestic wells (continued).

Well DCSID	Date yyymmdd	Water level ft bls	Flow rate gpm	Temp. deg C	pH	Spec. Cond. umho	Diss- olved Oxygen mg/l	Alka- linity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	SO ₄ mg/l	K mg/l	Na mg/l	Mg mg/l	Ca mg/l	Fetotal dissolved mg/l	Dissolved Solids mg/l	Well type	Screen top ft bls	Screen bottom ft bls
Q13-05	890517	--	3.5	14.6	5.08	210	--	1	32	13.6	<1	2.5	11	11	9.1	<0.01	200	D	58	68
Q31-03	890310	5.77	1.0	13.8	5.55	95	7.7	6	17	4.7	14	3	6.1	2.9	9.7	0.07	83	M	10	15
Q31-03	890526	5.77	2.2	--	5.01	142	--	--	--	4.6	--	--	--	--	--	--	--	M	10	15
Q31-03	890811	6.11	2.4	18.5	6.00	168	--	15	26	5.4	--	--	--	--	--	--	--	M	10	15
Q31-03	881011	8.06	2.1	19.0	5.55	141	--	19	24	5.4	14	3.9	8.6	4.1	15	0.01	--	M	10	15
Q31-03	890309	6.35	2.5	13.3	5.90	141	--	22	28	4.8	--	--	--	--	--	--	110	M	10	15
Q31-03	891026	3.06	4.0	18.8	5.94	120	--	32	24	4.4	--	--	--	--	--	--	130	M	10	15
Q31-03	900502	5.11	2.6	13.1	5.66	208	--	35	31	5.8	14	3.6	11.4	6.4	21.1	<0.01	150	M	10	15
Q31-04	890526	6.58	1.7	16.0	5.24	250	--	3	16	32	4	2.86	18	9.3	16	0.06	270	M	36	41
Q31-04	890811	6.88	1.9	15.6	4.90	240	--	3	16	32	--	--	--	--	--	--	--	M	36	41
Q31-04	881011	8.62	2.1	15.7	4.75	240	--	1	20	32	6	2.4	18	9.9	15	0.01	--	M	36	41
Q31-04	890309	6.15	2.5	15.9	4.90	251	--	2	20	29	--	--	--	--	--	--	190	M	36	41
Q31-04	891026	4.06	2.8	16.2	5.04	280	--	<1	18	30	--	--	--	--	--	--	260	M	36	41
Q31-04	900502	5.86	2.6	15.6	4.79	320	--	<1	19	42	<1	3	21	14.1	23.2	<0.01	280	M	36	41
Q31-05	890310	6.36	10.0	15.9	6.15	100	1.6	20	15	0.2	26	1.9	12	0.70	2.4	13	96	M	88	93
Q31-05	890526	6.56	5.9	15.6	5.83	112	--	--	--	<0.5	--	--	--	--	--	--	--	M	88	93
Q31-05	890811	7.02	9.1	15.2	6.00	112	--	11	16	<0.5	--	--	--	--	--	--	--	M	88	93
Q31-05	881011	8.65	7.7	15.2	5.69	110	--	16	15	<0.5	26	1.2	13	0.68	2.5	13	--	M	88	93
Q31-05	890309	6.12	10.0	14.7	5.90	100	--	2	18	<0.5	--	--	--	--	--	--	100	M	88	93
Q31-05	891026	4.08	9.4	15.2	6.12	--	--	17	12	<0.5	--	--	--	--	--	--	110	M	88	93
Q31-05	900502	5.88	10.3	15.4	5.67	120	--	15	12	<0.5	30	1.3	12.3	0.8	3.6	14.5	120	M	88	93
Q21-06	891004	--	4.8	15.2	5.79	60	--	5	14	<0.5	8	1	16	0.51	1.8	0.19	62	D	95	100
Rj11-09	900531	1.31	60.0	14.6	6.45	1000	--	105	320	<0.5	24	4.4	160	16.7	36	38	700	M	61	95

Notes: ft bls = feet below land surface; deg C = degrees Celsius; umho = micromhos; gpm = gallons per minute; mg/l = milligrams per liter; D = domestic well; M = monitoring well; F = flowing well.

Table 3. Water-quality data from domestic and agricultural wells.

Well DGSID	Date ymmdd	Flow gpm	Temp. deg C	pH	Spec. Cond. umho	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Nb41-01	880819	7.0	15.1	5.03	101	2	17	8.0	--	97	107
Nb41-02	890726	4.0	14.8	5.37	141	4	18	11.0	--		
Nb41-03	890726	3.0	16.9	4.83	213	4	17	15.7	--	35	40
Nb41-04	890726	4.3	16.0	5.76	240	16	15	12.0	180	43	48
Nb41-05	890726	3.3	16.8	6.26	200	23	22	13.9	--	50	55
Nb41-06	890726	3.8	15.9	5.57	45	9	12	0.7	--	90	100
Nb41-07	890726	4.3	15.0	5.35	150	3	13	4.4	--	70	75
Nb41-08	890726	4.6	15.9	5.35	150	5	23	10.7	--	61	66
Nb42-04	890726	4.3	20.0	5.32	170	6	21	12.8	--		
Nb43-02	890315	2.0	7.6	5.70	73	10	18	<0.5	68	62	72
Nb44-01	890504	5.0	14.3	6.00	103	6	15	3.7	--	59	69
Nb45-18	890405	5.0	14.6	5.25	91	5	22	2.0	--	50	60
Nb51-01	880819	--	14.0	4.73	81	2	16	2.8	--	45	50
Nb52-04	880819	3.8	15.5	5.03	122	2	18	11.7	--	65	70
Nb52-05	880819	5.4	15.0	4.80	70	0	12	5.2	--	61	66
Nb52-06	880819	4.0	15.6	4.95	70	2	11	5.3	--	67	73
Nb52-07	880823	7.5	14.3	4.64	58	1	13	3.1	--	54	59
Nb52-08	880825	6.7	14.6	5.37	68	5	15	4.2	--	50	60
Nb52-09	880928	3.5	15.3	5.01	68	5	15	2.7	--	57	62
Nb53-02	880914	6.0	14.7	5.12	70	5	11	5.2	--	90	100
Nb53-03	880928	6.7	15.5	5.55	51	9	10	<0.5	--	50	60
Nb53-04	890802	3.5	15.2	5.51	52	7	9	<0.5	--	58	63
Nb54-02	880928	10.0	15.2	5.12	183	4	22	8.3	--	51	56
Nb54-03	890629	6.0	15.4	5.22	158	8	17	5.3	130	51	56
Nb55-04	890405	7.5	15.1	5.06	172	4	38	5.4	--	56	76
Nb55-05	890713	6.8	13.2	5.01	160	8	21	9.0	140	75	80
Ni41-02	880928	6.7	14.8	4.91	95	5	19	1.2	--	67	75
Ni41-03	890914	5.8	15.5	5.80	140	10	17	6.2	--	69	74
Ni51-38	890405	2.5	15.1	5.70	95	7	16	4.0	68	108	115
Ni51-39	890405	3.5	16.1	5.03	218	2	27	11.8	150	45	50
Ni51-40	890405	3.0	15.9	6.30	79	7	10	1.8	--	63	73
Ni51-41	890405	2.0	14.4	5.63	275	--	--	17.0	200	80	90
Ni51-42	890504	5.0	14.5	6.10	92	6	13	2.6	--	68	73
Ni51-43	890629	4.0	16.6	5.28	115	9	27	3.0	120	78	83
Ni51-44	890823	5.5	15.1	5.50	101	5	13	7.0	--	85	95
Oh11-08	880819	3.5	16.3	5.05	55	4	9	2.5	--	97	104
Oh11-09	880819	5.4	16.7	5.10	121	5	16	10.2	--	82	90
Oh11-09	890802	5.0	15.5	5.45	125	6	13	11.6	--		
Oh13-03	880819	4.3	17.5	5.30	111	3	14	8.1	--	69	74
Oh13-06	890629	6.4	15.1	4.91	91	4	14	3.9	80	60	70
Oh13-07	890713	5.1	12.4	5.38	130	7	17	9.5	110	75	85
Oh14-03	890629	2.9	17.0	5.20	125	5	18	4.5	120	65	70
Oh14-05	890802	4.8	16.7	5.15	190	7	22	6.5	--		
Oh15-03	890726	4.3	14.3	5.53	150	7	16	9.9	--	65	70
Oh15-04	890802	3.0	21.0	5.63	170	3	22	11.2	--	61	71
Oh15-05	890802	4.3	15.6	6.43	150	21	17	9.0	--	79	85
Oh15-06	890823	3.8	15.8	4.88	212	2	31	10.3	180	65	75
Oh15-07	890823	8.1	15.7	4.94	150	3	22	3.9	--	70	80
Oh21-02	880819	8.0	15.5	5.01	99	4	14	7.4	--	70	80
Oh21-03	890726	6.0	15.2	5.59	155	9	13	5.7	150	45	55
Oh21-04	890802	6.0	14.3	5.71	89	9	13	6.3	--		
Oh21-05	890802	5.5	14.4	5.65	103	7	12	6.6	--	54	64
Oh21-06	890802	5.0	15.2	5.82	65	15	12	1.3	--	68	73
Oh21-07	890802	5.5	14.3	5.79	59	13	11	1.0	--	61	66
Oh22-05	880823	7.5	14.1	5.22	114	5	16	12.4	--	58	63
Oh22-06	890802	5.0	14.5	5.65	69	10	15	1.4	--	62	67
Oh22-07	900321	6.7	14.6	5.76	100	6	17	10.0	--	55	60
Oh24-04	890726	3.8	18.0	5.79	80	10	13	10.5	--	50	60
Oh24-05	890802	5.0	15.0	5.60	80	11	14	5.2	--	85	100
Oh25-06	890504	6.0	13.8	6.24	175	17	24	6.7	--	90	100
Oh25-08	890629	8.0	14.2	5.19	118	6	19	4.3	110	62	72
Oh31-03	890802	5.0	14.5	5.65	69	5	14	12.3	--	48	58
Oh32-01	900321	2.5	14.6	5.66	145	8	14	8.9	--	30	35
Oh32-02	900321	6.7	14.2	5.54	139	9	19	13.7	--	55	65
Oh32-03	900321	5.4	13.9	5.82	100	9	18	7.1	--	61	65
Oh33-04	880825	5.4	14.8	5.20	43	9	9	0.5	--	63	73
Oh33-05	890808	5.1	15.9	5.61	79	--	14	1.3	65	65	75
Oh33-06	890808	3.1	15.5	5.52	70	--	9	4.4	85		
Oh33-07	900321	3.8	14.0	5.73	97	9	18	7.7	--	20	25
Oh33-08	900321	3.8	14.0	5.62	102	10	12	11	--	46	51

Table 3. Water—quality from domestic and agricultural wells (continued).

Well DGSID	Date yyymmdd	Flow gpm	Temp. deg C	pH	Spec. Cond. umho	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Oh33-09	900321	5.0	14.0	5.92	48	15	13	1.8	--	56	61
Oh34-01	880907	5.0	14.3	5.03	60	6	12	2.8	--	51	61
Oh35-30	880907	10.0	15.3	5.02	79	10	13	3.7	--	55	60
Oh35-32	890823	3.5	15.6	5.57	60	6	11	2.9	81		
Oh41-02	890515	8.0	--	5.34	45	4	8	<0.5	46	60	65
Oh41-03	890515	5.0	--	5.75	79	--	9	3.3	90	62	67
Oh42-02	890328	8.0	14.2	5.62	85	7	10	1.9	69	63	68
Oh42-03	900321	5.0	14.4	5.11	110	8	17	10.4	--	55	60
Oh42-04	900321	7.5	13.8	5.74	90	7	15	8.3	--		
Oh42-05	900321	9.1	14.5	5.66	85	8	14	4.0	--	40	50
Oh43-04	880825	5.0	14.6	5.17	50	5	13	<0.5	--	52	62
Oh43-05	880907	3.5	14.6	4.92	50	6	17	1.1	--	60	66
Oh43-06	880914	4.0	14.4	4.74	53	5	8	<0.5	--	50	60
Oh43-07	881008	7.5	14.4	5.04	90	6	19	5.6	--	60	70
Oh43-09	890808	1.6	17.5	5.62	69	--	23	1.4	58	60	70
Oh43-10	900321	6.7	14.2	5.98	63	13	11	3.4	--	58	63
Oh44-02	880914	5.4	14.9	4.86	70	7	12	3.2	--	57	63
Oh44-03	880928	5.0	14.4	4.81	48	6	7	<0.5	--	50	60
Oh44-04	890629	5.0	15.1	5.05	58	4	16	--	--	75	80
Oh45-03	890629	5.3	14.2	5.23	118	10	17	3.5	110	85	90
Oh51-05	880914	4.3	14.5	4.77	138	2	11	11.7	--	51	56
Oh52-02	880907	--	14.6	4.98	86	6	13	6.7	--	57	62
Oh52-03	880914	--	15.7	5.04	41	4	8	1.7	--	108	118
Oh53-01	880825	--	16.0	5.40	110	5	13	7.4	--	53	59
Oh53-02	880825	--	14.2	5.50	138	4	21	11.4	--	43	55
Oh54-03	880928	5.0	15.0	5.11	55	10	12	1.3	--	60	70
Oh54-04	890504	3.5	14.0	5.80	122	5	17	7.4	--	50	60
Oh54-05	890914	2.5	14.1	5.48	110	7	22	12.1	--		
Oh54-06	890914	7.7	14.1	5.59	110	8	15	8.4	--	81	89
Oi11-06	880819	--	19.7	5.20	190	3	24	9.7	--	65	75
Oi11-07	880819	5.0	15.7	4.90	73	2	12	3.7	--	58	63
Oi11-08	880823	8.6	14.7	5.30	92	5	16	4.1	--	78	83
Oi11-09	880928	4.6	15.2	4.85	76	3	13	5.8	--	91	96
Oi12-08	880819	4.3	14.9	5.00	200	2	27	10.4	--	52	57
Oi12-09	880823	3.2	15.7	5.46	82	4	11	7.3	--	81	86
Oi12-10	890823	4.7	16.2	5.38	140	6	17	8.4	--	85	90
Oi21-02	880621	--	15.2	5.52	175	4	31	13.2	--	58	63
Oi21-02	880817	--	23.0	5.15	110	3	32	14.3	--	58	63
Oi21-05	890914	6.0	14.2	5.74	210	2	29	17.6	--	48	58
Oi21-06	890914	2.6	15.6	5.80	180	--	22	10.8	--	73	78
Oi22-09	880825	3.8	15.5	5.37	109	6	16	7.3	--	73	78
Oi22-10	890823	4.7	16.0	5.65	70	6	18	2.5	--		
Oi22-11	890823	6.7	15.5	5.72	140	6	18	8.4	--	68	73
Oi22-12	890823	6.0	14.5	5.60	140	4	22	8.7	--	65	75
Oi23-15	880519	10.0	13.9	5.35	110	4	18	2.8	--	68	73
Oi23-16	880519	5.0	15.0	5.54	210	5	18	13.0	--	76	81
Oi23-17	881011	3.8	14.7	5.17	102	11	24	6.7	--	70	80
Oi24-09	890307	--	11.3	6.10	100	7	11	1.3	58	119	130
Oi24-10	890613	10.0	14.4	5.08	140	6	16	4.1	120	68	73
Oi24-11	890713	4.8	17.5	5.38	140	8	18	6.4	120	100	110
Oi31-04	880825	4.0	15.3	4.95	88	3	19	5.8	--	47	53
Oi31-05	890823	4.3	15.7	5.62	130	4	15	6.2	--	70	75
Oi31-06	900328	3.5	12.1	5.83	40	21	11	0	--	95	105
Oi32-14	880519	8.0	14.8	5.28	90	6	--	3.9	--	82	90
Oi32-15	880519	4.9	14.0	5.48	79	4	--	3.0	--	66	74
Oi32-16	900328	6.0	14.5	5.91	60	10	16	2.6	--	78	93
Oi32-17	900328	5.0	13.5	6.07	130	8	25	10.6	--	60	70
Oi42-01	880519	6.0	15.7	6.05	145	12	--	5.6	--	44	50
Oi42-02	880519	16.0	14.0	5.98	107	10	--	4.8	--	52	58
Oi42-02	890613	5.0	14.4	5.12	90	7	15	3.6	87	52	58
Oi42-03	880519	8.0	14.8	5.54	101	5	18	6.4	--	56	66
Oi42-04	880621	--	16.7	5.72	317	10	16	7.9	--	44	50
Oi42-05	890823	4.5	15.0	5.71	81	6	14	4.1	96		
Oi43-08	880621	--	16.6	5.57	1820	10	650	0.6	--	50	55
Oi51-08	880825	2.8	15.5	5.20	90	8	20	4.0	--	63	69
Oi51-09	880907	5.0	15.5	5.40	140	10	12	8.0	--	65	75
Oi51-10	880907	--	14.0	5.40	52	11	13	1.1	--	60	70
Oi51-13	890713	1.1	--	5.63	100	12	15	<0.5	57	40	50
Oi52-01	890713	7.6	--	5.30	480	9	160	2.9	420	50	55
Oi52-02	890713	4.6	--	5.32	300	7	96	2.5	260	50	55

Table 3. Water-quality data from domestic and agricultural wells (continued).

Well DGSID	Date yyymmdd	Flow gpm	Temp. deg C	pH	Spec. Cond. umho	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Ph13-34	900328	4.0	13.2	5.57	92	6	17	8.6	--	45	53
Ph13-35	900328	6.0	14.0	5.95	70	9	13	5.7	--	46	56
Ph14-06	880621	--	14.7	4.50	180	4	19	8.2	--	55	60
Ph14-07	880621	--	15.5	5.01	129	3	16	8.2	--	57	62
Ph14-08	890914	5.0	15.2	6.30	55	11	7	2.0	58	75	81
Ph14-09	880621	--	14.8	5.40	162	3	31	10.6	--	60	70
Ph14-09	880825	--	--	--	--	1	28	11.1	--	60	70
Ph14-10	890914	6.7	14.8	5.78	158	4	16	10.4	130	60	65
Ph15-08	880621	--	15.5	5.13	87	8	15	4.8	--	30	50
Ph15-09	880621	--	14.9	5.62	80	10	4	1.6	--	26	31
Ph15-10	880621	--	14.7	4.97	139	7	27	8.2	--	55	65
Ph21-08	890504	5.0	14.8	5.98	100	7	11	6.6	--	60	65
Ph23-17	890515	5.0	--	5.64	62	8	12	6.9	74	62	68
Ph25-07	890808	5.5	15.9	5.97	360	--	116	<0.5	250	--	--
Ph25-08	890808	4.8	14.6	5.67	50	--	10	<0.5	61	62	67
Ph31-04	890504	7.0	14.4	6.20	47	7	10	<0.5	--	67	73
Ph31-05	890504	--	--	6.40	71	8	6	<0.5	--	57	67
Ph32-04	900328	2.0	13.4	5.82	189	9	24	22.5	--	--	--
Ph32-05	900328	7.5	13.8	5.88	180	13	30	17.3	--	52	62
Ph33-02	890515	5.0	--	5.56	43	12	9	<0.5	56	56	66
Ph34-04	880823	6.0	14.1	5.30	47	12	12	0.5	--	62	67
Ph34-05	880823	5.0	14.3	5.00	91	7	15	6.5	--	60	70
Ph34-06	890504	5.0	14.1	4.99	50	7	10	<0.5	--	60	65
Ph34-07	890504	3.0	15.0	5.73	42	7	9	4.0	--	60	70
Ph34-08	890515	5.0	--	5.16	65	9	19	1.1	68	55	65
Ph34-09	890515	5.0	--	5.56	40	12	9	6.0	38	88	94
Ph41-04	880907	5.0	14.7	5.30	92	8	8	3.0	--	59	69
Ph41-05	900328	6.0	14.3	5.35	138	6	12	14.8	--	40	50
Ph42-02	890515	3.0	--	5.24	92	5	11	7.6	100	50	60
Ph42-06	890914	8.3	15.9	5.74	140	12	13	10.6	--	48	58
Ph42-07	890914	6.7	15.4	6.19	70	16	10	2.7	--	85	95
Ph54-01	880823	6.0	14.3	5.24	152	5	17	22.0	--	51	57
Ph54-02	890515	3.0	--	5.63	290	6	110	1.4	250	37	42
Pi11-03	880825	4.6	16.0	4.45	172	0	17	9.7	--	52	57
Pi21-04	880825	5.0	16.3	5.26	55	9	15	0.8	--	40	50
Pi21-05	890808	2.7	16.5	5.85	40	--	5	<0.5	58	70	75
Pi52-03	890717	7.5	17.0	5.75	72	12	19	0.7	45	75	80
Pj51-06	891004	4.2	17.5	5.61	110	2	18	3.4	--	23	28
Qb12-01	890511	5.0	14.0	5.06	52	5	11	0.7	26	55	65
Qb12-02	890511	3.5	13.7	5.13	150	2	5	3.8	--	--	--
Qb12-03	890511	5.0	15.4	5.65	189	8	20	15.4	155	52	58
Qb12-04	890615	4.3	14.7	4.77	50	7	1	<0.5	49	47	57
Qb12-05	890810	10.0	13.6	6.15	63	12	12	2.0	55	53	59
Qb13-03	890810	3.8	14.9	5.79	222	7	19	23.0	--	54	60
Qb15-05	880607	--	17.9	4.20	14000	<1	7000	--	--	57	62
Qb15-08	880921	5.0	15.9	5.40	279	9	66	6.4	--	65	70
Qb15-09	900314	2.5	15.6	5.70	600	21	190	1.1	--	35	40
Qb21-01	890511	8.0	14.4	4.87	120	3	13	10.1	92	--	--
Qb21-02	890517	7.5	14.8	4.55	195	0	19	12.6	170	50	55
Qb21-03	890517	3.5	14.8	5.65	92	2	8	0.5	100	49	54
Qb21-04	890615	3.5	15.5	5.29	215	2	50	5.1	170	50	60
Qb22-03	881008	3.3	14.7	4.75	88	4	14	6.7	--	50	55
Qb22-04	890517	3.9	14.6	4.92	60	3	9	3.9	87	61	67
Qb22-05	890810	5.7	14.7	6.02	83	8	23	7.4	--	--	--
Qb22-06	890810	4.2	13.9	5.89	51	6	11	2.2	--	60	70
Qb22-07	890810	10.7	14.7	5.94	85	8	12	10.3	--	63	68
Qb22-08	890816	6.6	14.9	5.27	105	6	11	9.6	98	65	70
Qb22-09	890816	4.3	15.2	5.10	118	5	11	11.7	--	65	70
Qb23-05	880921	--	19.0	6.25	139	51	10	<0.5	--	55	60
Qb23-06	890717	4.6	15.0	5.27	192	4	16	18.2	180	50	60
Qb24-04	880607	--	15.9	5.62	167	--	--	4.6	--	58	68
Qb24-05	890615	3.2	15.5	5.36	147	5	15	8.2	130	80	90
Qb24-06	890816	3.8	15.5	5.31	262	6	22	27.0	--	51	56
Qb25-04	880607	--	15.4	5.78	168	--	--	18.2	--	63	73
Qb25-05	890517	5.0	15.3	5.61	150	2	13	11.6	150	44	54
Qb25-06	890615	4.3	14.0	4.85	75	11	9	<0.5	61	75	80
Qb25-07	890816	4.0	16.4	5.52	112	8	11	9.1	--	40	50
Qb25-08	890816	12.0	15.1	5.43	122	9	14	7.3	120	62	72
Qb31-10	891026	4.3	15.2	6.11	110	--	13	<0.5	--	49	54
Qb32-01	890511	5.0	14.6	4.80	108	1	14	7.1	89	64	70

Table 3. Water—quality from domestic and agricultural wells (continued).

Well DGSID	Date yyymmdd	Flow gpm	Temp. deg C	pH	Spec. Cond. umho	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Qb34-05	890921	10.0	14.7	5.90	90	11	11	5.8	--		
Qb34-06	900314	6.3	14.1	5.71	87	10	11	7.3	--	75	80
Qb35-01	880607	--	17.8	5.10	140	--	--	5.1	--	50	60
Qb43-03	880907	7.5	15.1	5.06	80	4	11	1.1	--	79	85
Qi11-06	890816	4.8	14.6	5.32	2970	12	440	1.4	870	65	70
Qi11-07	900314	2.5	16.3	5.64	165	7	8	15.7	--	42	47
Qi11-08	900314	--	--	6.08	91	21	6	2.8	--	50	60
Qi12-09	890717	7.5	14.9	5.10	253	2	25	28.0	--		
Qi12-10	890816	3.5	14.7	5.69	53	14	13	<0.5	--	85	90
Qi12-04	880607	--	14.9	5.82	65	--	--	2.2	--	51	56
Qi21-05	880607	--	16.9	6.13	193	--	--	<0.5	--	62	68
Qi21-06	890310	--	10.6	5.20	240	3	25	33.0	240	74	80
Qi21-06	900314	8.6	14.8	5.07	275	5	21	35	--	74	80
Qi21-07	890517	6.0	14.9	5.60	362	5	29	--	370	60	65
Qi21-07	890706	5.3	15.4	5.39	370	5	48	25.0	380	60	65
Qi21-08	890517	10.0	15.0	5.39	175	2	13	16.8	210	50	60
Qi21-09	890517	6.7	14.2	5.51	120	7	14	9.7	160	55	60
Qi21-12	890517	6.0	15.0	5.65	238	3	14	--	260	45	55
Qi21-12	890717	7.5	15.5	5.85	235	6	14	26.0	220	45	55
Qi21-13	890717	6.7	14.8	5.60	180	7	28	13.8	160	65	70
Qi21-14	890816	1.3	19.2	5.24	287	3	30	26.0	--	55	60
Qi22-02	890517	3.5	--	5.83	69	8	14	1.3	90	80	85
Qi22-03	890615	3.9	15.0	5.16	128	11	18	3.1	100	74	80
Qi23-02	880914	5.8	15.4	4.81	108	6	19	5.6	--	75	80
Qi23-03	880921	--	23.0	5.15	110	5	15	4.0	--	50	60
Qi23-04	880921	2.8	14.9	4.82	72	7	12	2.2	--	51	57
Qi23-06	890717	4.3	15.9	5.73	91	10	18	3.0	--	60	65
Qi24-08	880914	5.6	15.6	4.80	100	4	19	1.8	--	85	90
Qi24-09	880921	4.0	16.0	5.36	123	7	21	6.2	--	63	67
Qi24-10	880928	4.0	15.8	5.26	101	10	10	4.8	--	77	83
Qi24-11	880928	4.3	15.4	5.13	81	5	15	4.5	--	105	110
Qi24-12	890615	5.3	15.0	5.75	109	7	17	3.1	85	91	96
Qi24-13	890706	7.9	15.4	4.68	200	4	22	9.4	170	65	70
Qi24-14	890706	3.8	16.1	5.10	140	5	25	0.9	82	95	100
Qi25-06	880921	5.0	14.5	5.43	99	24	15	<0.5	--	75	85
Qi25-07	880921	7.5	15.5	4.87	109	3	18	6.3	--	62	67
Qi25-08	880921	5.4	14.9	5.58	80	18	17	<0.5	--	95	100
Qi25-09	880921	3.3	16.2	5.42	81	13	14	0.9	--	55	60
Qi25-10	881008	5.4	15.9	5.56	56	10	13	0.7	--	74	80
Qi25-11	881008	4.3	15.3	5.26	70	13	18	0.6	--	75	80
Qi25-12	890921	10.0	15.3	5.65	252	3	19	30.0	--	87	92
Qi25-13	890921	6.7	14.6	5.45	195	3	20	19.0	170	70	80
Qi25-14	890927	6.7	15.2	4.91	170	1	20	16.9	--	65	70
Qi25-15	890927	5.0	15.2	5.22	112	2	15	9.4	--		
Qi25-16	890927	7.5	14.8	5.26	230	3	37	18.5	190	80	90
Qi25-17	890927	5.4	15.4	5.97	190	10	25	9.9	--		
Qi25-18	890927	5.0	15.7	6.24	65	6	10	2.9	--		
Qi25-19	891004	6.5	15.1	5.51	182	6	21	15.3	--	60	66
Qi25-20	891004	8.8	15.5	6.13	210	4	40	14.4	--	60	68
Qi25-21	891004	5.6	15.3	5.77	550	4	170	11.7	--	50	60
Qi31-07	880907	6.0	15.0	5.10	70	8	16	1.4	--	55	60
Qi31-08	880928	7.5	14.6	5.53	70	19	10	1.1	--	60	70
Qi31-09	890601	--	--	6.00	--	20	--	1.5	--	67	73
Qi31-10	890816	4.3	15.7	5.30	197	6	12	23.0	--	28	33
Qi31-11	890921	7.5	15.1	5.41	90	3	10	9.5	81	50	60
Qi31-12	890921	5.0	15.2	5.30	170	12	15	16.2	--		
Qi32-01	880907	5.0	15.2	5.36	40	10	8	0.5	--	55	60
Qi32-02	890810	5.0	15.2	6.32	155	36	16	9.6	140	65	70
Qi32-03	890921	5.0	14.7	5.78	60	9	15	0.7	50	62	68
Qi33-02	880921	3.3	14.7	5.06	101	6	19	3.1	--	62	72
Qi33-05	890615	2.7	16.6	4.96	80	11	13	<0.5	71	52	57
Qi33-06	890717	3.0	16.5	6.02	117	26	20	<0.5	--	55	65
Qi33-07	890717	5.0	16.5	5.37	161	8	17	3.2	--	70	80
Qi34-04	880914	4.6	15.9	5.00	123	3	14	10.0	--	56	61
Qi34-05	880914	4.0	14.8	5.13	101	4	15	7.8	--	55	60
Qi34-06	880914	7.5	14.9	5.83	91	22	16	<0.5	--	55	60
Qi34-07	880921	10.0	16.0	4.95	102	6	16	3.0	--	95	100
Qi34-08	881008	7.5	15.0	5.55	90	20	17	<0.5	--	88	94
Qi34-09	890615	3.2	14.8	5.49	170	4	23	7.5	140	78	88
Qi34-10	890921	5.0	15.6	6.10	100	28	16	<0.5	83	40	50

Table 3. Water-quality data from domestic and agricultural wells (continued).

Well DGSID	Date yyymmdd	Flow gpm	Temp. deg C	pH	Spec. Cond. umho	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ - N mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Qi34-11	890927	4.7	14.9	5.72	60	9	18	<0.5	86	29.5	37
Qi34-12	890927	8.3	14.2	6.04	81	18	19	<0.5	---	60	70
Qi35-02	881006	--	15.1	5.87	132	47	16	<0.5	---	86	96
Qi35-02	881008	5.0	15.1	5.87	132	47	16	<0.5	---	86	96
Qi35-03	890927	2.0	17.0	5.70	295	9	66	4.4	---	65	75
Qi35-04	890927	2.5	15.8	5.60	112	5	14	3.9	---	55	65
Qi35-05	890927	3.3	15.9	5.49	140	11	19	4.7	---	77	83
Qi35-06	890921	10.0	15.2	5.94	120	8	20	11.5	---	70	80
Qi42-01	890810	10.0	18.4	7.36	250	140	10	<0.5	---	55	60
Qi43-03	880921	5.8	14.2	7.37	230	17	20	<0.5	---	48	52
Qi43-04	890810	--	15.4	6.45	190	96	13	<0.5	---	102	114
Qj11-03	891004	6.7	16.1	5.87	100	5	14	7.6	---	75	80
Qj11-04	891004	6.2	15.1	5.66	189	3	21	18.8	---	---	---
Qj21-05	890927	5.0	15.3	5.60	62	5	15	0.8	68	91	101
Qj21-07	891004	10.0	16.6	6.63	110	23	16	<0.5	91	75	80
Qj21-08	891004	6.0	15.8	6.51	81	18	16	<0.5	---	63	68
Qj21-09	891004	7.5	15.5	5.53	90	3	16	3.7	---	75	80
Qj21-10	891004	3.5	17.0	5.57	175	2	19	<0.5	---	70	75
Qj31-01	881011	--	14.2	6.53	290	188	20	<0.5	---	58	68
Rh23-01	890810	--	15.6	6.15	75	73	14	---	89	---	---
Rh32-15	890810	--	16.6	5.60	40	12	9	---	56	130	140
Ri12-04	880921	15.0	15.3	6.73	265	130	10	<0.5	---	60	65
Ri14-04	880914	1.0	15.3	5.93	160	11	14	6.0	---	55	60
Ri24-04	880907	6.7	14.8	5.30	82	11	15	3.0	---	67	73
Ri35-01	880907	8.6	15.3	5.99	132	64	10	0.5	---	88	94

Notes: gpm = gallons per minute; deg C = degrees Celsius; umho = micromhos; ft bls = feet below land surface; mg/l = milligrams per liter.

Table 4. Water—quality data from selected public supply wells.

Well DGSID	Date ymmdd	pH	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ — N mg/l	Fe total dissolved mg/l	Na mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Nh53—01	880511	5.5	8	22	3.3	<0.01	9	66	100	110
Ni51—29	880111	6.3	14	26	7.3	0.05	12	99	117	147
Ni51—29	890620	5.6	6	—	4.6	—	9	85	117	147
Ni51—32	880111	5.7	18	20	2.5	<0.01	8	81	85	135
Ni51—32	890620	5.8	7	—	6.8	—	11	103	85	135
Ni51—33	880810	5.9	18	38	0.7	8.30	8	117	107	115
Ni51—33	890801	5.7	12	—	4.8	0.04	14	145	107	115
Ni51—35	880810	6.1	15	20	7.3	<0.01	12	69	50	60
Ni51—35	890801	5.6	12	—	4.8	0.17	12	141	50	60
Ni51—36	880223	5.9	20	12	4.2	<0.01	11	81	75	95
Ni51—36	890911	5.5	7	—	<0.5	—	9	91	75	95
Ni51—37	880822	5.8	20	36	10.0	0.05	14	168	60	70
Ni51—37	890911	5.6	8	—	11	—	10	145	60	70
Oh14—01	880802	6.5	13	15	5.6	<0.01	9	49	90	110
Oh14—01	890930	5.8	5	—	7.5	—	8	109	90	110
Oh14—02	880802	5.9	8	18	8.6	<0.01	9	92	90	110
Oh14—02	890930	5.9	5	—	8.8	—	10	131	90	110
Oh55—05	880218	5.8	14	15	5.6	<0.01	12	99	94	124
Oh55—05	890329	5.8	18	—	5.7	<0.01	14	85	94	124
Oi12—04	890719	6	20	—	<0.5	—	19	158	70	90
Oi12—07	880721	6.3	22	23	6.2	0.10	18	—	70	120
Oi12—07	890719	6.2	10	—	8.9	1.44	16	111	70	120
Oi13—02	880622	6.5	10	18	6.9	<0.01	11	93	82	102
Oi13—02	890607	6.2	7	—	3.3	—	8	76	82	102
Oi13—03	880808	6.2	20	20	5.8	<0.01	10	94	90	110
Oi21—03	880711	5.7	13	20	13.0	—	—	—	95	115
Oi21—04	880711	5.5	11	15	9.4	—	—	—	125	135
Oi23—06	880622	7.3	15	19	1.5	0.10	13	55	99	109
Oi23—06	890607	6	5	—	3.7	—	10	84	99	109
Oi23—07	880622	6.9	10	14	4.2	<0.01	10	58	97	117
Oi23—07	890607	6	5	—	3.9	<0.01	10	82	97	117
Oi23—08	880504	7.3	6.4	20	6.4	0.05	13	137	82	102
Oi23—10	880622	6.4	12	18	7.7	<0.01	13	112	83	103
Oi23—10	890607	5.9	5	—	8.6	<0.01	12	138	83	103
Oi23—11	880426	5.7	12	22	6.9	<0.01	9	110	84	114
Oi23—11	890524	5.5	20	—	6.8	—	10	124	84	114
Oi23—12	880426	—	114	100	8.8	0.05	110	350	99	119
Oi23—12	890524	—	135	—	7.2	—	60	193	99	119
Oi24—01	880426	6.7	20	22	3.2	0.05	12	99	73	102
Oi24—05	880426	5.9	22	35	8.1	0.05	14	142	40	112
Oi24—07	880426	6.8	20	15	0.9	0.20	10	54	70	80
Oi24—07	890524	6.1	20	—	1	—	10	173	70	80
Oi25—09	880810	5.7	26	34	3.5	<0.01	16	162	30	40
Oi31—03	880919	6.4	18	12	1.0	<0.01	9	46	88	94
Oi31—03	890906	5.8	5	—	5.3	—	9	—	88	94
Oi33—02	880727	6.9	15	20	2.4	<0.01	12	—	51	71
Oi33—02	890531	6	8	—	1.8	0.05	10	77	51	71
Oi34—01	880426	6.0	16	25	5.7	0.05	12	94	69	131
Oi34—01	890524	5.8	22	—	5.5	0.05	13	113	69	131
Oi34—09	880509	5.8	8	21	11.0	0.45	12	127	56	76
Oi34—09	890509	5.7	12	—	10	—	10	123	56	76

Table 4. Water—quality data from selected public supply wells (continued).

Well DGSID	Date yymmdd	pH	Alkalinity as CaCO ₃ mg/l	Cl mg/l	NO ₃ — N mg/l	Fe total dissolved mg/l	Na mg/l	Dissolved Solids mg/l	Screen top ft bls	Screen bottom ft bls
Oi34—10	880803	7.0	40	33	6.4	<0.01	13	--	77	97
Oi34—10	890615	5.9	20	--	6.3	--	--	--	77	97
Oi35—30	880805	--	--	--	11.0	--	--	--	25	35
Oi35—30	890726	--	--	--	11	--	--	--	60	80
Oi41—02	890906	6.1	9	--	5.2	--	12	99	60	70
Oi45—01	880509	5.9	12	30	7.4	0.90	8	150	60	80
Oi45—01	890509	7.5	42	--	1.1	--	9	119	25	35
Ph35—04	880803	6.7	12	16	6.0	<0.01	15	75	59	69
Ph35—04	890801	5.8	10	--	6.1	--	13	154	59	69
Ph44—03	880413	5.6	12	17	4.4	0.05	10	56	97	107
Ph44—05	880413	5.8	10	16	0.9	<0.01	8	59	100	120
Ph53—07	880517	6.1	24	13	9.1	<0.01	13	132	66	81
Ph53—07	890512	6.2	16	--	8.8	--	11	125	66	81
Pi11—01	880602	6.3	16	15	0.5	<0.01	8	67	64	74
Pi12—01	880425	6.4	8	15	<0.5	<0.01	8	58	57	77
Pi12—02	880425	6.3	7	17	<0.5	<0.01	8	--	50	60
Pi12—03	880425	6.2	7	40	<0.5	<0.01	14	131	50	60
Pi31—01	880421	5.6	10	20	2.7	<0.01	10	67	54	66
Pi31—02	880421	5.5	8	15	1.2	<0.01	8	--	55	70
Pi31—03	880421	5.7	16	12	5.7	<0.01	9	85	--	--
Pi31—03	890510	6.1	20	--	<0.5	--	7	63	--	--
Pi32—04	880314	5.5	9	101	8.5	--	--	--	71	77
Pi32—05	880314	5.2	6	69	12.0	--	--	--	64	69
Pi32—06	880314	5.3	8	23	9.6	--	--	--	37	47
Pi32—08	880815	5.8	16	22	<0.5	0.20	14	64	60	73
Pi32—08	890810	5.9	10	--	<0.5	0.07	10	101	60	73
Pi32—09	880815	5.9	11	24	<0.5	<0.01	11	57	60	73
Pi32—09	890810	5.9	5	--	<0.5	--	7	87	60	73
Pi32—10	880805	6.0	10	28	12.0	<0.01	20	143	80	90
Pi32—10	890825	5.9	12	--	8.3	0	19	131	80	90
Pi32—11	880805	6.9	10	40	8.2	<0.01	19	130	84	94
Pi32—11	890825	6.1	12	--	4.8	0.05	16	124	84	94
Pi32—12	880805	5.8	10	60	5.3	<0.01	24	155	83	93
Pi32—12	890825	6	5	--	6.5	0.05	16	139	83	93
Pi41—02	880421	5.4	8	--	2.0	8.00	11	64	--	60
Pi41—02	890510	6	16	--	2.1	--	12	71	--	60
Pi41—03	880421	5.7	10	15	2.1	<0.01	9	64	--	85
Pi41—03	890510	6.2	14	00	2.3	--	10	73	--	85
Pi52—01	880919	5.9	10	20	7.9	<0.01	14	102	77	90
Pi52—01	890720	6.1	5	--	8.9	--	27	87	77	90
Qi12—08	871030	6.0	18	15	6.3	<0.01	10	84	83	103
Qi14—01	880602	6.3	15	17	2.2	<0.01	13	72	99	111
Qi22—01	880815	--	--	--	14.0	--	--	--	82	92
Qi24—02	880602	6.2	15	21	3.8	0.15	16	89	83	98
Qi33—03	880602	6.4	6	20	2.8	1.20	18	86	98	108
Qi33—03	890720	5.7	5	--	3.9	0	20	59	98	108
Qj41—05	880921	7.1	152	18	<0.5	3.90	13	209	95	115

Notes: ft bls = feet below land surface; mg/l = milligrams per liter

Table 5. Ground-water levels for Nh45-02, -03, -04, -05, -06, -10, -11, -12.
Note: ft bmp = feet below measuring point.

WELL - Nh45-02
LOCATION - Lat 384612, long 751012
OWNER - University of Delaware
WELL CHARACTERISTICS - Bored monitoring well, dia 2 in., depth 29 ft, cased to 24 ft, screened 24 to 29 ft.
DATUM - Elevation NGVD 1929 is 12.88 ft. Measuring point: top of casing.
NOTE - Water levels most likely are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	21	1987	10.51	12	11	1987	10.22
7	23	1987	10.23	12	22	1987	10.06
8	12	1987	10.33	2	19	1988	9.07
9	3	1987	10.82	2	26	1988	9.46
9	17	1987	10.81	5	18	1988	9.71
10	6	1987	10.71	6	14	1988	10.28
10	13	1987	10.76	10	26	1988	10.60
12	1	1987	10.16	4	5	1989	8.78

WELL - Nh45-03
LOCATION - Lat 384612, long 751012
OWNER - University of Delaware
WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 45 ft, cased to 40 ft, screened 40 to 45 ft.
DATUM - Elevation NGVD 1929 is 11.41 ft. Measuring point: top of casing.
NOTE - Water levels most likely are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	21	1987	9.00	12	1	1987	8.65
7	23	1987	8.75	12	11	1987	8.66
8	12	1987	8.80	12	22	1987	8.55
9	3	1987	9.28	2	19	1988	7.56
9	17	1987	9.26	2	26	1988	7.96
10	6	1987	9.20	5	18	1988	8.20
10	13	1987	9.17	6	14	1988	8.72

WELL - Nh45-04
LOCATION - Lat 384612, long 751012
OWNER - University of Delaware
WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 74 ft, cased to 69 ft, screened 69 to 74 ft.
DATUM - Elevation NGVD 1929 is 11.04 ft. Measuring point: top of casing.
NOTE - Water levels most likely are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	6	1987	9.00	2	26	1988	7.66
10	13	1987	8.96	5	18	1988	7.90
12	1	1987	8.35	6	14	1988	8.46
12	11	1987	8.35	10	26	1988	9.73
12	22	1987	8.27	4	5	1989	6.95
2	19	1988	7.27				

WELL - Nh45-05
LOCATION - Lat 384616, long 751012
OWNER - University of Delaware
WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 7 ft, cased to 2 ft, screened 2 to 7 ft.
DATUM - Elevation NGVD 1929 is 5.43 ft. Measuring point: top of casing.
NOTE - Water levels are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	21	1987	4.80	12	11	1987	2.86
7	23	1987	4.05	12	22	1987	3.18
8	12	1987	4.07	2	19	1988	3.76
9	3	1987	4.76	2	26	1988	2.92
9	17	1987	5.42	5	18	1988	3.03
10	6	1987	4.11	6	14	1988	6.01
12	1	1987	3.08				

WELL - Nh45-06
LOCATION - Lat 384616, long 751012
OWNER - University of Delaware
WELL CHARACTERISTICS - Jetted monitoring well, dia 1.25 in, depth 25 ft, cased to 20 ft, screened 20 to 25 ft.
DATUM - Elevation NGVD 1929 is 4.32 ft. Measuring point: top of casing.
NOTE - Water levels are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	6	1987	2.32	2	19	1988	0.64
12	1	1987	1.57	2	26	1988	1.05
12	11	1987	1.56	5	18	1988	1.21
12	22	1987	1.47	6	14	1988	1.75

WELL - Nh45-10
LOCATION - Lat 384614, long 751016
OWNER - University of Delaware
WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 7 ft, cased to 2 ft, screened 2 to 7 ft.
DATUM - Elevation NGVD 1929 is 5.99 ft. Measuring point: top of casing.
NOTE - Water levels are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	21	1987	5.68	12	11	1987	3.88
7	23	1987	5.06	12	22	1987	4.11
8	12	1987	5	2	19	1988	3.85
9	3	1987	5.97	2	26	1988	1.07
9	17	1987	5.89	5	18	1988	3.96
10	6	1987	5.29	6	14	1988	4.8

WELL - Nh45-11
LOCATION - Lat 384614, long 751016
OWNER - University of Delaware
WELL CHARACTERISTICS - Jetted monitoring well, dia 1.25 in, depth 28 ft, cased to 23 ft, screened 23 to 28 ft.
DATUM - Elevation NGVD 1929 is 4.65 ft. Measuring point: top of casing.
NOTE - Water levels are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	6	1987	2.45	2	19	1988	0.88
12	1	1987	1.91	2	26	1988	1.26
12	11	1987	2.26	5	18	1988	1.43
12	22	1987	1.69	6	14	1988	2.04

WELL - Nh45-12
LOCATION - Lat 384615, long 751012
OWNER - University of Delaware
WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 8 ft, cased to 3 ft, screened 3 to 8 ft.
DATUM - Elevation NGVD 1929 is 8.31 ft. Measuring point: top of casing.
NOTE - Water levels are tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
9	17	1987	7.8	9	17	1987	7.8
12	1	1987	6.28	12	1	1987	6.28
12	11	1987	6.14	12	11	1987	6.14
12	22	1987	5.78	12	22	1987	5.78
2	19	1988	4.28	2	19	1988	4.28
5	18	1988	4.8	5	18	1988	4.8
6	14	1988	6.29	6	14	1988	6.29

Table 6. Ground-water levels for Nh45-13, -14, -15, -16, -17; Nh55-01, -02, -03.

WELL - Nh45-13
 LOCATION - Lat 384615, long 751015
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 7.5 ft, cased to 2.5 ft, screened 2.5 to 7.5 ft.
 DATUM - Elevation NGVD 1929 is 4.55 ft. Measuringpoint: top of casing.
 NOTE - Water levels are tidally affected.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
9	17	1987	3.28	2	19	1988	1.76
12	1	1987	2.19	2	26	1988	2
12	11	1987	2	5	18	1988	1.99
12	22	1987	2.21	6	14	1988	3.04

WELL - Nh45-14
 LOCATION - Lat 384617, long 751012
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 5 ft, cased to 2 ft, screened 2 to 5 ft.
 DATUM - Elevation NGVD 1929 is 4.05 ft. Measuringpoint: top of casing.
 NOTE - Water levels are tidally affected.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
9	17	1987	2.39	2	26	1988	2.27
12	1	1987	2.25	5	18	1988	2.32
12	11	1987	2.75	6	14	1988	2.33
2	19	1988	2.23				

WELL - Nh45-15
 LOCATION - Lat 384617, long 751012
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Jetted monitoring well, dia 1.25 in, depth 27 ft, cased to 23 ft, screened 23 to 27 ft.
 DATUM - Elevation NGVD 1929 is 3.53 ft. Measuringpoint: top of casing.
 NOTE - Water levels are tidally affected.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
12	1	1987	1.1	2	26	1988	0.48
12	11	1987	0.97	5	18	1988	0.61
2	19	1988	0.08	6	14	1988	1.16

WELL - Nh45-16
 LOCATION - Lat 384615, long 751017
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 2 ft, cased to 1 ft, screened 1 to 2 ft.
 DATUM - Elevation NGVD 1929 is 3.49 ft. Measuringpoint: top of casing.
 NOTE - Water levels are tidally affected.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
2	19	1988	1.46	5	18	1988	1.39
2	26	1988	1.58	6	14	1988	1.59

WELL - Nh45-17
 LOCATION - Lat 384615, long 751017
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Jetted monitoring well, dia 1.25 in, depth 26 ft, cased to 23 ft, screened to 26 ft.
 DATUM - Elevation NGVD 1929 is 2.84 ft. Measuringpoint: top of casing.
 NOTE - Water levels are tidally affected. Top of casing elevation was changed several times.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
10	6	1987	0.96	2	26	1988	0.56
12	1	1987	0.27	5	18	1988	0.67
12	11	1987	0.31	6	14	1988	0.4
2	19	1988	flowing	4	5	1989	flowing

WELL - Nh55-01
 LOCATION - Lat 384558, long 751025
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 25 ft, cased to 20 ft, screened 20 to 25 ft.
 DATUM - Elevation NGVD 1929 is 20.36 ft. Measuring point: top of casing.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
10	6	1987	16.27	5	18	1988	15.27
12	1	1987	15.87	7	12	1988	16.02
12	22	1987	15.9	10	26	1988	16.37
2	19	1988	14.41	4	5	1989	13.92
2	26	1988	15.24	10	24	1989	13.65

WELL - Nh55-02
 LOCATION - Lat 384558, long 751025
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 42 ft, cased to 32 ft, screened 32 to 42 ft.
 DATUM - Elevation NGVD 1929 is 20.68 ft. Measuring point: top of casing.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
10	6	1987	16.61	5	18	1988	15.61
12	1	1987	16.18	7	12	1988	16.33
12	22	1987	16.23	10	26	1988	16.69
2	19	1988	14.76	4	5	1989	13.36
2	26	1988	15.16	10	24	1989	13.22

WELL - Nh55-03
 LOCATION - Lat 384558, long 751025
 OWNER - University of Delaware
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 70 ft, cased to 65 ft, screened 65 to 70 ft.
 DATUM - Elevation NGVD 1929 is 19.99 ft. Measuring point: top of casing.

level				level			
mo	d	yr	ft bmp	mo	d	yr	ft bmp
10	6	1987	15.95	5	18	1988	14.93
12	1	1987	15.53	7	12	1988	15.68
12	22	1987	15.54	10	26	1988	15.99
2	19	1988	14.12	4	5	1989	13.72
2	26	1988	14.54	10	24	1989	13.36

Table 7. Ground-water levels for Oi22-05, -07, -08; Oi32-01, -02, -13.

WELL - Oi22-05
 LOCATION - Lat 384316, long 750842
 OWNER - City of Rehoboth Beach
 WELL CHARACTERISTICS - Drilled test well, dia. 6 in, depth 100 ft, cased to 70 ft, screened 70 to 100 ft.
 DATUM - Elevation NGVD 1929 is 30.05 ft. Measuring point: top of casing.
 NOTE - Elevation of measuring point changed to 29.49 on 3-14-1989.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
8	4	1987	20.79	12	6	1988	23.98
9	17	1987	21.68	1	11	1989	24.18
11	4	1987	22.33	3	14	1989	23.73
11	18	1987	22.83	5	4	1989	20.97
11	24	1987	22.80	6	13	1989	20.28
12	22	1987	23.11	7	26	1989	19.69
2	10	1988	22.99	8	22	1989	18.75
2	19	1988	22.87	10	18	1989	17.96
3	4	1988	22.62	12	6	1989	17.32
5	18	1988	21.69	1	12	1990	17.80
7	12	1988	22.30	1	15	1990	17.93
8	3	1988	22.70	2	21	1990	17.54
8	9	1988	22.82	3	28	1990	17.59
10	6	1988	23.60	5	9	1990	17.93
10	13	1988	23.66	6	12	1990	18.06
11	10	1988	23.80				

WELL - Oi32-01
 LOCATION - Lat 384217, long 750852
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia. 2 in, depth 14 ft, cased to 9 ft, screened 9 to 14 ft.
 DATUM - Elevation NGVD 1929 is 14.86 ft. Measuring point: top of casing.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
3	22	1988	9.23	3	2	1989	10.97
4	12	1988	9.02	5	4	1989	7.05
4	29	1988	9.12	6	13	1989	8.11
5	18	1988	9.16	7	26	1989	8.23
5	26	1988	9.28	8	22	1989	6.15
7	12	1988	9.91	10	18	1989	7.14
8	3	1988	10.20	12	6	1989	7.29
8	9	1988	10.26	1	12	1990	7.74
10	6	1988	11.05	1	17	1990	7.57
10	11	1988	11.16	2	21	1990	7.92
11	10	1988	11.34	3	28	1990	8.49
12	6	1988	11.43	5	9	1990	8.59
1	11	1989	11.56	5	16	1990	8.65
2	16	1989	11.27	6	12	1990	8.72

WELL - Oi22-07
 LOCATION - Lat 384316, long 750842
 OWNER - City of Rehoboth Beach
 WELL CHARACTERISTICS - Drilled test well, dia. 2 in, depth 57 ft, cased to 47 ft, screened 47 to 57 ft.
 DATUM - Elevation NGVD 1929 is 30.23 ft. Measuring point: top of casing.
 NOTE - Elevation of measuring point changed to 29.69 on 2-21-1990.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
8	4	1987	20.94	12	6	1988	24.16
9	17	1987	21.93	1	11	1989	24.50
11	4	1987	22.68	3	14	1989	24.44
11	18	1987	22.98	5	4	1989	21.71
11	24	1987	22.99	6	13	1989	21.00
12	22	1987	23.30	7	26	1989	20.40
2	10	1988	23.25	8	22	1989	19.39
2	19	1988	23.00	10	18	1989	18.68
3	4	1988	22.77	12	6	1989	18.06
5	18	1988	21.85	1	12	1990	18.44
7	12	1988	22.48	1	15	1990	18.54
8	3	1988	22.87	1	17	1990	26.43
8	9	1988	23.15	3	28	1990	17.77
10	6	1988	23.80	5	9	1990	18.14
10	13	1988	23.86	6	12	1990	18.25
11	10	1988	23.98				

WELL - Oi32-02
 LOCATION - Lat 384217, long 750852
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia. 1.25 in, depth 75 ft, cased to 70 ft, screened 70 to 75 ft.
 DATUM - Elevation NGVD 1929 is 14.82 ft. Measuring point: top of casing.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	4	1987	11.78	12	6	1988	11.71
11	24	1987	11.85	1	11	1989	11.66
12	22	1987	11.34	2	16	1989	11.65
2	10	1988	10.64	3	2	1989	11.27
2	19	1988	10.08	5	4	1989	9.30
3	7	1988	9.68	6	13	1989	10.16
3	22	1988	9.87	7	26	1989	9.80
4	12	1988	9.92	8	22	1989	8.60
4	29	1988	10.26	10	18	1989	9.62
5	18	1988	10.38	12	6	1989	9.46
5	26	1988	10.39	1	12	1990	9.32
7	12	1988	11.29	1	17	1990	9.44
8	3	1988	11.28	2	21	1990	9.67
8	9	1988	11.42	3	28	1990	9.98
10	6	1988	11.71	5	9	1990	9.85
10	11	1988	11.47	5	16	1990	9.98
11	10	1988	11.72	6	12	1990	10.07

WELL - Oi22-08
 LOCATION - Lat 384316, long 750842
 OWNER - City of Rehoboth Beach
 WELL CHARACTERISTICS - Bored monitoring well, dia. 2 in, depth 33 ft, cased to 28 ft, screened 28 to 33 ft.
 DATUM - Elevation NGVD 1929 is 30.37 ft. Measuring point: top of casing.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	4	1987	22.91	1	11	1989	24.50
11	18	1987	23.10	2	16	1989	26.47
11	24	1987	23.11	3	14	1989	24.67
12	22	1987	23.40	5	4	1989	21.80
2	10	1988	23.28	6	13	1989	21.10
2	19	1988	23.15	7	26	1989	20.56
3	4	1988	22.88	8	22	1989	19.61
5	18	1988	21.96	10	18	1989	18.78
7	12	1988	22.57	12	6	1989	18.20
8	3	1988	22.96	1	17	1990	17.33
8	9	1988	23.06	2	21	1990	18.16
10	6	1988	23.77	3	28	1990	18.40
10	13	1988	23.95	5	9	1990	18.75
11	10	1988	24.21	6	12	1990	18.90
12	6	1988	24.29				

WELL - Oi32-13
 LOCATION - Lat 384217, long 750852
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia. 1.25 in, depth 47 ft, cased to 42 ft, screened 42 to 47 ft.
 DATUM - Elevation NGVD 1929 is 14.87 ft. Measuring point: top of casing.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
4	13	1988	10.98	5	4	1989	9.73
4	29	1988	10.67	6	13	1989	9.42
5	18	1988	10.78	7	26	1989	10.18
5	26	1988	10.82	8	22	1989	9.01
7	12	1988	11.7	10	18	1989	10.03
8	3	1988	11.68	12	6	1989	9.95
8	9	1988	11.88	1	12	1990	9.73
10	6	1988	12.17	1	17	1990	9.84
10	11	1988	12.22	2	21	1990	10.07
11	10	1988	12.14	3	28	1990	10.39
12	6	1988	12.14	5	9	1990	10.3
1	11	1989	12.12	5	16	1990	10.38
2	16	1989	12.08	6	12	1990	10.46
3	2	1989	11.77				

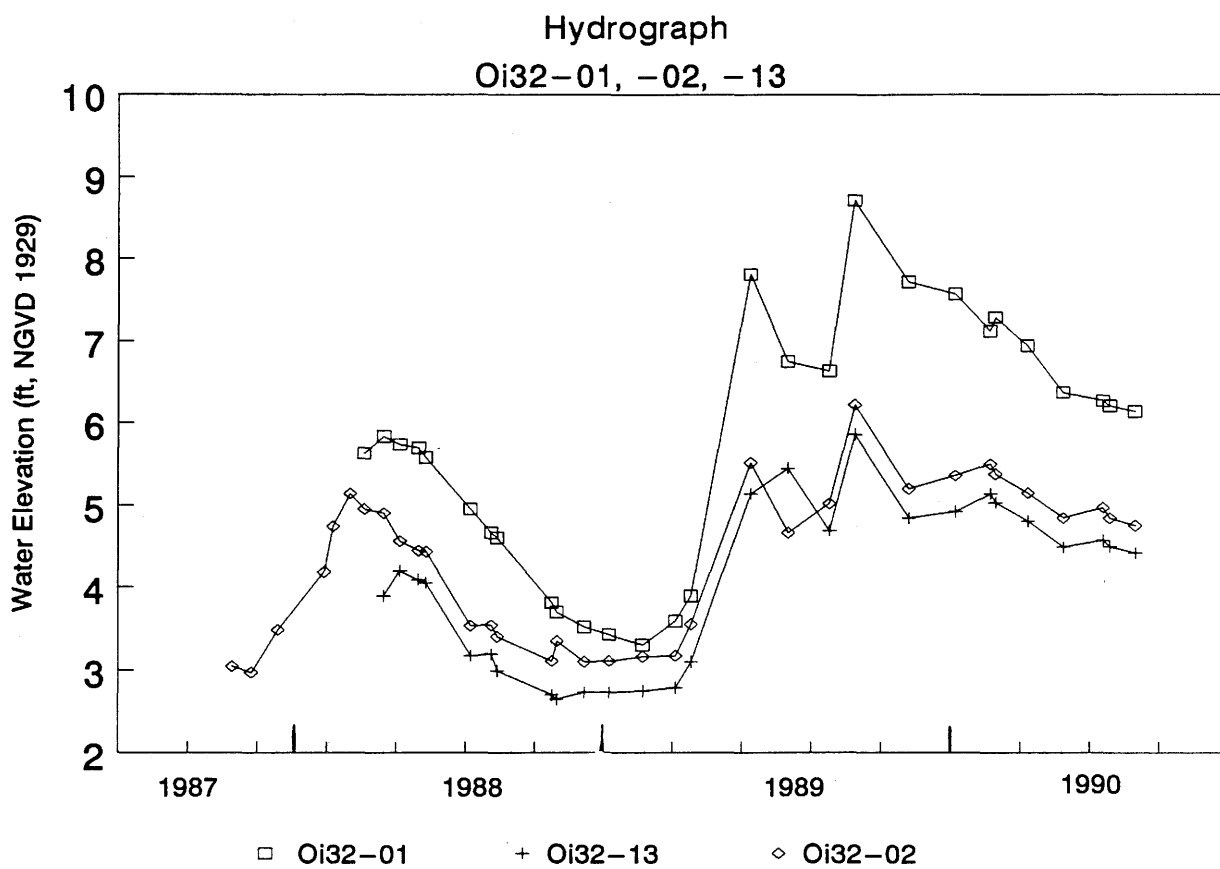
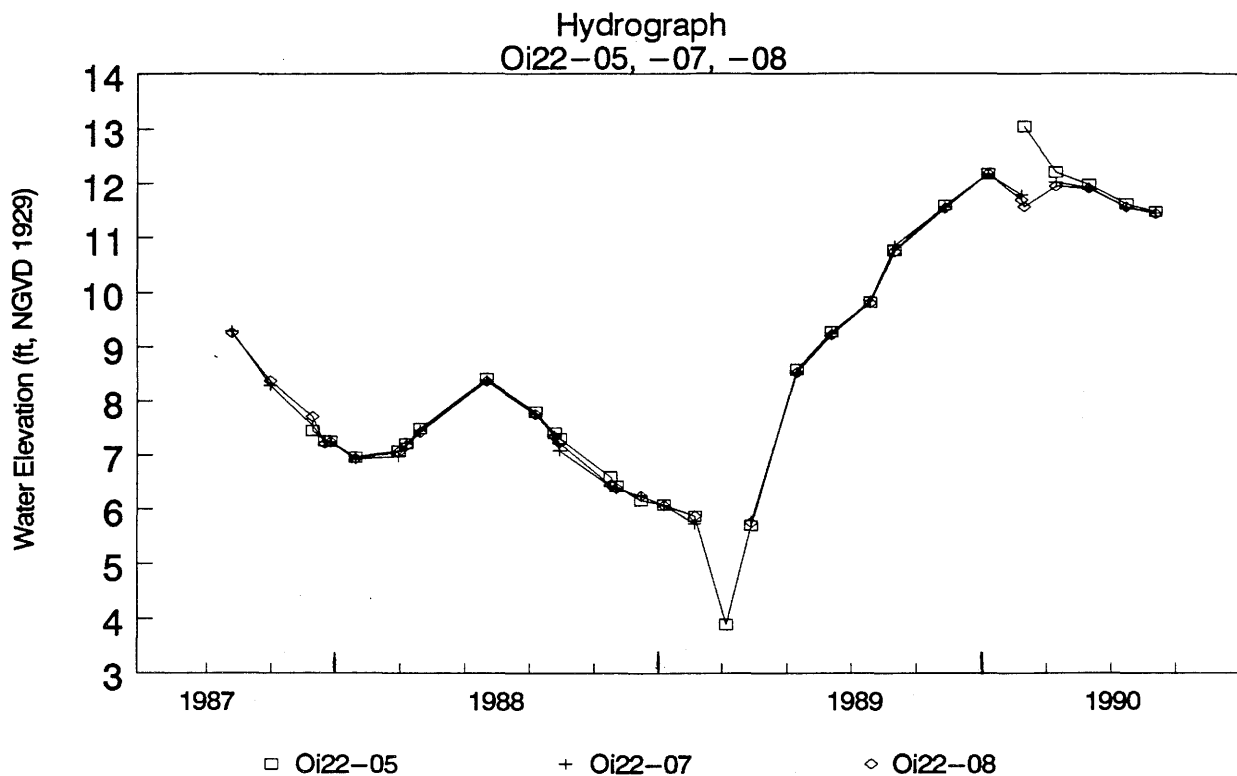


Figure 2. Hydrographs for wells Oi22-05, -07, -08; Oi32-01, -02, -13.

Table 8. Ground-water levels for Oi32-04, -05, -06, -07, -08, -09, -10, -11, -12.

WELL - Oi32-04
LOCATION - Lat 384244, long 750853
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 2 in, depth 26 ft, cased to 21 ft, screened 21 to 26 ft.
DATUM - Elevation NGVD 1929 is 26.17 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	24	1987	21.11	1	11	1989	21.83
12	22	1987	21.23	2	16	1989	21.90
2	10	1988	20.45	3	2	1989	21.80
2	19	1988	20.22	5	4	1989	18.49
3	7	1988	19.82	6	13	1989	18.66
3	22	1988	19.74	7	26	1989	18.18
4	12	1988	19.58	8	22	1989	16.82
5	18	1988	19.49	10	18	1989	17.38
7	12	1988	20.29	12	6	1989	17.05
8	3	1988	20.25	1	12	1990	17.45
8	9	1988	20.67	1	17	1990	17.46
10	6	1988	21.36	2	21	1990	17.54
10	13	1988	21.44	3	28	1990	17.87
11	10	1988	21.63	5	9	1990	18.05
12	6	1988	21.70	6	12	1990	18.22

WELL - Oi32-09
LOCATION - Lat 384222, long 750837
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 1.25 in, depth 72 ft, cased to 67 ft, screened 67 to 72 ft.
DATUM - Elevation NGVD 1929 is 14.03 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
3	22	1988	10.01	11	3	1988	11.08
5	24	1988	10.10	1	11	1988	11.07
8	3	1988	10.63	10	24	1989	8.60
8	17	1988	9.94	3	28	1990	9.36

WELL - Oi32-05
LOCATION - Lat 384244, long 750853
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Drilled monitoring well, dia. 2 in, depth 49 ft, cased to 44 ft, screened 44 to 49 ft.
DATUM - Elevation NGVD 1929 is 25.80 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
3	22	1988	19.42	5	4	1989	18.11
4	12	1988	19.07	6	13	1989	18.29
5	18	1988	19.13	7	26	1989	17.81
7	12	1988	19.97	8	22	1989	16.46
8	3	1988	20.19	10	18	1989	16.98
8	9	1988	20.22	12	6	1989	16.58
10	6	1988	20.99	1	12	1990	17.10
10	13	1988	20.99	1	17	1990	17.11
11	10	1988	21.25	2	21	1990	17.10
12	6	1988	21.34	3	28	1990	17.42
1	11	1989	21.47	5	9	1990	17.77
2	16	1989	21.34	6	12	1990	17.88
3	2	1989	21.47				

WELL - Oi32-10
LOCATION - Lat 384209, long 750859
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 2 in, depth 14 ft, cased to 9 ft, screened 9 to 14 ft.
DATUM - Elevation NGVD 1929 is 7.10 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
4	12	1988	2.93	6	13	1989	3.47
4	29	1988	3.30	7	26	1989	3.13
5	18	1988	3.26	8	22	1989	2.41
7	12	1988	4.27	10	18	1989	3.00
8	3	1988	4.22	10	24	1989	2.41
8	17	1988	4.68	12	6	1989	2.83
10	6	1988	4.63	1	12	1990	2.67
10	13	1988	4.72	1	17	1990	2.78
11	10	1988	4.73	2	21	1990	2.98
12	6	1988	4.30	3	28	1990	3.22
1	11	1989	4.21	5	9	1990	3.12
3	14	1989	3.11	5	16	1990	3.20
5	4	1989	2.54	6	12	1990	3.38

WELL - Oi32-06
LOCATION - Lat 384244, long 750853
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 1.25 in, depth 77 ft, cased to 72 ft, screened 72 to 77 ft.
DATUM - Elevation NGVD 1929 is 25.67 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	24	1987	21.71	12	6	1988	22.18
12	22	1987	21.72	1	11	1989	22.19
2	10	1988	21.10	2	16	1989	22.33
2	19	1988	20.70	3	2	1989	22.16
3	7	1988	20.42	5	4	1989	19.25
3	22	1988	20.46	6	13	1989	19.54
4	12	1988	20.17	7	26	1989	19.10
5	18	1988	20.21	8	22	1989	17.84
7	12	1988	21.00	10	18	1989	18.42
8	3	1988	21.18	1	17	1990	18.86
8	9	1988	21.29	2	21	1990	18.25
10	6	1988	21.94	3	28	1990	18.58
10	13	1988	22.00	5	9	1990	18.70
11	10	1988	22.13	6	12	1990	18.83

WELL - Oi32-11
LOCATION - Lat 384209, long 750859
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 1.25 in, depth 32 ft, cased to 27 ft, screened 27 to 32 ft.
DATUM - Elevation NGVD 1929 is 7.40 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
4	12	1988	3.10	6	13	1989	3.58
4	29	1988	3.50	7	26	1989	3.20
5	18	1988	3.59	8	22	1989	2.06
7	12	1988	4.56	10	18	1989	3.09
8	3	1988	4.46	10	24	1989	2.34
8	17	1988	4.86	12	6	1989	2.96
10	6	1988	4.88	1	12	1990	2.75
10	13	1988	5.61	1	17	1990	2.91
11	10	1988	4.77	2	21	1990	3.12
12	6	1988	4.76	3	28	1990	3.45
1	11	1989	4.71	5	9	1990	3.27
3	14	1989	3.43	5	16	1990	3.98
5	4	1989	2.60	6	12	1990	3.50

WELL - Oi32-07
LOCATION - Lat 384222, long 750837
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 2 in, depth 18 ft, cased to 13 ft, screened 13 to 18 ft.
DATUM - Elevation NGVD 1929 is 13.89 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
3	22	1988	10.30	11	3	1988	11.25
5	24	1988	10.30	1	11	1989	11.13
8	3	1988	10.99	10	24	1989	9.30
8	17	1988	11.30	3	28	1990	9.85

WELL - Oi32-08
LOCATION - Lat 384222, long 750837
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Drilled monitoring well, dia. 2 in, depth 30 ft, cased to 25 ft, screened 25 to 30 ft.
DATUM - Elevation NGVD 1929 is 13.71 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
3	22	1988	10.17	11	3	1988	11.05
5	24	1988	9.89	1	11	1989	10.97
8	3	1988	10.78	10	24	1989	9.06
8	17	1988	11.04	3	28	1990	9.66

WELL - Oi32-12
LOCATION - Lat 384209, long 750859
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia. 1.25 in, depth 60 ft, cased to 55 ft, screened 55 to 60 ft.
DATUM - Elevation NGVD 1929 is 7.10 ft. Measuring point: top of casing

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
3	22	1988	5.03	6	13	1989	3.22
4	12	1988	3.29	7	26	1989	2.8
4	29	1988	3.18	8	22	1989	1.67
5	18	1988	3.25	10	18	1989	3.72
7	12	1988	4.22	10	24	1989	2.05
8	3	1988	4.11	12	6	1989	2.6
8	17	1988	4.53	1	12	1990	2.39
10	6	1988	4.58	1	17	1990	2.56
10	13	1988	4.69	2	21	1990	2.76
11	10	1988	4.44	3	28	1990	3.1
12	6	1988	4.44	5	9	1990	2.92
1	11	1989	5.61	5	16	1990	3.06
3	14	1989	3.15	6	12	1990	3.13
5	4	1989	2.25				

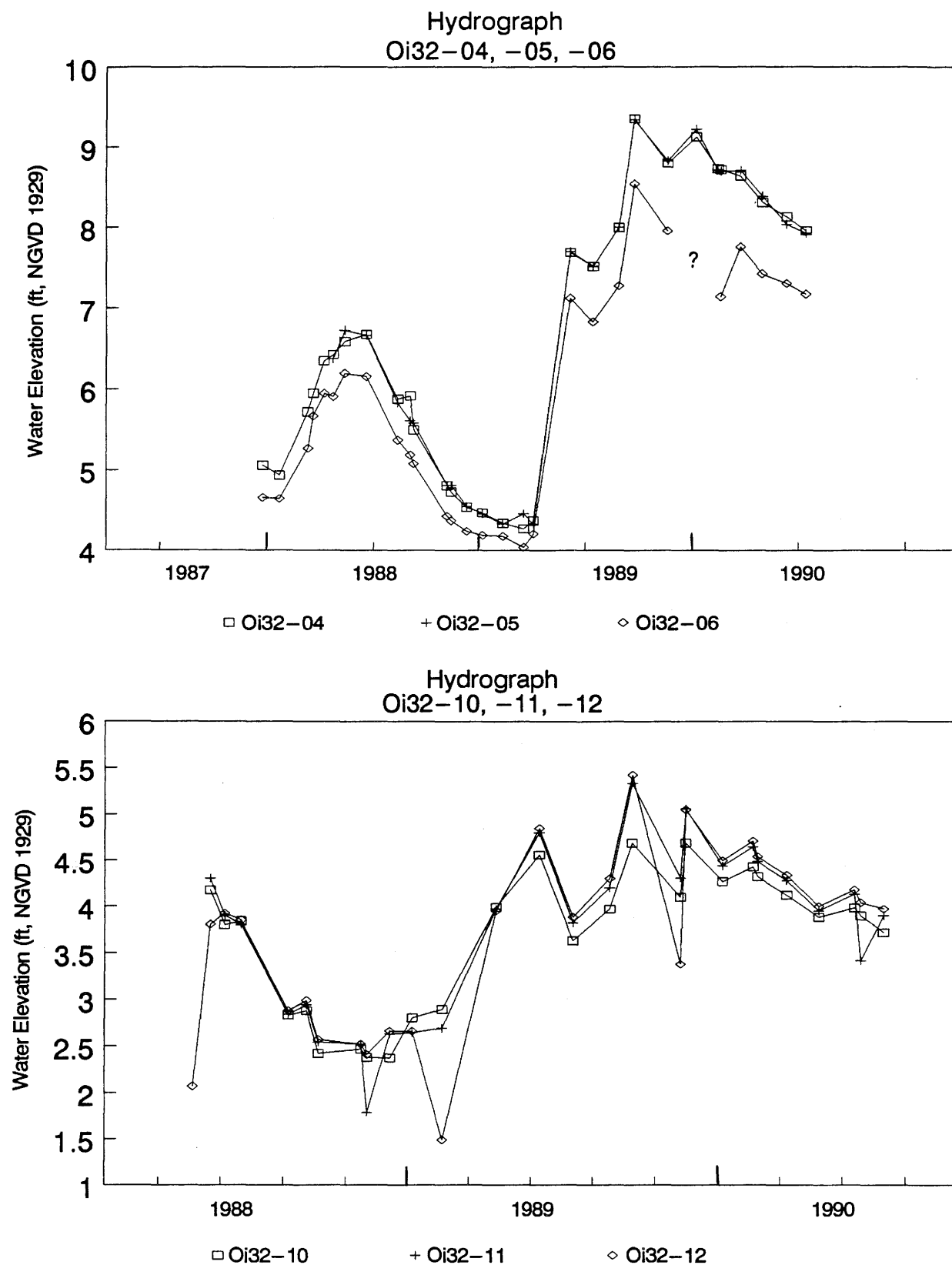


Figure 3. Hydrographs for wells Oi32-04, -05, -06; Oi32-10, -11, -12.

Table 9. Ground-water levels from Oi43-05, -06, -07; Ph22-17, -18, -19.

WELL - Oi43-05
LOCATION - Lat 384137, long 750753
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 25 ft, cased to 20 ft, screened 20 to 25 ft.
DATUM - Elevation NGVD 1929 is 11.12 ft. Measuring point: top of casing.
NOTE - Water levels may be tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	24	1987	8.97	2	16	1989	8.80
12	22	1987	8.36	3	14	1989	7.50
2	10	1988	8.29	5	4	1989	7.43
2	19	1988	7.78	6	13	1989	8.23
3	7	1988	8.20	7	26	1989	7.02
4	13	1988	7.08	8	22	1989	7.18
4	29	1988	8.09	10	16	1989	7.96
5	18	1988	8.01	10	24	1989	7.34
5	26	1988	7.97	12	6	1989	8.02
8	3	1988	8.51	1	12	1990	7.69
8	17	1988	9.10	1	17	1990	8.05
10	6	1988	8.70	2	21	1990	8.25
10	11	1988	8.88	3	28	1990	8.30
11	10	1988	8.76	5	9	1990	8.03
12	6	1988	8.84	6	12	1990	8.00
1	11	1989	8.64				

WELL - Oi43-06
LOCATION - Lat 384137, long 750753
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 49 ft, cased to 44 ft, screened 44 to 49 ft.
DATUM - Elevation NGVD 1929 is 11.01 ft. Measuring point: top of casing.
NOTE - Water levels may be tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
4	13	1988	6.98	5	4	1989	7.44
4	29	1988	8.04	6	13	1989	8.12
5	18	1988	7.93	7	26	1989	7.04
5	26	1988	8.06	8	22	1989	7.19
8	3	1988	8.45	10	16	1989	7.89
8	17	1988	9.03	10	24	1989	7.34
10	6	1988	8.58	12	6	1989	7.97
10	11	1988	8.78	1	12	1990	7.64
11	10	1988	8.57	1	17	1990	8.00
12	6	1988	8.72	2	21	1990	8.18
1	11	1989	8.64	3	28	1990	8.22
2	16	1989	8.70	5	9	1990	7.90
3	14	1989	7.46	6	12	1990	7.92

WELL - Oi43-07
LOCATION - Lat 384137, long 750753
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 87 ft, cased to 82 ft, screened 82 to 87 ft.
DATUM - Elevation NGVD 1929 is 11.05 ft. Measuring point: top of casing.
NOTE - Water levels may be tidally affected.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	24	1987	9.09	2	16	1989	8.77
12	22	1987	8.32	3	14	1989	7.55
2	10	1988	8.33	5	4	1989	7.51
2	19	1988	7.78	6	13	1989	8.22
3	7	1988	8.24	7	26	1989	7.01
4	13	1988	6.98	8	22	1989	7.26
4	29	1988	8.09	10	16	1989	7.97
5	18	1988	7.96	10	24	1989	7.38
5	26	1988	8.07	12	6	1989	8.04
8	3	1988	8.50	1	12	1990	7.69
8	17	1988	8.93	1	17	1990	8.06
10	6	1988	8.64	2	21	1990	8.24
10	11	1988	8.80	3	28	1990	8.29
11	10	1988	8.62	5	9	1990	8.01
12	6	1988	8.89	6	12	1990	7.96
1	11	1989	8.69				

WELL - Ph22-17
LOCATION - Lat 383810, long 751309
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, 2 in dia, depth 12.5 ft, cased to 7.5 ft, screened 7.5 to 12.5 ft.
DATUM - Altitude of land surface datum is approximately 26 ft (map). Measuring point: top of casing at land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
6	27	1989	3.79	1	23	1990	2.09
9	14	1989	1.63	2	21	1990	2.22
10	30	1989	1.09	3	28	1990	2.88
12	6	1989	1.77	5	16	1990	2.82
1	17	1990	1.9	6	12	1990	3.03

WELL - Ph22-18
LOCATION - Lat 383810, long 751309
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 47 ft, cased to 42 ft, screened 42 to 47 ft.
DATUM - Altitude of land surface datum is approximately 26 ft (map). Measuring point: top of casing 0.14 ft below land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
6	27	1989	4	1	23	1990	1.91
9	14	1989	1.67	2	21	1990	2.08
10	30	1989	1.18	3	28	1990	2.76
12	6	1989	1.68	5	16	1990	2.69
1	17	1990	1.72	6	12	1990	2.93

WELL - Ph22-19
LOCATION - Lat 383810, long 751309
OWNER - Delaware Geological Survey
WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 78 ft, cased to 73 ft, screened 73 to 78 ft.
DATUM - Altitude of land surface datum is approximately 26 ft (map). Measuring point: top of casing 0.2 ft below land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
6	27	1989	3.95	1	23	1990	1.86
9	14	1989	1.65	2	21	1990	2.14
10	30	1989	1.07	3	28	1990	2.7
12	6	1989	1.6	5	16	1990	2.64
1	17	1990	1.66	6	12	1990	2.88

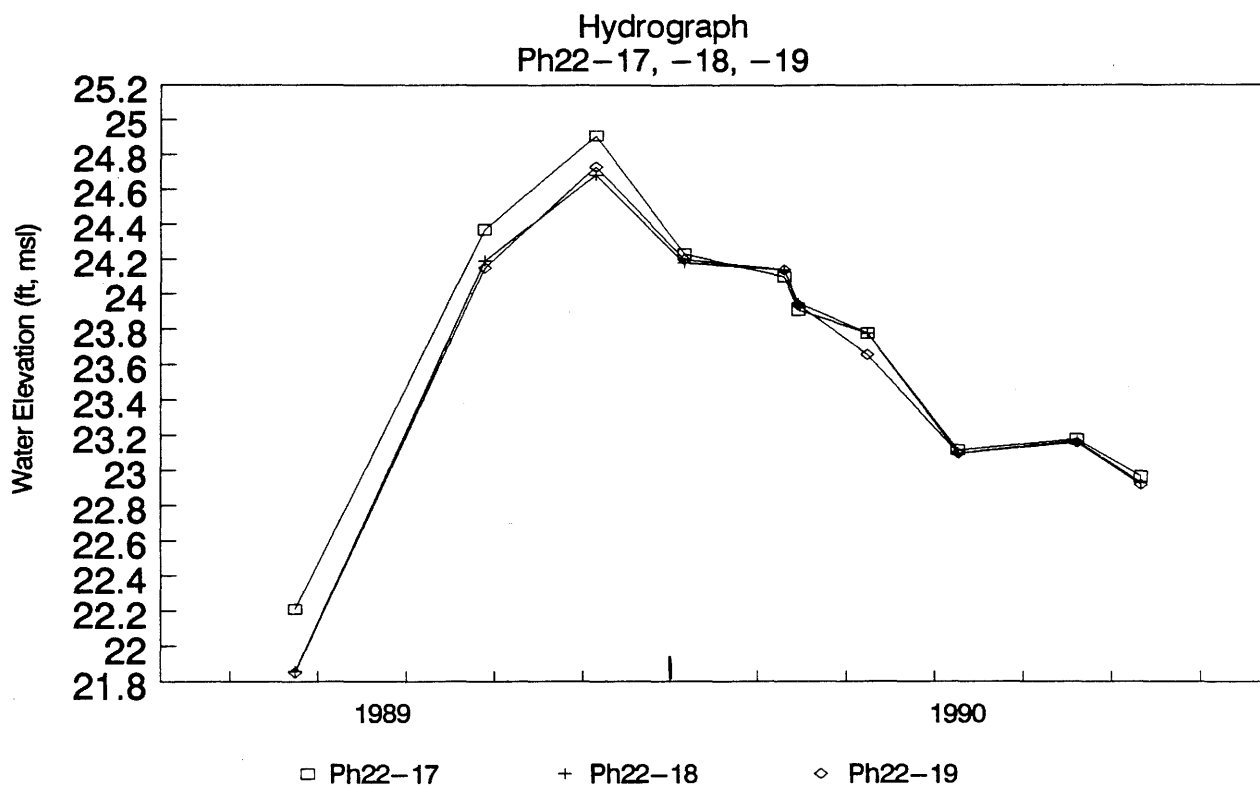
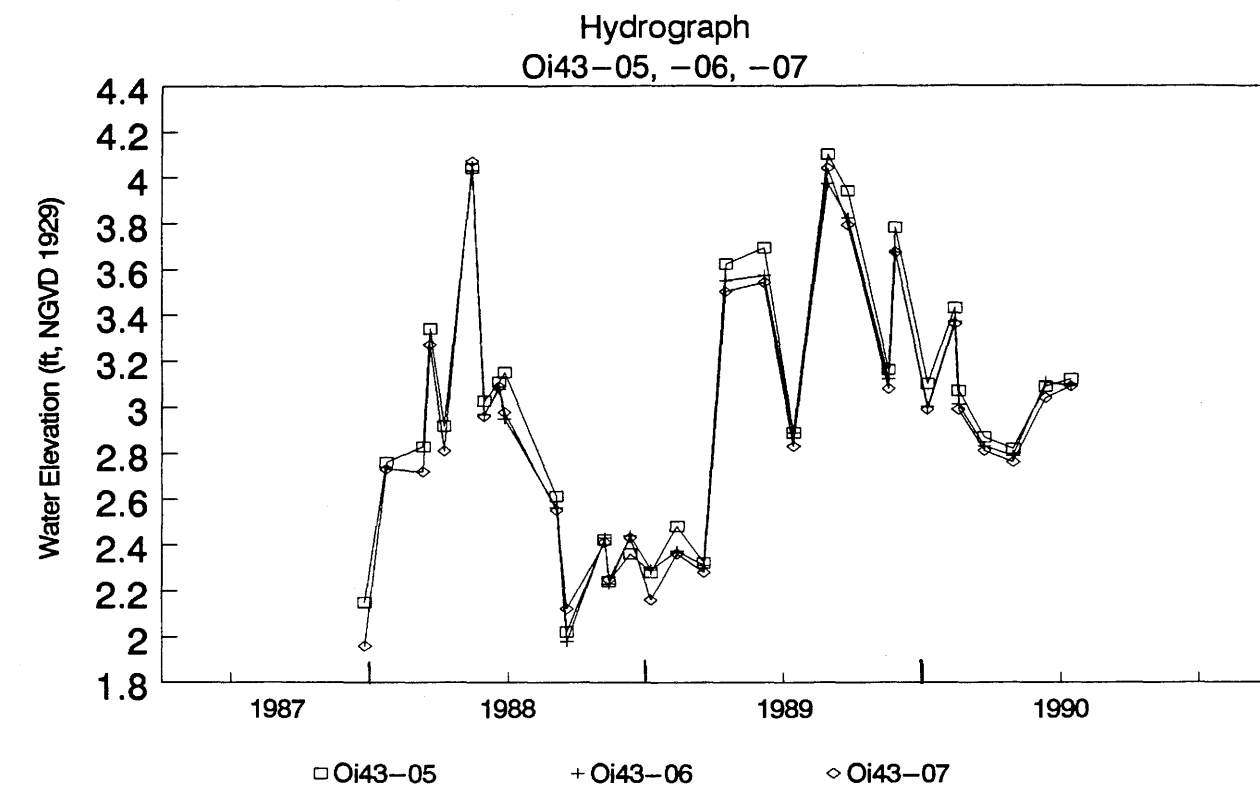


Figure 4. Hydrographs for wells Oi43-05, -06, -07; Ph22-17, -18, -19.

Table 10. Ground-water levels from Ph42-03, -04, -05; Qh15-04, -06, -07.

WELL - Ph42-03
 LOCATION - Lat 383644, long 751317
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 17 ft, cased to 8.6 ft, screened 8.6 to 17 ft.
 DATUM - Altitude of land surface datum is approximately 22 ft (map). Measuring point: top of casing 0.28 ft below land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
6	27	1989	9.85	1	23	1990	7.48
9	14	1989	6.91	2	21	1990	7.84
10	30	1989	6.22	3	28	1990	8.83
12	6	1989	6.92	5	16	1990	8.74
1	17	1990	7.25	6	12	1990	8.64

WELL - Ph42-04
 LOCATION - Lat 383644, long 751317
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 34.5 ft, cased to 29.5 ft, screened 29.5 to 34.5 ft.
 DATUM - Altitude of land surface datum is approximately 22 ft (map). Measuring point: top of casing 0.38 ft below land surface.

mm	dd	yyyy	level ft bmp	mm	dd	yyyy	level ft bmp
6	27	1989	9.81	1	23	1990	7.4
9	14	1989	7.01	2	21	1990	7.77
10	30	1989	6.16	3	28	1990	8.64
12	6	1989	6.86	5	16	1990	8.71
1	17	1990	7.17	6	12	1990	8.61

WELL - Ph42-05
 LOCATION - Lat 383644, long 751317
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 45 ft, cased to 40 ft, screened 40 to 45 ft.
 DATUM - Altitude of land surface datum is approximately 22 ft (map). Measuring point: top of casing at land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
6	27	1989	10.35	1	23	1990	7.76
9	14	1989	7.4	2	21	1990	8.13
10	30	1989	6.49	3	28	1990	9
12	6	1989	7.21	5	16	1990	9.65
1	17	1990	7.35	6	12	1990	8.9

WELL - Qh15-04
 LOCATION - Lat 383404, long 751041
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 16 ft, cased to 11 ft, screened 11 to 16 ft.
 DATUM - Altitude of land-surface datum is approximately 17 ft (map). Measuring point: top of casing at land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
6	7	1988	5.74	6	15	1989	5.42
7	14	1988	6.21	7	17	1989	3.86
7	26	1988	6.12	8	16	1989	3.90
8	11	1988	6.03	9	21	1989	3.48
10	20	1988	6.04	10	26	1989	4.54
11	3	1988	5.75	12	6	1989	5.46
12	6	1988	5.89	1	17	1990	5.36
1	12	1989	6.02	2	21	1990	5.58
2	16	1989	6.12	3	14	1990	5.73
3	9	1989	3.97	5	2	1990	5.39
5	11	1989	4.82	6	26	1990	5.86

WELL - Qh15-06
 LOCATION - Lat 383404, long 751041
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 30 ft, cased to 25 ft, screened 25 to 30 ft.
 DATUM - Altitude of land-surface datum is approximately 17 ft (map). Measuring point: top of casing 0.40 ft below land-surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	26	1988	5.94	8	16	1989	3.57
10	20	1988	5.67	9	21	1989	5.27
11	3	1988	5.40	10	26	1989	4.21
12	6	1988	5.53	12	6	1989	5.09
1	12	1989	5.55	1	17	1990	5.02
2	16	1989	5.73	2	21	1990	5.22
3	9	1989	3.60	3	14	1990	5.38
5	11	1989	4.46	5	2	1990	5.06
6	15	1989	5.04	6	23	1990	5.49
7	17	1989	3.51				

WELL - Qh15-07
 LOCATION - Lat 383404, long 751041
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 72 ft, cased to 72 ft, screened 72 to 77 ft.
 DATUM - Altitude of land-surface datum is approximately 17 ft (map). Measuring point: top of casing 0.38 ft below land-surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	20	1988	6.22	8	16	1989	3.72
11	3	1988	5.31	9	21	1989	3.51
12	6	1988	5.60	10	26	1989	4.31
1	12	1989	5.64	12	6	1989	5.17
2	16	1989	5.80	1	17	1990	5.13
3	9	1989	3.67	2	21	1990	5.28
5	11	1989	4.47	3	14	1990	5.46
6	15	1989	5.06	5	2	1990	5.12
7	17	1989	3.65	6	23	1990	5.56

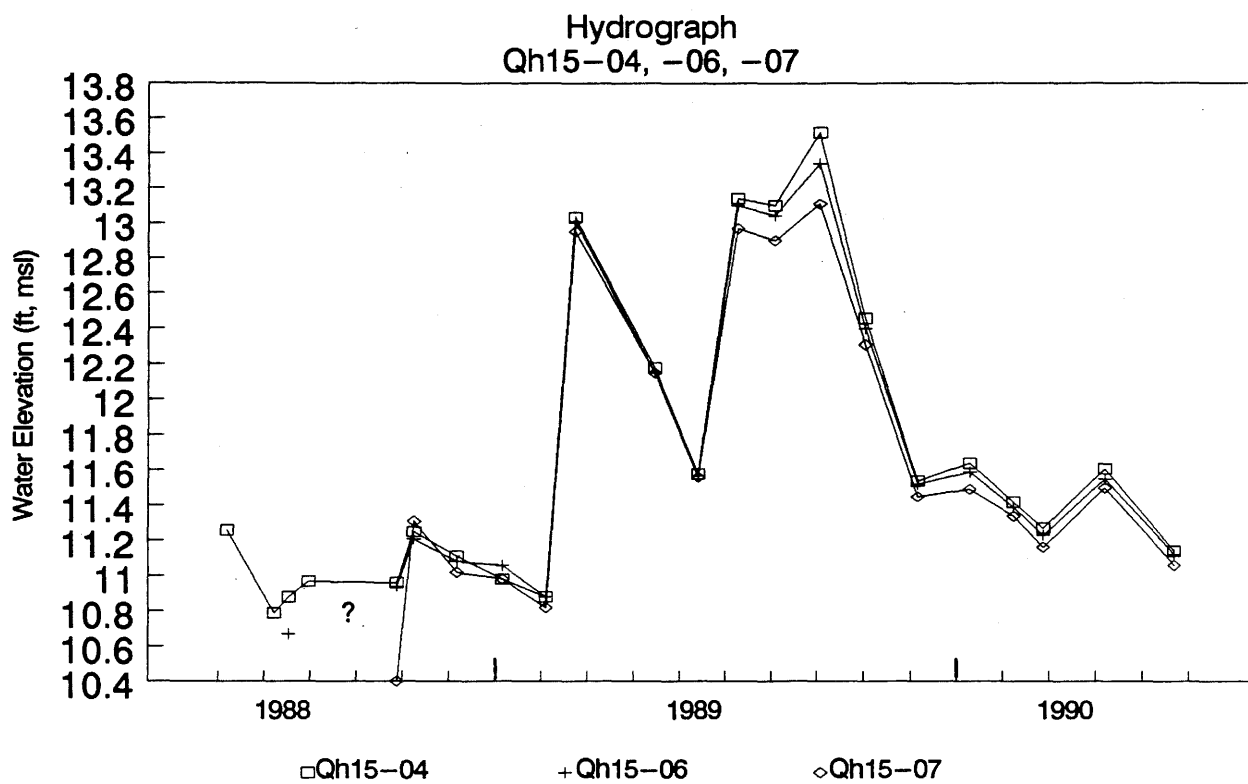
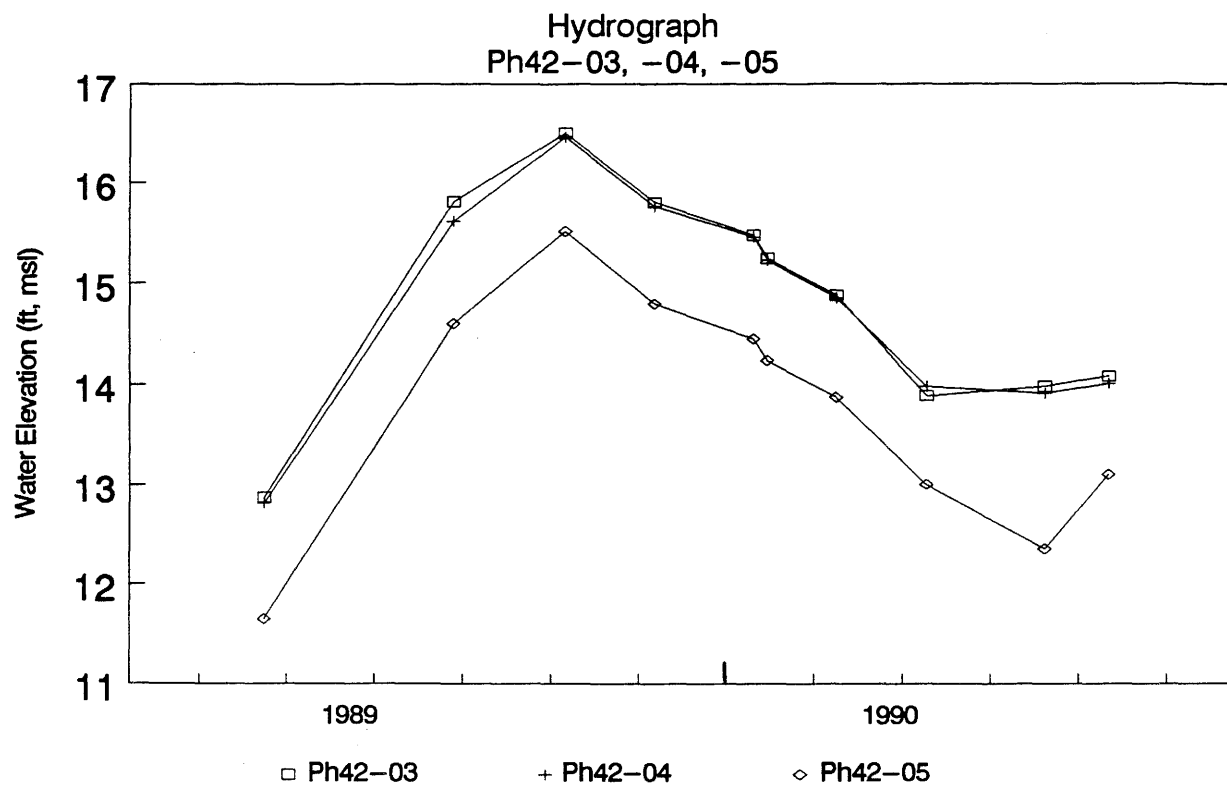


Figure 5. Hydrographs for wells Ph42-03, -04, -05; Qh15-04, -06, -07.

Table 11. Ground-water levels from Qh34-02, -03, -04; Qh55-03, -04, -05.

WELL - Qh34-02
 LOCATION - Lat 383249, long 751131
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 22 ft, cased to 17 ft, screened 17 to 22 ft.
 DATUM - Altitude of land - surface datum is approximately 18 ft (map). Measuring point: top of casing at land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	26	1988	10.49	7	17	1989	7.33
8	11	1988	9.50	8	16	1989	7.24
10	6	1988	10.58	9	21	1989	7.23
11	3	1988	10.12	10	26	1989	7.68
12	6	1988	10.26	12	6	1989	8.59
1	12	1989	10.35	1	17	1990	8.36
2	16	1989	10.33	2	21	1990	8.58
3	9	1989	7.94	3	14	1990	9.33
5	11	1989	7.93	5	2	1990	9.11
6	15	1989	9.20	6	26	1990	9.77

WELL - Qh55-03
 LOCATION - Lat 383050, long 751057
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 18 ft, cased to 13 ft, screened 13 to 18 ft.
 DATUM - Altitude of land - surface datum is approximately 27 ft (map). Measuring point: top of casing 1.61 ft above land - surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	27	1987	4.41	1	12	1989	2.99
12	3	1987	4.2	2	3	1989	3.37
1	7	1988	3.15	3	1	1989	2.28
2	10	1988	2.82	3	29	1989	2.85
3	2	1988	3.06	5	9	1989	3.43
3	10	1988	3.01	6	13	1989	4.37
3	30	1988	2.65	8	23	1989	2.71
5	4	1988	3.58	10	5	1989	2.9
6	1	1988	3.82	11	14	1989	3.16
6	23	1988	4.49	12	5	1989	3.29
7	2	1988	5.55	1	3	1990	2.68
7	28	1988	2.2	1	30	1990	2.74
9	23	1988	4.39	2	21	1990	3.09
10	11	1988	4.09	4	12	1990	2.61
10	27	1988	3.64	5	16	1990	2.85
12	5	1988	3.33	6	27	1990	4.38

WELL - Qh34-03
 LOCATION - Lat 383249, long 751131
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 39 ft, screened 34 to 39 ft.
 DATUM - Altitude of land - surface datum is approximately 18 ft (map). Measuring point: top of casing 0.10 ft below land - surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
7	26	1988	10.62	7	17	1989	7.85
8	11	1988	9.73	8	16	1989	7.74
10	6	1988	10.63	9	21	1989	7.67
11	3	1988	10.37	10	26	1989	8.20
12	6	1988	10.10	12	6	1989	9.06
1	12	1989	10.66	1	17	1990	8.87
2	16	1989	10.65	2	21	1990	9.23
3	9	1989	8.53	3	14	1990	9.63
5	11	1989	8.34	5	1	1990	9.47
6	15	1989	9.52	6	26	1990	10.07

WELL - Qh55-04
 LOCATION - Lat 383050, long 751057
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 39 ft, cased to 34 ft, screened 34 to 39 ft.
 DATUM - Altitude of land - surface datum is approximately 27 ft (map). Measuring point: top of casing 1.00 ft above land - surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	27	1987	17.81	1	12	1989	12.6
12	3	1987	14.52	2	3	1989	12.55
1	7	1988	13.2	3	1	1989	11.96
2	10	1987	11.76	3	29	1989	10.09
3	2	1988	10.96	5	9	1989	10.21
3	10	1988	11.02	6	13	1989	11.58
3	30	1988	11.16	8	23	1989	8.73
5	4	1988	11.13	10	5	1989	9.6
6	1	1988	11.58	11	14	1989	9.95
6	23	1988	12.62	12	5	1989	10.19
7	12	1988	13.41	1	3	1990	10.56
7	28	1988	13.19	1	30	1990	10.29
9	23	1988	13.16	2	21	1990	10.39
10	11	1988	13.16	4	12	1990	10.4
10	27	1988	13.08	5	16	1990	10.82
12	5	1988	12.44	6	27	1990	11.6

WELL - Qh34-04
 LOCATION - Lat 383249, long 751131
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 66 ft, cased to 61 ft, screened 61 to 66 ft.
 DATUM - Altitude of land - surface datum is approximately 18 ft (map). Measuring point: top of casing 0.22 ft below land - surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	3	1988	11.35	9	21	1989	7.54
12	6	1988	9.97	10	26	1989	8.09
1	12	1989	10.53	12	6	1989	8.91
2	16	1989	10.53	1	17	1990	8.73
3	9	1989	8.41	2	21	1990	9.08
5	11	1989	8.25	3	14	1990	9.49
6	15	1989	9.38	5	1	1990	9.32
7	17	1989	9.38	6	26	1990	9.20
8	16	1989	7.62				

WELL - Qh55-05
 LOCATION - Lat 383050, long 751057
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 89 ft, cased to 84 ft, screened 84 to 89 ft.
 DATUM - Altitude of land - surface datum is approximately 27 ft (map). Measuring point: top of casing approximately 1.9 ft above land - surface datum.
 NOTE - Well top broken in March 1990.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
10	27	1987	17.19	12	5	1988	15.01
12	3	1987	16.95	1	12	1989	15.12
1	7	1988	16.04	2	3	1989	15.15
2	10	1987	14.7	3	1	1989	14.67
3	2	1988	13.47	3	29	1989	12.28
3	10	1988	13.51	5	9	1989	12.43
3	30	1988	13.61	6	13	1989	13.8
5	4	1988	13.47	8	23	1989	10.67
6	1	1988	13.92	10	5	1989	11.68
6	23	1988	14.07	11	14	1989	12.14
7	12	1988	15.73	12	5	1989	12.33
7	28	1988	15.53	1	3	1990	12.9
9	23	1988	15.63	1	30	1990	12.58
10	11	1988	15.79	2	21	1990	12.61
10	27	1988	15.65				

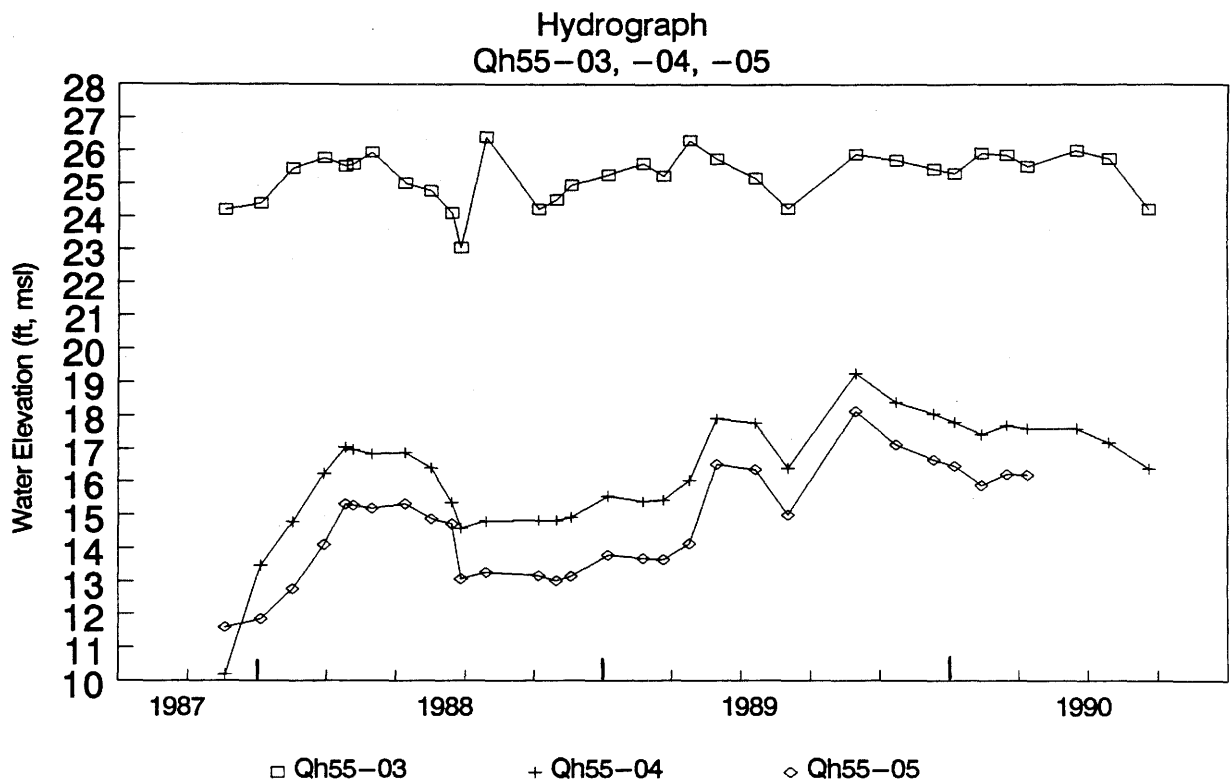
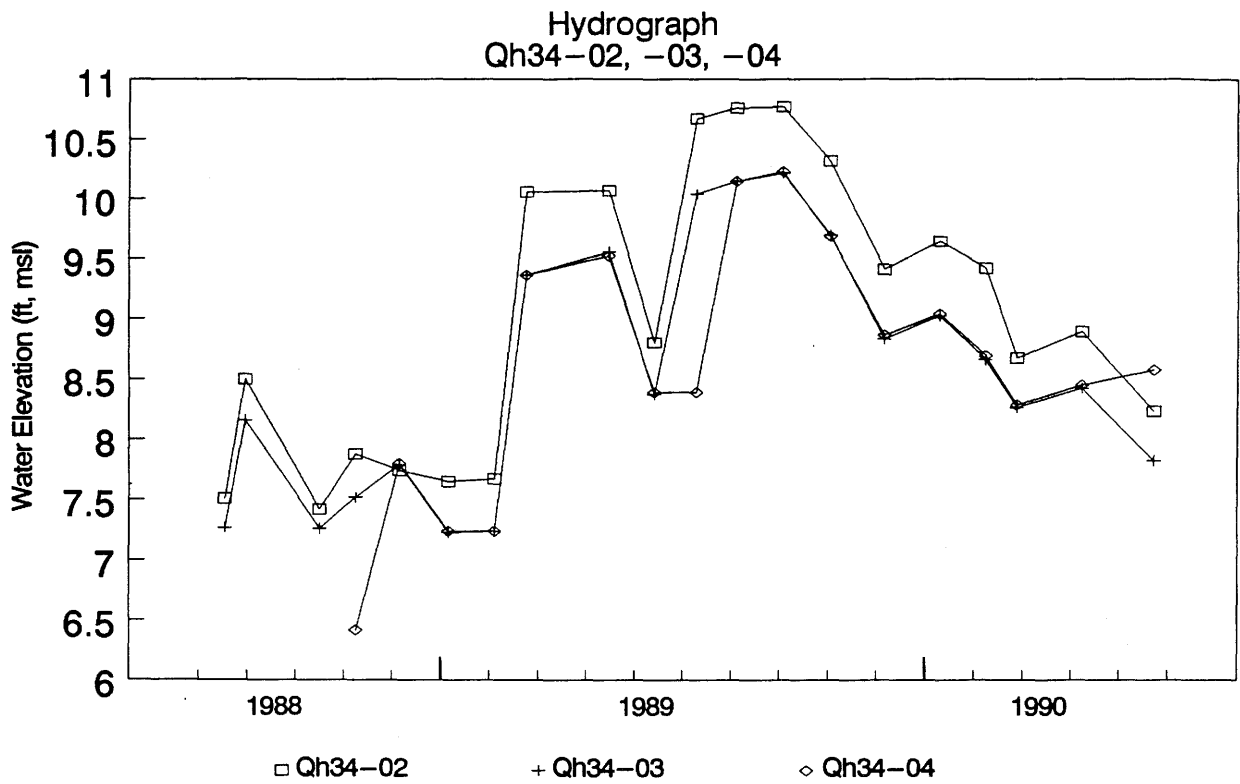


Figure 6. Hydrographs for wells Qh34-02, -03, -04; Qh55-03, -04, -05.

Table 12. Ground-water levels from Qi31-03, -04, -05.

WELL - Qi31-03
 LOCATION - Lat 383245, long 750941
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 2 in, depth 15 ft, cased to 10 ft, screened 10 to 15 ft.
 DATUM - Altitude of land-surface datum is approximately 16 ft (map). Measuring point:
 top of casing 0.15 feet below land-surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
9	23	1987	9.48	3	1	1989	7.41
11	4	1987	9.92	3	9	1989	6.35
12	3	1987	9.75	3	29	1989	4.49
1	7	1988	8.64	5	9	1989	4.24
2	10	1988	7	6	13	1989	5.65
3	2	1988	5.47	7	17	1989	4.59
3	10	1988	5.77	8	13	1989	4.23
3	30	1988	5.54	8	23	1989	1.18
5	4	1988	5.53	9	21	1989	2.00
5	26	1988	5.77	10	5	1989	2.65
6	1	1988	5.95	10	26	1989	3.06
6	23	1988	6.84	11	14	1989	3.78
7	12	1988	7.72	12	5	1989	4.28
7	28	1988	6.24	12	6	1989	4.29
9	23	1988	7.72	1	3	1990	4.77
10	6	1988	7.95	1	17	1990	4.40
10	11	1988	7.95	1	30	1990	4.52
10	27	1988	7.93	2	21	1990	4.71
12	5	1988	7.8	3	14	1990	5.24
1	12	1989	8.20	4	12	1990	4.85
2	3	1989	8.03	5	2	1990	5.11
2	16	1989	8.05	6	26	1990	5.78

WELL - Qi31-04
 LOCATION - Lat 383245, long 750941
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 41 ft, cased to 36 ft, screened 36 to 41 ft.
 DATUM - Altitude of land-surface datum is approximately 16 ft (map). Measuring point:
 top of casing 0.12 feet below land-surface datum.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
5	26	1988	6.58	5	9	1989	5.13
6	1	1988	6.7	6	13	1989	6.67
6	23	1988	7.74	7	17	1989	4.96
7	12	1988	8.56	9	21	1989	2.18
7	28	1988	6.7	10	5	1989	3.73
8	11	1988	6.88	10	26	1989	4.06
9	23	1988	8.4	11	14	1989	4.71
10	11	1988	8.62	12	5	1989	5.12
10	27	1988	8.38	12	6	1989	5.12
12	5	1988	8.05	1	3	1990	5.42
1	12	1989	8.48	1	17	1990	5.26
2	3	1989	8.29	1	30	1990	5.31
2	16	1989	8.28	2	21	1990	5.51
3	1	1989	7.58	3	14	1990	6
3	9	1989	6.18	5	2	1990	5.86
3	29	1989	4.76	6	26	1990	6.7

WELL - Qi31-05
 LOCATION - Lat 383245, long 750941
 OWNER - Delaware Geological Survey
 WELL CHARACTERISTICS - Bored monitoring well, dia 1.25 in, depth 93 ft, cased to 88 ft, screened 88 to 93 ft.
 DATUM - Altitude of land-surface datum is approximately 16 ft (map). Measuring point:
 top of casing at land surface.

mo	d	yr	level ft bmp	mo	d	yr	level ft bmp
11	4	1987	10.19	3	1	1989	5.15
12	3	1987	10	3	9	1989	6.12
1	7	1988	9.02	3	29	1989	4.74
2	10	1987	7.09	5	9	1989	5.15
3	2	1988	6.22	6	13	1989	6.72
3	10	1988	6.36	7	17	1989	4.98
3	30	1988	5.84	8	23	1989	2.05
5	4	1988	6.29	9	21	1989	2.2
5	26	1988	6.56	10	6	1989	3.79
6	1	1988	6.69	10	26	1989	4.08
6	23	1988	7.15	11	14	1989	4.65
7	12	1988	8.58	12	5	1989	5.1
7	28	1988	6.6	12	6	1989	5.09
9	23	1988	7.02	1	3	1990	5.4
10	6	1988	8.65	1	17	1990	5.14
10	11	1988	8.65	1	30	1990	5.27
10	27	1988	8.48	2	21	1990	5.48
12	5	1988	8.09	3	14	1990	5.98
1	12	1989	8.46	5	2	1990	5.88
2	3	1989	8.32	6	26	1990	6.7
2	16	1989	8.32				

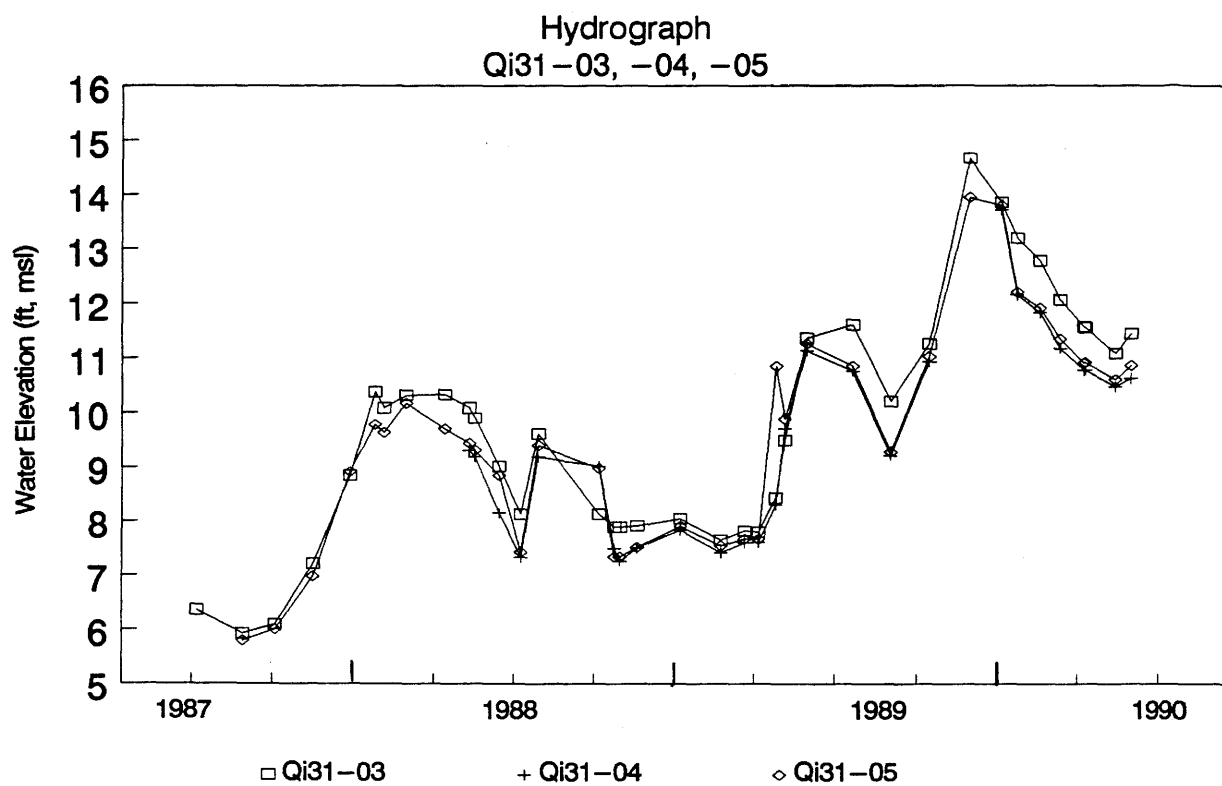


Figure 7. Hydrographs for wells Qi31-03, -04, -05.