


ORISE
 OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION
 HEALTH/ENVIRONMENT SYSTEMS DIVISION

October 25, 1993

Mr. Jack Parrott
 Division of Low Level Waste Management
 and Decommissioning
 Nuclear Material safety and Safeguards
 U.S. Nuclear regulatory Commission
 Washington, DC 20555

SUBJECT: UNC WELL SAMPLE RESULTS

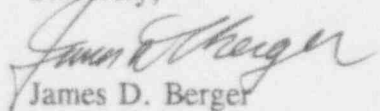
Dear Mr. Parrott:

Enclosed are the results of the radiological analyses, performed on water samples (including 3 replicates), collected from wells in the vicinity of the UNC Scrap Recovery Facility, Wood River Junction, Rhode Island, by the U.S. Geological Survey during September 1993. Table 1 contains gross alpha and gross beta screening levels and concentrations of Sr-90 and Tc-99 in those five samples for which the gross beta levels exceeded 50 pCi/l. There were no samples which contained in excess of 15 pCi/l of gross alpha continued in excess of 15 pCi/l of gross alpha activity; therefore, no isotopic analyses for alpha emitting radionuclides were performed. Table 2 presents results of associated quality control analyses.

I am also enclosing copies of the USGS field data forms. Results of nitrate analyses have not yet been received from USGS; these will be forwarded to you when they are available.

If there are any questions regarding this information, I may be reached at (615) 576-3305.

Sincerely,



James D. Berger
 Program Director
 Environmental Survey and
 Site Assessment Program

JDB:rde

Enclosure

cc: T. Mo, NRC/NMSS, 4E4
 D. Tiktinsky, NRC/NMSS, 6E6
 J. Swift, NRC/NMSS, 6H3
 V. De Lima, USGS
 M. Landis, ESSAP
 PMDA, NRC/6E6
 File/217

9311040093 931025
 PDR ADOCK 07000820
 C PDR

P. O. BOX 117, OAK RIDGE, TENNESSEE 37831-0117

NH10/1

TABLE 1

**RESULTS OF RADIOLOGICAL ANALYSES
WELL WATER SAMPLES FROM THE UNC FACILITY
WOOD RIVER JUNCTION, RHODE ISLAND**

Well ID ^a	Sample Date	Radionuclide Concentration (pCi/l) ^b			
		Gross Alpha	Gross Beta	Sr-90	Tc-99
CHW 518	09/07/93	0.9 ± 1.3 (2.2)	6.9 ± 2.2 (3.3)		
CHW 519	09/08/93	6.7 ± 2.1 (2.7)	138 ± 5.4 (3.8)	11.2 ± 2.9 (3.9)	192 ± 13 (8.6)
CHW 521	09/09/93	-0.8 ± 1.1 (2.2)	3.0 ± 2.0 (3.3)		
CHW 522	09/09/93	-0.3 ± 1.2 (2.2)	4.7 ± 2.1 (3.3)		
CHW 522R	09/09/93	-0.5 ± 1.2 (2.2)	5.0 ± 2.1 (3.3)		
CHW 523	09/09/93	2.0 ± 1.5 (2.4)	74.0 ± 4.1 (3.5)	4.8 ± 2.4 (3.6)	64.5 ± 8.0 (8.1)
CHW 525	09/09/93	-1.5 ± 1.1 (2.2)	2.1 ± 2.0 (3.3)		
CHW 557	09/09/93	-0.4 ± 1.2 (2.3)	25.8 ± 2.8 (3.4)		
CHW 561	09/10/93	-0.5 ± 1.2 (2.2)	9.6 ± 2.3 (3.3)		
CHW 561R	09/09/93	-0.5 ± 1.2 (2.2)	7.7 ± 2.2 (3.3)		
RIW 640	09/10/93	-0.4 ± 1.2 (2.2)	7.0 ± 2.2 (3.3)		
RIW 641	09/10/93	-1.2 ± 1.1 (2.2)	4.7 ± 2.1 (3.3)		
RIW 642	09/10/93	-0.8 ± 1.2 (2.3)	8.5 ± 2.3 (3.4)		
RIW 643	09/13/93	-0.4 ± 1.2 (2.2)	5.2 ± 2.1 (3.4)		
RIW 644	09/13/93	-1.5 ± 1.1 (2.2)	1.8 ± 2.0 (3.3)		
RIW 644R	09/13/93	-0.6 ± 1.2 (2.2)	1.7 ± 2.0 (3.3)		
RIW 656	09/14/93	1.0 ± 1.4 (2.5)	55.4 ± 3.7 (3.5)	12.4 ± 2.7 (3.4)	52.7 ± 7.3 (7.8)
RIW 657	09/14/93	2.4 ± 1.6 (2.5)	66.5 ± 4.0 (3.6)	18.7 ± 3.2 (3.7)	36.5 ± 7.0 (8.6)
RIW 658	09/14/93	1.6 ± 1.5 (2.4)	57.9 ± 3.7 (3.5)	10.3 ± 2.81 (3.8)	40.7 ± 7.1 (8.3)
RIW 659	09/14/93	-1.3 ± 1.1 (2.2)	1.7 ± 2.0 (3.4)		
RIW 660	09/14/93	-1.4 ± 1.1 (2.3)	2.8 ± 2.1 (3.4)		
RIW 661	09/14/93	-1.6 ± 1.1 (2.3)	0.5 ± 2.0 (3.4)		
RIW 662	09/14/93	-1.9 ± 1.1 (2.3)	1.8 ± 2.0 (3.4)		
RIW 663	09/14/93	-1.4 ± 1.1 (2.3)	2.2 ± 2.0 (3.4)		
RIW 664	09/14/93	-0.7 ± 1.2 (2.3)	1.4 ± 2.0 (3.4)		
RIW 665	09/14/93	-1.4 ± 1.1 (2.3)	-0.2 ± 1.9 (3.3)		
RIW 667	09/20/93	-0.3 ± 0.3 (0.6)	0.3 ± 0.5 (0.8)		
RIW 670	09/20/93	0.1 ± 0.3 (0.5)	0.9 ± 0.4 (0.7)		

^aUSGS designation.

^bConcentration ± 95% uncertainty level (measurement sensitivity).

^cR=replicate sample.

TABLE 2
QUALITY CONTROL RESULTS
UNC WELL WATER ANALYSES
WOOD RIVER JUNCTION, RHOIDE ISLAND

Sample ID	Radionuclide Concentration (pCi/l) ^a			
	Gross Alpha	Gross Beta	Sr-90	Tc-99
Blank	-1.9 ± 1.0 (2.7)	-0.2 ± 1.9 (3.3)	---	---
Blank	-1.7 ± 1.0 (2.2)	-0.2 ± 1.9 (3.3)	---	---
Blank	-1.5 ± 1.0 (2.2)	0.9 ± 1.9 (3.3)	---	---
Blank	-0.2 ± 0.1 (0.3)	0.0 ± 0.2 (0.4)	---	---
Blank	---	---	0.7 ± 4.7 (8.3)	---
Blank	---	---	---	1.6 ± 5.3 (9.2)
Spike: measured known	99.2 ± 6.0 (2.6) [85.0 ± 5.2]	572 ± 12 (3.9) [538.1 ± 48.5]	---	---
Spike: measured known	107.2 ± 6.2 (2.6) [85.0 ± 5.2]	563 ± 11 (3.9) [538.1 ± 48.5]	---	---
Spike: measured known	---	---	---	4557 ± 60 (9.1) [4247 ± 100]
Duplicate: 1A	-1.4 ± 1.1 (2.3)	2.8 ± 2.1 (3.4)	---	---
1B	-0.8 ± 1.2 (2.3)	4.7 ± 2.1 (3.4)	---	---
Duplicate: 2A	-0.3 ± 0.3 (0.6)	0.3 ± 0.5 (0.8)	---	---
2B	-0.3 ± 0.3 (0.6)	0.2 ± 0.5 (0.8)	---	---

^aConcentration ± 95 % uncertainty level (measurement sensitivity).

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

BQA-1 10/91

Proj. Name, No. UNC Date 9/7/93 Time 1325
 Loc. Well No. CHW 518 Composite Samples? YES NO
 Site I.D. 412606071410703 Dates _____
 Sampled by Russell / Fotiades Times _____

Record No. _____ Sample Purpose (71999) : _____

SMS Cntrl. No. _____

WELL DATA

Altitude, ft (72000) 68.7 Static water level, 29.06*
 Depth top sample interval (72015) 58.0 ft (72019) Casing vol. (gal.) 28
 Depth bottom sample interval (72016) 61.0 Dia. inside (in.) 1.5 Purge vol. (gal.) 86
 Allowable draw-down (ft.) _____ Screened/open interval Top : _____ Bottom : _____
 * Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft) OR Cas. Vol. = H X F
 Height = H = Well Depth - Static Water Level = 31.94 F = Casing volume factor

* VOLUME FACTORS	
Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____
 Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4080 Sampling condition (72006) 10
 4010 = thief PUMPS: 4060 = gas recip. 0.10 = site was being pumped 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 0.11 = site recently pumped 8. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
 4100 = flowing well 8010.0 = other 4090 = jet

SAMPLES COLLECTED

Nutrients TOC
 Major Ions DOC
 SOC Filt. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope
 DAK RIBE

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
 Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 15.4 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 28 °C Bicarbonate () _____ mg/L
 pH (00400) 4.94 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 65 μS/cm 25 °C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coli (31648) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):
LL 166
LL 228

Remarks _____

Checked by _____ Date _____

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

BQA-1 1/92
(2nd printing,
1st ed.)

Proj. Name, No. WAC Date 9-8-93 Time 1315
 Loc. Well No. LTW 519 Composite Samples? YES NO
 Site I.D. 412606071410704 if YES, indicate:
 Dates _____ Times _____
 Sampled by RUSSELL FOTILOS SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA

Altitude, ft (72000) 688 Static water level, 29.00*
 Depth top samp. interval (72015) 78.0 ft (72019) Casing vol. (gal.) 4.68
 Depth bottom sample interval (72016) 81.0 Dia. inside (in.) 1.5 Purge vol. (gal.) 14.00
 Allowable draw-down (ft.) _____ Screened/ open interval Top: _____ Bottom: _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
 Height = H = Well Depth - Static Water Level = 520 OR Cas Vol. = H X F
 F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	<u>0.09</u>
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____
 Minutes pumped before sampling (72004) _____ static water level when well last sampled _____
 Sampler type (B4164) 4070 Sampling condition (72006) -10

4010 = thief PUMPS 4060 = gas recip. 0.10 = site was being pumped 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 0.11 = site recently pumped 8. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
 4050 = squeeze 4090 = jet
 4100 = flowing well 8010.0 = other

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other _____

SAMPLES COLLECTED

Nutrients TOC
 Major Ions DOC
 SOC Filt. _____ mL
 BOD
 COU
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 19.9 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 19.0 °C Bicarbonate () _____ mg/L
 pH (00400) 5.35 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 1483 μS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
 DO Sat (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____

Oak Ridge
LABORATORY SCHEDULES
 Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):
LC 120
LC 228

Remarks

HELD 30.00 HELD 30.1 DEPTH TO WATER 29.00 ft 81
WET 1.00 WET 1.14 DEPTH OF WELL 81 ft. -29
 Checked by _____ Date _____ 52 ft
4.68 x 3
2.14 gals

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

BGA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. UNC Date 9-9-95 Time 1300

Loc. Well No. CHW 521

Composite Samples? YES NO

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	3	0	3
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

If YES, indicate:
Dates _____
Times _____

Sampled by TF/SR

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA

Well Open Hole

*** VOLUME FACTORS**

Altitude, ft (72000) 646
Depth top sample interval (72015) 470
Depth bottom sample interval (72016) 500
Allowable draw-down (ft.) -

Static water level, ft (72019) 2387*
Dia. inside (in.) 15
Screened/open interval Top : _____ Bottom : _____

Casing vol. (gal.) 325
Purge vol. (gal.) 97

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	<u>0.09</u>
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
OR Cas. Vol. = H X F
Height = H = Well Depth - Static Water Level = 363 F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____
Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) _____

- 4010 = thief PUMPS 4060 = gas recip
4020 = bailer 4030 = suction pump 4070 = gas lift
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic
4050 = squeeze 4090 = jet
4100 = flowing well 8010.0 = other

- 0.10 = site was being pumped 4. = flowing
0.11 = site recently pumped 8. = pumping
30. = seeping

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD
COD
Organics Tr. Elements
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical
Isotope

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions
Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 14 °C Alkalinity () _____ mg/L
Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L
pH (00400) 5.26 units Carbonate () _____ mg/L
Sp. Cond. (00095) 62 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
DO Sat (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

DAK R106E
LABORATORY SCHEDULES
Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):
LC 160
LC 228

Remarks H - 25.00
W - 1.13
23.87
60.00
- 23.87
36.13 x 109 = 3.25 x 3 = 9.76

MOON'S SETTLEMENT FROM BOTTOM OF WELL

Checked by _____ Date _____

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

BQA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. UNC Date 9-9-93 Time 1215

Loc. Well No. CHW 522

Composite Samples? YES NO

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	3	0	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

if YES, indicate:

Dates _____

Times _____

Sampled by TF/JR

SMS Contr. No. _____

Record No. _____ Sample Purpose (71999) : _____

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	<u>0.09</u>
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

WELL DATA

Well Open Hole

Altitude, ft (72000) 637

Static water level, 22.67*
ft (72019)

Casing vol. (gal.) 246

Depth top sample interval (72015) 570

Dia. inside (in.) 1.5

Purge vol. (gal.) 738

Depth bottom sample interval (72016) 600

Screened/ open interval Top: _____ Bottom: _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
Height = H = Well Depth - Static Water Level = 27 33 OR Cas. Vol. = H X F
F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumper/ before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070

Sampling condition (72006) .10

- 4010 = thief PUMPS: 4060 = gas recip.
4020 = bailer 4030 = suction pump 4070 = gas lift
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic
4050 = squeeze 4090 = jet
4100 = flowing well 8010.0 = other

- 0.10 = site was being pumped 4 = flowing
0.11 = site recently pumped 8 = pumping
30 = seeping

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD
COD
Organics Tr. Elements
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical
Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 15 °C Alkalinity () _____ mg/L

Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L

pH (00400) 5.34 units Carbonate () _____ mg/L

Sp. Cond (00095) 64 μS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Remarks H - 24.00 Other: _____

- 1.35 5000

+ 22.67 22.67

21.32 27.33

x .09 / 7.38 gal

Checked by _____

Date _____

OAK RIVER
LABORATORY SCHEDULES
Lab Schedules Req. (or copy of lab request form attached)
Lab Codes Add (A) Delete (D):
LL 160
LL 228

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

200110A

BCA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. VNC Date 9-9-95 Time 1220

Loc. Well No. (Hw) 522

Composite Samples? YES NO

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	3	0	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

if YES, indicate: Dates _____

Times _____

Sampled by TF/JS

SMS Cntrl. No. _____

Record No. _____

Sample Purpose (71999) : _____

WELL DATA

Well Open Hole

Altitude, ft (72000) 637

Static water level, ft (72019) 22.67*

Casing vol. (gal.) 246

Depth top sample interval (72015) 570

Dia. inside (in.) 1.5

Purge vol. (gal.) 738

Depth bottom sample interval (72016) 600

Screened/open interval Top: _____ Bottom: _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
Height = H = Well Depth - Static Water Level = 2733 OR Cas. Vol. = H X F
F = Casing volume factor

* VOLUME FACTORS	
Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070

Sampling condition (72006) 10

- 4010 = thief PUMPS: 4060 = gas recip.
4020 = bailer 4030 = suction pump 4070 = gas lift
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic
4050 = squeeze 4090 = jet
4100 = flowing well 8010.0 = other

- 0.10 = site was being pumped 4. = flowing
0.11 = site recently pumped 8. = pumping
30. = seeping

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filtr. _____ mL
BOD
COD
Organics Tr. Elements
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical
Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00013) 15 °C Alkalinity () _____ mg/L
Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L
pH (00400) 5.34 units Carbonate () _____ mg/L
Sp. Cond. (00095) 64 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

OAK RIDGE
LABORATORY SCHEDULES
Lab Schedules Req. (or copy of lab request form attached)

Remarks

H 24.00 W 1.25 22.67
82.67
246
5 vas.
7.38 gal

Checked by _____

Date _____

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

BQA-1 1/92
(2nd printing,
1st ed.)

Proj. Name, No. UNC Date 9-9-93 Time 1315

Loc. Well No. CHW 523

Composite Samples? YES NO
If YES, indicate:

Site I.D.

4	1	2	6	6	0	7	1	4	1	0	3	0	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---

Dates _____
Times _____

Sampled by TF/JR

SMS Cntrl. No. _____

Record No. _____

Sample Purpose (71999) : _____

*** VOLUME FACTORS**

WELL DATA Well Open Hole

Altitude, ft (72000) 635 Static water level, 22.18* ft (72019) Casing vol. (gal.) 52

Depth top sample interval (72015) 77.0 Dia. inside (in.) 1.5 Surge vol. (gal.) 15.6

Depth bottom sample interval (72016) 80.0 Screened/ open interval Top: _____ Bottom: 80.00

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
Height = H = Well Depth - Static Water Level = 57.89 OR Cas. Vol. = H X F
F = Casing volume factor

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) 10

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|---------------|
| 4010 = thief | PUMPS: | 4060 = gas recip | 0.10 = site was being pumped | 4. = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8. = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30. = seeping |
| | 4050 = squeeze | 4090 = jet | | |
| 4100 = flowing well | 8010.0 = other | | | |

SAMPLES COLLECTED

- Nutrients TOC
- Major Ions DOC
- SOC Filtr. _____ mL
- BOD
- COD
- Organics Tr. Elements
- Pesticide Unfiltered
- VOC Filtered
- BNA
- Radiochemical
- Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 14 °C Alkalinity () _____ mg/L

Temp. Air (00020) 24 °C Bicarbonate () _____ mg/L

pH (00400) 5.01 units Carbonate () _____ mg/L

Sp. Cond. (00095) 554 μS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coll (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

OAK RIDGE

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

LL 160
LL 228

Remarks

H 23.00 H 23.10 well depth = 80.00

w 0.82 0.92 -22.18

22.18 22.18 57.82 FT

1.07

Checked by _____

Date _____

5.20
x 5 Volts
15.10 GAL

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

BQA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. WNL Date 9-9-93 Time 1015

Loc. Well No. CHW 525 Composite Samples? YES NO

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	7	0	5
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 Dates _____

Sampled by TF/JR Times _____

Record No. _____ Sample Purpose (71999) : _____ SMS Cntrl. No. _____

WELL DATA

Well Open Hole

Altitude, ft (72000) 68.9 Static water level, 27.56* Casing vol. (gal.) 5.99

Depth top sample interval (72015) 91.5 ft (72019) Dia. inside (in.) 1.5 Purge vol. (gal.) 6.0

Depth bottom sample interval (72016) 94.0 Screened/ open interval Top: _____ Bottom: _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft) OR Cas. Vol. = H X F
Height = H = Well Depth - Static Water Level = 66.44 F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) 10

4010 = thief PLUMPS: 4060 = gas recip. 4. = flowing
4020 = bailer 4030 = suction pump 4070 = gas lift 8. = pumping
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
4050 = squeeze 4090 = jet
4100 = flowing well 8010.0 = other

SAMPLES COLLECTED

Nutrients TOC

Major ions DOC

SOC Filtr. _____ mL

BOD

COD

Organics Tr. Elements

Pesticide Unfiltered

VOC Filtered

BNA

Radiochemical

Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 16.0 °C Alkalinity () _____ mg/L

Temp. Air (00020) 22 °C Bicarbonate () _____ mg/L

pH (00400) 6.23 units Carbonate () _____ mg/L

Sp. Cond. (00095) 76 μS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 n.; Rmk _____

Other: _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D): LC 160

Remarks + 29.00 29.10 94.00

w 1.44 - 1.54 - 27.56

DTW 27.90 66.44 (0.09)

5.99 x 6 gal.

Checked by _____ Date _____

OK RINGE

11-228

OUTSIDE CASING VOLUME REMOVED BEFORE TAKING SAMPLE PER ORDER OF OFFICE CHIEF

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

BQA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. WJC Date 7-9-93 Time 1515

Loc. Well No. CHW 557

Composite Samples? YES NO

Site I.D.

4	1	2	6	0	2	0	7	1	4	1	0	1	0	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

YES, indicate

Dates _____

Times _____

Sampled by TSE/JR

SMS Cntrl. No. _____

Record No. _____

Sample Purpose (71999): _____

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

WELL DATA

Well Open Hole

Altitude, ft (72000) 58.9 Static water level, ft (72019) 16.66* Casing vol. (gal.) 5.70
 Depth top sample interval (72015) 77.0 Dia. inside (in.) 1.5 Purge vol. (gal.) 17.10
 Depth bottom sample interval (72016) 80.0 Screened/open interval Top: _____ Bottom: 80.00
 Allowable draw-down (ft.) - * Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft) OR Cas. Vol. = H X F
 Height = H = Well Depth - Static Water Level = 63.34 F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____
 Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4080 Sampling condition (72006) .10

- 4010 = thief PUMPS: 4060 = gas recip. 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 8. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30 = seeping
 4050 = squeeze 4090 = jet
 4100 = flowing well 8010.0 = other

SAMPLES COLLECTED

- Nutrients TOC
 Major ions DOC
 SOC Filtr. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 14.5 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 22.5 °C Bicarbonate () _____ mg/L
 pH (00400) 5.94 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 264 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coll (31633) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Remarks

5.70
16.66
17.10
63.34
5.70
17.10

19.00 17.10 well 8000
2.34 2.43 16.66
16.66 63.34
109

OK Ridge

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

LL 160

LL 228

Checked by _____

Date _____

5.70
17.10

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

Repair

BQA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. UNC Date 9-16-93 Time 1015
 Loc. Well No. CHW 561 Composite Samples? YES NO
 Site I.D. 412602071405701 # YES indicate: _____
 Dites _____
 Time: _____
 Sampled by JR/TJF SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA

Altitude, ft (72000) 687 Well Open Hole
 Static water level, 2544* Casing vol. (gal.) 350
 ft (72019)
 Depth top sample interval (72015) 620 Dia. inside (in.) 1.5 Purge vol. (gal.) 21.0
 Depth bottom sample interval (72016) 650 Screened/ open interval Top: _____ Bottom: _____
 Allowable draw-down (ft.) _____ * Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft) OR Cas. Vol. = H X F
 Height = H = Well Depth - Static Water Level = 3956 F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	<u>0.09</u>
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____
 Minutes pumped before sampling (72004) _____ static water level when well last sampled _____
 Sampler type (84164) 4070 Sampling condition (72006) 10
 4010 = thief PUMPS: 4060 = gas recip. 0.10 = site was being pumped 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 0.11 = site recently pumped 8. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
 4050 = squeeze 4090 = jet
 4100 = flowing well 8010.0 = other

SAMPLES COLLECTED

Nutrients TOC
 Major Ions DOC
 SOC Filt. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 17 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 23.5 °C Bicarbonate () _____ mg/L
 pH (00400) 5.24 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 66 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coll (31633) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____
 Remarks _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):
U 160
U 229

Checked by _____ Date _____

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

BQA-1 1/92
(2nd printing,
1st ed.)

Proj. Name, No. UNC Date 9-10-93 Time 1010
 Loc. Well No. CHW 561 Composite Samples? YES NO
 Site I.D. 412602071405701 If YES, indicate:
 Dates _____ Times _____
 Sampled by JR/TJF SMS Cntrl. No. _____

RECORD NO.		SAMPLE PURPOSE (71999) :		SMS CNTRL. NO.		* VOLUME FACTORS	
WELL DATA				<input type="checkbox"/> Well	<input type="checkbox"/> Open Hole	Dia. (in.)	Cas. Vol. Factor F
Altitude, ft (72000)	<u>687</u>	Static water level, ft (72019)	<u>25.44</u> *	Casing vol. (gal.)	<u>3.56</u>	1.0	0.04
Depth top sample interval (72015)	<u>620</u>	Dia. inside (in.)	<u>1.5</u>	Purge vol. (gal.)	<u>21.0</u>	1.5	0.09
Depth bottom sample interval (72016)	<u>650</u>	Screened/ open interval Top :	_____	Bottom :	_____	2.0	0.16
Allowable draw-down (ft.)	_____	Casing Vol. (gal.) = 0.0408 X Dia. (in.) ² X Height (ft)	_____	OR Cas. Vol. = H X F	_____	3.0	0.37
		Height = H = Well Depth - Static Water Level =	<u>39.56</u>	F = Casing volume factor	_____	4.0	0.65
						4.5	0.83
						5.0	1.02
						6.0	1.47
						8.0	2.61
						10.0	4.08
						12.0	5.88
						24.0	23.5
						36.0	52.9

SAMPLING DATA				SAMPLES COLLECTED	
Location	_____	Date well last sampled	_____	Nutrients	<input checked="" type="checkbox"/> TOC <input type="checkbox"/>
Minutes pumped before sampling (72004)	<u>4070</u>	static water level when well last sampled	_____	Major Ions	<input type="checkbox"/> DOC <input type="checkbox"/>
Sampler type (84164)	_____	Sampling condition (72006)	<u>10</u>	SOC	<input type="checkbox"/> Filt. _____ mL
4010 = thief	PUMPS:	4060 = gas recip.	0.10 = site was being pumped	BOD	<input type="checkbox"/>
4020 = bailer	4030 = suction pump	4070 = gas lift	0.11 = site recently pumped	COD	<input type="checkbox"/>
4025 = double-valve bailer	4040 = submersible	4080 = peristaltic		Organics	Tr. Elements
4100 = flowing well	4050 = squeeze	4090 = jet		Pesticide	<input type="checkbox"/> Unfiltered <input type="checkbox"/>
	8010.0 = other			VOC	<input type="checkbox"/> Filtered <input type="checkbox"/>
Sampler ID	_____			BNA	<input type="checkbox"/>
Sampler material:	Stainless Steel Brass PVC Teflon Other			Radiochemical	<input checked="" type="checkbox"/>
Aquifer Name:	_____	GW Color	_____	Isotope	<input type="checkbox"/>
Sample extracted and processed under	<input checked="" type="checkbox"/> oxygenated <input type="checkbox"/> nonoxygenated	Clarity	_____		<input type="checkbox"/>
Sample contact with:	<input checked="" type="checkbox"/> atmosphere <input type="checkbox"/> oxygen <input type="checkbox"/> nitrogen <input type="checkbox"/> other				
Weather:	Clear Partly Cloudy <u>Cloudy</u> <u>Light</u> Medium Heavy Snow <u>Rain</u> Calm Light				
Breeze	Gusty Windy Very Cold Warm Hot Other				

FIELD MEASUREMENTS				LABORATORY SCHEDULES	
Q. Inst. (00059)	_____	GPM	Eh (00090)	_____	m volts
Temp. Water (00010)	<u>17</u>	°C	Alkalinity ()	_____	mg/L
Temp. Air (00020)	<u>23.5</u>	°C	Bicarbonate ()	_____	mg/L
pH (00400)	<u>5.26</u>	units	Carbonate ()	_____	mg/L
Sp. Cond. (00095)	<u>66</u>	µS/cm 25°C	Hydroxide ()	_____	mg/L
Dis. Oxy. (00300)	_____	mg/L	E. Coil (31633)	_____	col./100 mL; Rmk _____
DO Sat. (00301)	_____	%	FC (31625)	_____	col./100 mL; Rmk _____
Bar. Press. (00025)	_____	mm Hg	FS (31673)	_____	col./100 mL; Rmk _____
Remarks	<u>H 26.00</u>	<u>26.10</u>	Other:		
	<u>W 0.56</u>	<u>0.66</u>			
	<u>25.44</u>	<u>25.44</u>			
			<u>depth = 65.00</u>		
			<u>25.44</u>		
			<u>39.56</u>		
			<u>1.09</u>		
			<u>3.56</u>		
			<u>1.3</u>		
			<u>10.7</u>		

Checked by _____ Date _____

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

BOA-1 1/82
(2nd printing,
1st ed.)

Proj. Name, No. UNC Date 9-10-93 Time 1250

Loc. Well No. 2W 640

Composite Samples? YES NO
If YES, indicate:

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	9	0	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Dates _____
Times _____

Sampled by TJF / JR

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

*** VOLUME FACTORS**

WELL DATA Well Open Hole

Altitude, ft (72000) 457 Static water level, 483* Casing vol. (gal.) 2

Depth top sample interval (72015) 70 ft (72019) Dia. inside (in.) 1.0 Purge vol. (gal.) 6

Depth bottom sample interval (72016) 100 Screened/ open interval Top : _____ Bottom : _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft)
Height = H = Well Depth - Static Water Level = 517 OR Cas. Vol. = H X F
F = Casing volume factor

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4076 Sampling condition (72005) 10

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|--------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4 = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8 = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30 = seeping |
| | 4050 = squeeze | 4090 = jet | | |
| 4100 = flowing well | 8010.0 = other | | | |

SAMPLES COLLECTED

- Nutrients TOC
- Major Ions DOC
- SOC Filt. _____ mL
- BOD
- COD
- Organics Tr. Elements
- Pesticide Unfiltered
- VOC Filtered
- BNA
- Radiochemical
- Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 13.5 °C Alkalinity () _____ mg/L

Temp. Air (00020) 19.5 °C Bicarbonate () _____ mg/L

pH (00400) 5.60 units Carbonate () _____ mg/L

Sp Cond. (00095) 87 μS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coll (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

Remarks

H. 6.00
101.17
4.83

6.10
1.27
4.83

10.00
4.83

5.17 x .04 = .2 x 3 = .6

Checked by _____ Date _____

OAK RIDGE

LABORATORY SCHEDULES
Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):
LC 160
LC 228

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

BQA-1 1/92
(2nd printing,
1st ed.)

Proj. Name, No. UNC Date 9-10-93 Time 1325
 Loc. Well No. ZW 641 Composite Samples? YES NO
 Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	9	0	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 Dates _____
 Sampled by TJF/JR Times _____

Record No. _____ Sample Purpose (71999): _____
WELL DATA Well Open Hole
 Altitude, ft (72000) 45.6 Static water level, 5.71* Casing vol. (gal.) 5
 Depth top sample interval (72015) 17.0 ft (72019) Dia. inside (in.) 1.0 Purge vol. (gal.) 1.8
 Depth bottom sample interval (72016) 20.0 Screened/ open interval Top: _____ Bottom: _____
 Allowable draw-down (ft.) _____
 * Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
 Height = H = Well Depth - Static Water Level = 14.29 OR Cas. Vol. = H X F
 F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA
 Location _____ Date well last sampled _____
 Minutes pumped before sampling (72004) _____ static water level when well last sampled _____
 Sampler type (84164) 4070 Sampling condition (72006) 10

4010 = thief PUMPS: 4060 = gas recip. 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 8. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
 4050 = squeeze 4090 = jet
 4100 = flowing well 8010.0 = other
 Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

SAMPLES COLLECTED
 Nutrients TOC
 Major Ions DOC
 SOC Filt. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

FIELD MEASUREMENTS
 Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 11.5 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 19.5 °C Bicarbonate () _____ mg/L
 pH (00400) 5.29 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 84 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Remarks _____ Other: _____

OK 2.06E
LABORATORY SCHEDULES
 Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):
LL 160
LL 228

Remarks 4. 7.00 7.10 20.00
ω 1.29 1.37 5.71
5.71 5.71 14.29 x .64 .57 x 3 = 1.8
TDP OF STEEL CASING WAS USED FOR ME

Checked by _____ Date _____

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

BCA-1 1/92
(2nd printing, 1st ed.)

Proj. Name, No. UNC Date 5-10-93 Time 1405

Loc. Well No. 2W 642

Composite Samples? YES NO

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	9	0	3
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

YES, indicate:
Dates _____
Times _____

Sampled by JR/TJF

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999): _____

WELL DATA

Well Open Hole

* VOLUME FACTORS

Di. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

Altitude, ft (72000) 459

Static water level, ft (72019) 5.73*

Casing vol. (gal.) 13

Depth top sample interval (72015) 37.0

Di. inside (in.) 1.0

Purge vol. (gal.) 34.0

Depth bottom sample interval (72016) 40.0

Screened/open interval Top: _____ Bottom: _____

Allowable draw-down (ft.) -

* Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft)
Height = H = Well Depth - Static Water Level = 34.63 OR Cas. Vol. = H X F
F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070

Sampling condition (72006) 10

- 4010 = thief
4020 = bailer
4025 = double-valve bailer
4100 = flowing well
- PUMPS:
4030 = suction pump
4040 = submersible
4050 = squeeze
8010.0 = other
- 4060 = gas recip.
4070 = gas lift
4080 = peristaltic
4090 = jet

- 0.10 = site was being pumped
0.11 = site recently pumped
4. = flowing
8. = pumping
30. = seeping

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filtr. _____ mL
BOD
COD
Organics Tr. Elements
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical
Isotope

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 11.0 °C Alkalinity () _____ mg/L
Temp. Air (00020) 19.5 °C Bicarbonate () _____ mg/L
pH (00400) 5.86 units Carbonate () _____ mg/L
Sp. Cond. (00095) 137 μS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Remarks _____ Other: _____

OAK RIDGE

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

LL 160
LL 228

Remarks

H	6.05	6.10	4000
W	0.27	0.37	5.73
	5.73	5.73	34.63 x 0.4 13 x 3 = 4.0

Checked by _____ Date _____

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

BQA-1 1/82
(2nd printing, 1st ed.)

Proj. Name, No. VNC Date 9-13-93 Time 1110
 Loc. Well No. R1W643 Composit: e Samples? YES NO
 # YES, indicate: Dates _____ Times _____
 Site I.D.

4	1	2	6	0	6	0	9	1	4	1	0	9	0	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 Sampled by PC/TK SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____
WELL DATA Well Open Hole
 Altitude, ft (72000) 45.70 Static water level, ft (72019) _____ *
 Depth top sample interval (72015) 53.00 Casing vol. (gal.) 2.26
 Depth bottom sample interval (72016) 60.00 Dia. inside (in.) 1.00 Purge vol. (gal.) 6.78
 Allowable draw-down (ft.) _____ Screened/ open interval Top: 53.00 Bottom: 60.00
 * Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
 Height = H = Well Depth - Static Water Level = 56 58 OR Cas. Vol. = H X F
 F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA
 Location R1W643 Date well last sampled ?
 Minutes pumped before sampling (72004) _____ static water level when well last sampled _____
 Sampler type (84164) 4070 Sampling condition (72006) .10

4010 = thief PLUMPS: 4060 = gas recip. 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 8. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
 4050 = squeeze 4090 = jet
 4100 = flowing well 8010.0 = other
 Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light
Breeze Gusty Windy Very Cold Warm Hot Other

SAMPLES COLLECTED
 Nutrients TOC
 Major ions DOC
 SOC Filt. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical Isotope

FIELD MEASUREMENTS
 Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 15 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 24 °C ^{1st put} Bicarbonate () _____ mg/L
 pH (00400) 7.88 ^{5 w/ probe} units ^{2nd} Carbonate () _____ mg/L
 Sp. Cond. (00095) 149 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____

DR Rinbe
LABORATORY SCHEDULES
 Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):

Remarks Hold 2.00
net cur .88
6.82
- skip 2.70
3.92 below L50
60.00
- 3.82
56.58 x .04 = 2.26 gal

LL 160
LL 228

Checked by _____ Date _____

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

BQA-1 1/92
(2nd printing,
1st ed.)

Proj. Name, No. UNC Date 9/13/93 Time 1140
 Loc. Well No. R1W649 Composite Samples? YES NO
 Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	9	0	5
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 Dates _____
 Sampled by Fotiadis/CRAFT Times _____

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999): _____

WELL DATA

Well Open Hole

Altitude, ft (72000) 456 Static water level, -2 33' * Casing vol. (gal.) 5.07
 Depth top sample interval (72015) 75.00 ft (72019) Dia. inside (in.) 1.00 Purge vol. (gal.) 29.6
 Depth bottom sample interval (72016) 80.00 Screened/ open interval Top: 75.00 Bottom: 80.00
 Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
 Height = H = Well Depth - Static Water Level = 5 13 OR Cas. Vol. = H X F
 F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location R1W644 Date well last sampled _____
 Minutes pumped before sampling (72004) 20 static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) 211

4010 = thief PUMPS: 4060 = gas recip 0.10 = site was being pumped 4. = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 0.11 = site recently pumped 6. = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30. = seeping
 4050 = squeeze 4090 = jet
 4100 = flowing well 8010.0 = other

SAMPLES COLLECTED

Nutrients TOC
 Major Ions DOC
 SOC Filt. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light
 Breeze Gusty Windy Very Cold Warm Hot Other _____

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 14.5 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 24 °C Bicarbonate () _____ mg/L
 pH (00400) 7.37 - URS LABS units Carbonate () _____ mg/L
 Sp. Cond. (00095) 115 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____

ONE RIDGE

LABORATORY SCHEDULES
 Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):

Remarks Hold 6.00
net .83
5.13 - below TWC
- 2.80 stick up
2.33 below TSD

LL 160
LL 228

Checked by _____ Date _____

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

BQA-1 3/92
(3rd printing,
1st ed.)

Revised

Proj. Name, No. UNC Date 9/13/93 Time 1145

Loc. Well No. RW 644 Composite Samples? YES NO

Site I.D.

4	1	2	6	0	6	0	7	1	4	1	0	9	0	5
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 # If YES, indicate: Dates _____ Times _____

Sampled by PC/DF SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA		<input type="checkbox"/> Well	<input type="checkbox"/> Open Hole	<input type="checkbox"/> Spring
Altitude, ft (72000) <u>45.6</u>	Static water level, ft (72019) <u>233*</u>	Casing vol. (gal.) <u>32</u>		
Depth top sample interval (72015) <u>75.00</u>	Dia. inside (in.) <u>1.00</u>	Purge vol. (gal.) <u>29.6</u>		
Depth bottom sample interval (72016) <u>80.00</u>	Screened/open interval Top: <u>75.00</u>	Bottom: <u>80.00</u>		
Allowable draw-down (ft.) <u>—</u>	* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft) Height = H = Well Depth - Static Water Level = <u>513</u>		OR Cas. Vol. = H X F F = Casing volume factor	

* VOLUME FACTORS	
Dia. (in.)	Cas. Vol. Factor F
1.0	<u>0.04</u>
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (B4164) 4070 Sampling condition (72006) -10

- | | | |
|--|---|--|
| 4010 = thief
4020 = bailer
4025 = double valve bailer
4100 = flowing well | PUMPS:
4030 = suction pump
4040 = submersible
4050 = squeeze
8010.0 = other | 4060 = gas recip.
4070 = gas lift
4080 = peristaltic
4090 = jet |
| 0.10 = site was being pumped
0.11 = site recently pumped | | |

SAMPLES COLLECTED

Nutrients TOC
 Major Ions DOC
 SOC Filtr. _____ mL
 BOD _____
 COD _____

ORGANICS TR. ELEMENTS

Pesticide Unfiltered
 VOC Filtered
 BNA _____
 Radiochemical Isotope

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM	Eh (00090) _____ m volts
Temp. Water (00010) <u>14.5</u> °C	Alkalinity () _____ mg/L
Temp. Air (00020) <u>24</u> °C	Bicarbonate () _____ mg/L
pH (00400) <u>7.77</u> units	Carbonate () _____ mg/L
Sp. Cond. (00095) <u>115</u> µS/cm 25°C	Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L	E. Coli (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ %	FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg	FS (31673) _____ col./100 mL; Rmk _____
Remarks	Other: _____

JAY RIDGE

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

Remarks LC 160
LC 228

Checked by _____ Date _____

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

BQA-1 3/92
(3rd printing,
1st ed.)

Proj. Name, No. UNC Date 9-14-93 Time 1245

Loc. Well No. RIW 656

Composite Samples? YES NO
If YES, indicate:

Site I.D. 412604071411201

Dates _____

Sampled by PL/TJF

Times _____

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

*** VOLUME FACTORS**

WELL DATA Well Open Hole Spring

Altitude, ft (72000) 45.2 Static water level, _____ * Casing vol. (gal.) 1
ft (72019)

Depth top sample interval (72015) 7.0 Dia. inside (in.) 3.8 Purge vol. (gal.) 3

Depth bottom sample interval (72016) 10.0 Screened/ open interval Top: _____ Bottom: _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft) OR Gas Vol. = H X F
Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) .10

- 4010 = thief PUMPS: 4060 = gas recip 0.10 = site was being pumped 4 = flowing
4020 = bailer 4030 = suction pump 4070 = gas lift 0.11 = site recently pumped 8 = pumping
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30 = seeping
4050 = squeeze 4090 = jet 31 = nearby well pumping
4100 = flowing well 8010.0 = other

SAMPLES COLLECTED

Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD _____
COD _____
ORGANICS TR. ELEMENTS
Pesticide Unfiltered
VOC Filtered
BNA _____
Radiochemical
Isotope

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 17.6 °C Alkalinity () _____ mg/L

Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L

pH (00400) 5.99 units Carbonate () _____ mg/L

Sp. Cond. (00095) 611. µS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

OK RIDGE

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

LC 160
LC 228

Remarks Purged Vol. = 3 gal

Checked by _____ Date _____

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

BQA-1 3/92
(3rd printing, 1st ed.)

Proj. Name, No. UNC Date 9-14-93 Time 1255

Loc. Well No. 6 R1W 657 Composite Samples? YES NO

Site I.D.

4	1	2	6	0	4	0	7	1	4	1	1	2	0	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 Dates _____

Sampled by PC/TJF Times _____

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA Well Open Hole Spring

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

Altitude, ft (72000) 45.2 Static water level, ft (72019) — * Casing vol. (gal.) 2

Depth top sample interval (72015) 17.0 Dia. inside (in.) 3.8 Purge vol. (gal.) 6

Depth bottom sample interval (72016) 20.0 Screened/open interval Top: — Bottom: —

Allowable draw-down (ft.) _____ * Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft) OR Cas. Vol. = H X F
Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) .10

- 4010 = thief PUMPS: 4060 = gas recip. 4 = flowing
4020 = bailer 4030 = suction pump 4070 = gas lift 6 = pumping
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30 = seeping
4050 = squeeze 4090 = jet 31 = nearby well pumping
4100 = flowing well 8010.0 = other

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD
COD
ORGANICS TR. ELEMENTS
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical Isotope

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 17.3 °C Alkalinity () _____ mg/L
Temp. Air (00020) 26 °C Bicarbonate () _____ mg/L
pH (00400) 6.44 units Carbonate () _____ mg/L
Sp. Cond. (00095) 793 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

ORC R106E

LABORATORY SCHEDULES
Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):
LC160
LC228

Remarks
Purged Vol. .6 gal.

Checked by _____ Date _____

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

BOA-1 3/92
(3rd printing,
1st ed.)

Proj. Name, No. UNC Date 9-14-93 Time 1305

Loc. Well No. Zwo 658

Composite Samples? YES NO
If YES, indicate:

Site I.D. 412604071411203

Dates _____

Sampled by PLTSE

Times _____

Record No. _____ Sample Purpose (71999) : _____

SMS Cntrl. No. _____

* VOLUME FACTORS	
Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

WELL DATA

Well Open Hole Spring

Altitude, ft (72000) 45.2
Depth top sample interval (72015) 27.0
Depth bottom sample interval (72016) 30.0
Allowable draw-down (ft.) _____

Static water level, ft (72019) — *
Casing vol. (gal.) 3
Dia. inside (in.) 3.8
Purge vol. (gal.) 9
Screened/open interval Top: — Bottom: _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
Height = H = Well Depth - Static Water Level = _____
OR Cas. Vol. = H X F
F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____
Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84184) 4070 Sampling condition (72006) 1

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|---------------------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4. = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8. = pumping |
| 4025 = double-valve boiler | 4040 = submersible | 4080 = peristaltic | | 30. = seeping |
| | 4050 = squeeze | 4090 = jet | | 31. = nearby well pumping |
| 4100 = flowing well | 8010.0 = other | | | |

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions
Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other _____

SAMPLES COLLECTED
Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD _____
COD _____
ORGANICS TR. ELEMENTS
Pesticide Unfiltered
VOC Filtered
BNA _____
Radiochemical Isotope

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 20.1 °C Alkalinity () _____ mg/L
Temp. Air (00020) 26 °C Bicarbonate () _____ mg/L
pH (00400) 7.06 units Carbonate () _____ mg/L
Sp. Cond. (00095) 572 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coll (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

LABORATORY SCHEDULES
Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):
LC 160
LC 228

Remarks Purged Vol. 9 gal

Checked by _____ Date _____

Proj. Name, No. UNC Date 9-14-93 Time 1330
 Loc. Well No. R10 659 Composite Samples? YES NO
 Site I.D. 412604071411204 # YES, indicate: Dates _____ Times _____
 Sampled by DLHJE SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA		* VOLUME FACTORS	
		Dia. (in.)	Cas. Vol. Factor F
Altitude, ft (72000) <u>45.2</u>	<input type="checkbox"/> Well <input type="checkbox"/> Open Hole <input type="checkbox"/> Spring		
Depth top sample interval (72015) <u>42.0</u>	Static water level, ft (72019) <u>—</u> * Casing vol. (gal.) <u>45</u>	1.0	0.04
Depth bottom sample interval (72016) <u>45.0</u>	Dia. side (in.) <u>3.8</u> Purge vol. (gal.) <u>1.35</u>	1.5	0.09
Allowable draw-down (ft.) _____	Screened/open interval Top: <u>—</u> Bottom: _____	2.0	0.16
	* Casing Vol. (gal.) = 0.0408 X Dia. (in.) ² X Height (ft) OR Cas. Vol. = H X F	3.0	0.37
	Height = H = Well Depth - Static Water Level = <u>—</u> F = Casing volume factor	4.0	0.65

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4050 Sampling condition (72006) 010

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|--------------------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4 = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8 = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30 = seeping |
| 4100 = flowing well | 4050 = squeeze | 4090 = jet | | 31 = nearby well pumping |
| | 8010.0 = other | | | |

SAMPLES COLLECTED

Nutrients TOC
 Major Ions DOC
 SOC Fitt. _____ mL
 BOD _____
 COD _____

ORGANICS TR. ELEMENTS

Pesticide Unfiltered
 VOC Filtered
 BNA _____
 Radiochemical Isotope

OK R10 659

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other _____

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 21.4 °C Alkalinity () _____ mg/L

Temp. Air (00020) 26 °C Bicarbonate () _____ mg/L

pH (00400) 6.84 units Carbonate () _____ mg/L

Sp. Cond. (00095) 113 μS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):
LC 160
LC 228

Remarks Purged Vol. 1.35 gal.

Checked by _____ Date _____

Proj. Name, No. UNC Date 9-14-93 Time 1410
 Loc. Well No. R1W 660 Composite Samples? YES NO
 Site I.D. 412604071411205 if YES, indicate: Dates _____ Times _____
 Sampled by PLITJF SMS Cntrl. No. _____

Record No.	Sample Purpose (71999) :	* VOLUME FACTORS	
	WELL DATA <input type="checkbox"/> Well <input type="checkbox"/> Open Hole <input type="checkbox"/> Spring	Dia. (in.)	Cas. Vol. Factor F
Altitude, ft (72000) <u>425</u>	Static water level, ft (72019) <u>—</u> * Casing vol. (gal.) <u>7</u>	1.0	0.04
Depth top sample interval (72015) <u>67.0</u>	Dia. inside (in.) <u>38</u> Purge vol. (gal.) <u>210</u>	1.5	0.09
Depth bottom sample interval (72016) <u>70.0</u>	Screened/open interval Top: _____ Bottom: _____	2.0	0.16
Allowable draw-down (ft.) _____	* Casing Vol. (gal.) = 0.0408 X Dia. (in.) ² X Height (ft) OR Cas. Vol. = H X F Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor	3.0	0.37
		4.0	0.65
		4.5	0.83
		5.0	1.02
		6.0	1.47
		8.0	2.61
		10.0	4.08
		12.0	5.88
		24.0	23.5
		36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) .10

4010 = thief PUMPS: 4060 = gas recip 4 = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 8 = pumping
 4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30 = seeping
 4100 = flowing well 4050 = squeeze 4090 = jet 31 = nearby well pumping

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 30 °C Alkalinity () _____ mg/L

Temp. Air (00020) 26.5 °C Bicarbonate () _____ mg/L

pH (00400) 6.58 units Carbonate () _____ mg/L

Sp. Cond. (00095) 120 µS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

Remarks Ringed Vol. 210 gal

Checked by _____ Date _____

SAMPLES COLLECTED

Nutrients TOC
 Major ions DOC
 SOC Filt. _____ mL
 BOD
 COD

ORGANICS TR. ELEMENTS

Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

0.2c 210 gal

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):
LL 160
LL 228

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

BQA-1 3/92
(3rd printing, 1st ed.)

Proj. Name, No. UNC Date 9-14-93 Time 1030

Loc. Well No. RW 661 Composite Samples? YES NO

Site I.D.

4	1	2	6	0	3	0	7	1	4	1	1	7	0	1
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 Dates _____

Sampled by TPC Times _____

Record No. _____ Sample Purpose (71999) : _____ SMS Cntrl. No. _____

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

WELL DATA

Well Open Hole Spring

Altitude, ft (72000) 447

Static water level, ft (72019) — * Casing vol. (gal.) 1

Depth top sample interval (72015) 70

Dia. inside (in.) 38 Purge vol. (gal.) 3

Depth bottom sample interval (72016) 100

Screened/open interval Top: _____ Bottom: _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft)
Height = H = Well Depth - Static Water Level = _____
OR Cas. Vol. = H X F F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) 10

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|--------------------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4 = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8 = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30 = seeping |
| | 4050 = squeeze | 4090 = jet | | 31 = nearby well pumping |
| 4100 = flowing well | 8010 0 = other | | | |

SAMPLES COLLECTED

- Nutrients TOC
 Major Ions DOC
 SOC Filt. _____ mL
 BOD _____
 COD _____
 ORGANICS TR. ELEMENTS
 Pesticide Unfiltered
 VOC Filtered
 BNA _____
 Radiochemical isotope
OAK RIDGE

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
 Temp. Water (00010) 12 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 24 °C Bicarbonate () _____ mg/L
 pH (00400) 8.09 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 124.4 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)
 Lab Codes Add (A) Delete (D):
LC228
LC160

Remarks Purge Vol. .3 gal.

Checked by _____ Date _____

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

BQA-1 1/92
(2nd printing,
1st ed.)

Proj. Name, No. UNCL Date 9-14-93 Time 1035

Loc. Well No. R1W 662

Composite Samples? YES NO
If YES, indicate:

Site I.D. 412603071411702

Dates _____

Times _____

Sampled by PL/TJF

SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

* VOLUME FACTORS

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

WELL DATA

Well Open Hole

Altitude, ft (72000) 447

Static water level, ft (72019) — *

Casing vol. (gal.) 2

Depth top sample interval (72015) 170

Dia. inside (in.) 38

Purge vol. (gal.) 6

Depth bottom sample interval (72016) 200

Screened/open interval Top: — Bottom: _____

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
Height = H = Well Depth - Static Water Level = _____
OR Cas. Vol. = H X F
F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070

Sampling condition (72006) -10

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|---------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4. = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8. = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30. = seeping |
| | 4050 = squeeze | 4090 = jet | | |
| 4100 = flowing well | 8010.0 = other | | | |

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD
COD
Organics Tr. Elements
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical
Isotope

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 19.9 °C Alkalinity () _____ mg/L
Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L
pH (00400) 7.93 units Carbonate () _____ mg/L
Sp. Cond. (00095) 153.8 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Cell (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

Remarks

Purged Vol. 6 gal.

DAY RIDGE

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

U 160

U 228

Checked by _____

Date _____

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

BOA-1 3/92
(3rd printing, 1st ed.)

Proj. Name, No. UNC Date 9-14-93 Time 1045

Loc. Well No. R1W 663 Composite Samples? YES NO

Site I.D.

4	1	2	6	0	3	0	7	1	4	1	1	7	0	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 # YES, indicate: Dates _____ Times _____

Sampled by TJF/PC SMS Cntrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA Well Open Hole Spring

Altitude, ft (72000) 447 Static water level, ft (72019) — * Casing vol. (gal.) 3

Depth top sample interval (72015) 270 Dia. inside (in.) 38 Purge vol. (gal.) 9

Depth bottom sample interval (72016) 300 Screened/open interval Top: — Bottom: _____

Allowable draw-down (ft.) _____ * Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft) OR Cas. Vol. = H X F
Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor

*** VOLUME FACTORS**

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) .10

- 4010 = thief PUMPS: 4060 = gas recip. 4 = flowing
 4020 = bailer 4030 = suction pump 4070 = gas lift 8 = pumping
 4025 = double valve 4040 = submersible 4080 = peristaltic 30 = seeping
 bailer 4050 = squeeze 4090 = jet 31 = nearby well pumping
 4100 = flowing well 80100 = other

Sampler ID _____

Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 21.0 °C Alkalinity () _____ mg/L

Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L

pH (00400) 7.70 units Carbonate () _____ mg/L

Sp. Cond. (00095) 117 μS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

SAMPLES COLLECTED

Nutrients TOC

Major Ions DOC

SOC Filt. _____ mL

BOD _____

COD _____

ORGANICS TR. ELEMENTS

Pesticide Unfiltered

VOC Filtered

BNA _____

Radiochemical Isotope

OK R106

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

U160

U228

Remarks .9 Purged Volume

Checked by _____ Date _____

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

BGA-1 3/92
(3rd printing,
1st ed.)

Proj. Name, No. UNC Date 9-14-93 Time 1120

Loc. Well No. RW 664

Composite Samples? YES NO
If YES, indicate:

Site I.D.

4	1	2	6	0	3	0	7	1	4	1	1	7	0	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Dates _____
Times _____

Sampled by PLTJF

SMS Contr. No. _____

Record No. _____ Sample Purpose (71999) : _____

WELL DATA Well Open Hole Spring

* VOLUME FACTORS	
Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

Altitude, ft (72000) 447
Depth top sample interval (72015) 370
Depth bottom sample interval (72016) 400
Allowable draw-down (ft.) _____

Static water level, ft (72019) — *
Casing vol. (gal.) 4
Dia. inside (in.) 38 Purge vol. (gal.) 12
Screened/open interval Top: _____ Bottom: _____
* Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft)
OR Cas. Vol. = H X F
Height = H = Well Depth - Static Water Level = _____
F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____
Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) 10

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|--------------------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4 = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8 = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30 = seeping |
| 4100 = flowing well | 4050 = squeeze | 4090 = jet | | 31 = nearby well pumping |
| | 8010.0 = other | | | |

SAMPLES COLLECTED

- Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD _____
COD _____
ORGANICS TR. ELEMENTS
Pesticide Unfiltered
VOC Filtered
BNA _____
Radiochemical
Isotope

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____
Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 23.4 °C Alkalinity () _____ mg/L
Temp. Air (00020) 25 °C Bicarbonate () _____ mg/L
pH (00400) 6.57 units Carbonate () _____ mg/L
Sp. Cond. (00095) 120.9 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

OAC R06E

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)
Lab Codes Add (A) Delete (D):
LC 160
LC 228

Remarks _____
Purge Volume 1.2 gal

Checked by _____ Date _____

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

BQA-1 3/92
(3rd printing,
1st ed.)

Proj. Name, No. YWC Date 9-14-93 Time 1200

Loc. Well No. Z1W 665

Composite Samples? YES NO
If YES, indicate:

Site I.D. 412603071411705

Dates _____

Sampled by PC/TJF

Times _____

SMS Crtrl. No. _____

Record No. _____

Sample Purpose (71999): _____

*** VOLUME FACTORS**

WELL DATA Well Open Hole Spring

Altitude, ft (72000) 447 Static water level, ft (72019) — * Casing vol. (gal.) 5

Depth top sample interval (72015) 470 Dia. inside (in.) 38 Purge vol. (gal.) 15

Depth bottom sample interval (72016) 500 Screened/open interval Top: — Bottom: —

Allowable draw-down (ft.) _____

* Casing Vol. (gal.) = 0.0408 X Dia. (in.)² X Height (ft) OR Casing Vol. = H X F
Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor

Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) .10

- 4010 = thief PUMPS: 4060 = gas recip. 0.10 = site was being pumped 4 = flowing
4020 = bailer 4030 = suction pump 4070 = gas lift 0.11 = site recently pumped 8 = pumping
4025 = double-valve bailer 4040 = submersible 4080 = peristaltic 30 = seeping
4050 = squeeze 4090 = jet 31 = nearby well pumping

SAMPLES COLLECTED

Nutrients TOC
Major Ions DOC
SOC Filt. _____ mL
BOD _____
COD _____

ORGANICS TR. ELEMENTS

Pesticide Unfiltered
VOC Filtered
BNA _____
Radiochemical
Isotope

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____

Aquifer Name: _____ GW Color _____ Clarity _____

Sample extracted and processed under oxygenated nonoxygenated conditions

Sample contact with: atmosphere oxygen nitrogen other

Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Very Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts

Temp. Water (00010) 24.2 °C Alkalinity () _____ mg/L

Temp. Air (00020) 25.5 °C Bicarbonate () _____ mg/L

pH (00400) 6.55 units Carbonate () _____ mg/L

Sp. Cond. (00095) 834 µS/cm 25°C Hydroxide () _____ mg/L

Dis. Oxy. (00300) _____ mg/L E. Coli (31633) _____ col./100 mL; Rmk _____

DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____

Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____

Other: _____

DAC RIDGE

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)

Lab Codes Add (A) Delete (D):

CC 160
CC 228

Remarks

Purged Vol. 1.5 gal.

Checked by _____

Date _____

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

BQA-1 10/91

Proj. Name, No. UNC Date 9-20-93 Time 1220

Loc. Well No. BW 789 (667) Composite Samples? YES NO
If YES, indicate:

Site I.D.

4	1	2	6	0	1	0	7	1	4	1	2	2	0	7
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 Dates _____
Times _____

Sampled by ACUNA / FOTADES SMS Crtrl. No. _____

Record No. _____ Sample Purpose (71999) : _____

* VOLUME FACTORS	
Dia. (in.)	Cas. Vol. Factor F
1.0	0.04
1.5	0.09
2.0	0.16
3.0	0.37
4.0	0.65
4.5	0.83
5.0	1.02
6.0	1.47
8.0	2.61
10.0	4.08
12.0	5.88
24.0	23.5
36.0	52.9

WELL DATA

Altitude, ft (72000) 44 5 Static water level, _____ * Casing vol. (gal.) 3
Depth top sample interval (72015) 7 0 Dia. inside (in.) 38 Purge vol. (gal.) 9
Depth bottom sample interval (72016) 10 0 Screened/ open interval Top: _____ Bottom: _____
Allowable draw-down (ft.) _____ * Casing Vol. (gal.) = 0.0408 X Dia. (in.) X Height (ft) OR Cas. Vol. = H X F
Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor

SAMPLING DATA

Location _____ Date well last sampled _____
Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84164) 4070 Sampling condition (72006) -10

- | | | | | |
|----------------------------|---------------------|--------------------|------------------------------|---------------|
| 4010 = thief | PUMPS: | 4060 = gas recip. | 0.10 = site was being pumped | 4. = flowing |
| 4020 = bailer | 4030 = suction pump | 4070 = gas lift | 0.11 = site recently pumped | 8. = pumping |
| 4025 = double-valve bailer | 4040 = submersible | 4080 = peristaltic | | 30. = seeping |
| 4100 = flowing well | 4050 = squeeze | 4090 = jet | | |
| | 8010.0 = other | | | |

SAMPLES COLLECTED

- Nutrients TOC
Major ions DOC
SOC Filtr. _____ mL
BOD
COD
Organics Tr. Elements
Pesticide Unfiltered
VOC Filtered
BNA
Radiochemical
Isotope
OAK RIDGE

Sampler ID _____
Sampler material: Stainless Steel Brass PVC Teflon Other _____
Aquifer Name: _____ GW Color _____ Clarity _____
Sample extracted and processed under oxygenated nonoxygenated conditions
Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts
Temp. Water (00010) 15.6 °C Alkalinity () _____ mg/L
Temp. Air (00020) 23.5 °C Bicarbonate () _____ mg/L
pH (00400) 8.45 units Carbonate () _____ mg/L
Sp. Cond. (00095) 156 µS/cm 25°C Hydroxide () _____ mg/L
Dis. Oxy. (00300) _____ mg/L E. Coli (31648) _____ col./100 mL; Rmk _____
DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
Other: _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)
CC 160A
CC 228A
Lab Codes Add (A) Delete (D):

Remarks _____
Checked by _____ Date _____

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

BQA-1 10/91

Proj. Name, No. WNC Date 9-20-98 Time 1240
 Loc. Well No. RW790 (690) Composite Samples? YES NO
 Site I.D. 412601071412208 # YES, indicate:
 Dates _____ Times _____
 Sample by deLIMA / FORTALES SMS Cntrl. No. _____

Record No.	Sample Purpose (71999) :	* VOLUME FACTORS	
WELL DATA			
Altitude ft (72000) <u>445</u>	Static water level, ft (72019) <u>-</u> * Casing vol. (gal.) <u>3</u>	Dia. (in.)	Cas. Vol. Factor F
Depth top sample interval (72015) <u>270</u>	Dia. inside (in.) <u>38</u> Purge vol. (gal.) <u>9</u>	1.0	0.04
Depth bottom sample interval (72016) <u>300</u>	Screened/open interval Top: _____ Bottom: _____	1.5	0.09
Allowable draw-down (ft.) <u>-</u>	* Casing Vol. (gal.) = 0.0406 X Dia. (in.) X Height (ft) OR Cas. Vol. = H X F Height = H = Well Depth - Static Water Level = _____ F = Casing volume factor	2.0	0.16
		3.0	0.37
		4.0	0.65
		4.5	0.83
		5.0	1.02
		6.0	1.47
		8.0	2.61
		10.0	4.08
		12.0	5.88
		24.0	23.5
		36.0	52.9

SAMPLING DATA

Location _____ Date well last sampled _____

Minutes pumped before sampling (72004) _____ static water level when well last sampled _____

Sampler type (84154) 4070 Sampling condition (72006) 10

4010 = thief PUMPS: 4030 = suction pump 4070 = gas lift 4080 = peristaltic 4090 = jet
 4020 = bailer 4040 = submersible bailer 4050 = squeeze
 4100 = flowing well 8010.0 = other

0.10 = site was being pumped 0.11 = site recently pumped
 . = flowing B. = pumping 30. = seeping

SAMPLES COLLECTED

Nutrients TOC
 Major ions DOC
 SOC Filtr. _____ mL
 BOD
 COD
 Organics Tr. Elements
 Pesticide Unfiltered
 VOC Filtered
 BNA
 Radiochemical
 Isotope

Sampler ID _____
 Sampler material: Stainless Steel Brass PVC Teflon Other _____
 Aquifer Name: _____ GW Color _____ Clarity _____
 Sample extracted and processed under oxygenated nonoxygenated conditions
 Sample contact with: atmosphere oxygen nitrogen other
Weather: Clear Partly Cloudy Cloudy Light Medium Heavy Snow Rain Calm Light Breeze Gusty Windy Very Cold Warm Hot Other

FIELD MEASUREMENTS

Q. Inst. (00059) _____ GPM Eh (00090) _____ m volts 0.266E
 Temp. Water (00010) 14.8 °C Alkalinity () _____ mg/L
 Temp. Air (00020) 23.5 °C Bicarbonate () _____ mg/L
 pH (00400) 8.36 units Carbonate () _____ mg/L
 Sp. Cond. (00095) 163 µS/cm 25°C Hydroxide () _____ mg/L
 Dis. Oxy. (00300) _____ mg/L E. Coll (31648) _____ col./100 mL; Rmk _____
 DO Sat. (00301) _____ % FC (31625) _____ col./100 mL; Rmk _____
 Bar. Press. (00025) _____ mm Hg FS (31673) _____ col./100 mL; Rmk _____
 Other: _____

LABORATORY SCHEDULES

Lab Schedules Req. (or copy of lab request form attached)
U 160
U 228
 Lab Codes Add (A) Delete (D): _____

Remarks _____

Checked by _____ Date _____