

Table of Contents

1. Introduction.....	1
1.1. Description of NWIS.....	1
1.2. QWDATA System Description.....	3
1.3. User Access and Setup.....	3
1.4. Acknowledgements.....	3
2. Getting Started.....	4
2.1. Terminology.....	4
2.1.1. Sample.....	4
2.1.2. Result.....	4
2.1.3. Parameter Code.....	4
2.1.4. Record.....	4
2.1.5. Record Number.....	4
2.1.6. Site.....	5
2.1.7. Station Number.....	5
2.1.8. WATLIST.....	5
2.1.9. Time Definitions.....	5
2.2. Using the Interactive Programs.....	6
2.2.1. Answering Prompts.....	6
2.2.2. Cursor Control.....	6
2.2.3. Default Values.....	7
2.2.4. Mandatory Fields.....	7
2.2.5. Help with Valid Codes.....	7
2.2.6. Boolean Logic.....	7
2.2.7. Command Line Processing.....	8
2.3. Site Level Information.....	8
2.4. Sample Level Information.....	8
2.4.1. Record Number.....	8
2.4.2. Agency Code.....	9
2.4.3. Station Number.....	9
2.4.4. Begin Date and Begin Time.....	9
2.4.5. End Date and End Time.....	9
2.4.6. Time Datum.....	9

2.4.7. Time-Datum Reliability Code.....	9
2.4.8. Medium Code	10
2.4.9. Sample Type	10
2.4.10. Analysis Status.....	10
2.4.11. Hydrologic Condition.....	10
2.4.12. Hydrologic Event.....	10
2.4.13. Analysis Source.....	10
2.4.14. Analysis Types.....	11
2.4.15. District Processing Status.....	11
2.4.16. Geologic Unit Code.....	11
2.4.17. Lab Number.....	11
2.4.18. Project Number.....	11
2.4.19. Organism Code.....	11
2.4.20. Body Part Code	11
2.4.21. Sample Field Comment.....	11
2.4.22. Sample Lab Comment.....	11
2.5. Result Level Information.....	12
2.5.1. Remark Code.....	12
2.5.2. Value Qualifier Codes.....	12
2.5.3. Data Quality Indicator Code	12
2.5.4. Null Value Qualifier Code.....	12
2.5.5. Laboratory Standard Deviation.....	12
2.5.6. Method Code.....	12
2.5.7. Quality Assurance Code.....	12
2.5.8. Preparatory and Analysis Dates	13
2.5.9. Preparatory and Analysis Set Identifiers	13
2.5.10. Report Level and Report Level Type Code.....	13
2.6. Parameter Codes.....	13
2.6.1. Calculated Value Parameter Codes.....	13
2.6.2. District Specific Parameter Codes.....	13
2.6.3. Fixed Value Codes.....	14
2.6.4. Alpha Parameter Codes.....	15
2.7. Numeric Information.....	15
2.7.1. Rounding.....	15
2.7.2. Scientific Notation.....	17
2.7.3. Negative Values.....	17

2.7.4. Zero Values.....	17
2.8. Text Fields for Comments.....	18
2.9. Field Forms.....	19
2.9.1. List of Field Forms Available.....	19
2.9.2. Adding a New Field Form.....	19
2.10. Multiple Databases.....	21
2.10.1. When to Use an Alternate Database.....	21
2.11. Quality-Control Samples.....	22
2.11.1. Definitions of Quality-Control Samples.....	22
2.11.2. Identification of Quality-Control Samples in NWIS.....	24
2.12. Data Entry Options.....	27
2.12.1. Interactive Programs.....	28
2.12.2. Batch Programs.....	28
3. Programs.....	30
3.1. Option 1 -- Login Samples.....	30
3.2. Option 2 -- Modify Samples or Results.....	35
3.2.1. Option 1 -- Enter Field Results.....	36
3.2.2. Option 2 -- Enter Laboratory Results.....	39
3.2.3. Option 3 -- Edit Samples or Results.....	42
3.3. Option 3 -- Data Review.....	45
3.3.1. Option 1 -- Select Sites or Samples.....	45
3.3.1.1. Site Selection.....	46
3.3.1.2. Selecting Water-Quality Records.....	50
3.3.2. Option 2 -- Produce Inventory of Samples.....	56
3.3.3. Option 3 -- List Samples and Results.....	59
3.3.4. Option 4 -- Sample List and/or Cation-Anion Balance.....	61
3.3.5. Option 5 -- Chemical Validation Checks.....	62
3.4. Option 4 -- Data Output.....	64
3.4.1. Option 1 -- Select Sites and Samples.....	64
3.4.2. Option 2 -- Select Sites/ Samples-- Multiple Databases.....	64
3.4.3. Option 3 -- Water-Quality Table by Sample.....	66
3.4.3.1. Specify the Sample Records for Tabling.....	66
3.4.3.2. Specify the Table Definition.....	67
3.4.3.3. Specify Parameter Codes for Tabling.....	72
3.4.3.4. Water Quality Table Options.....	74

3.4.3.5. Table Processing.....	84
3.4.4. Option 4 -- Water Quality Table by Result.....	84
3.4.4.1. Specifying the Result-Level Parameter Codes.....	85
3.4.4.2. Specify Tabling Options.....	85
3.4.4.3. Table Processing.....	87
3.4.5. Option 5 -- Flat File by Sample.....	87
3.4.5.1. Selecting the Output Format.....	88
3.4.5.2. Specifying the Retrieval Criteria.....	89
3.4.5.3. Specify Output Options.....	89
3.4.5.4. Output Processing.....	89
3.4.6. Option 6 -- Flat File by Result.....	89
3.4.6.1. Selecting the Output Format.....	90
3.4.6.2. Specifying the Retrieval Criteria.....	90
3.4.6.3. Specify Output Options.....	90
3.4.6.4. Output Processing.....	91
3.4.7. Option 7 -- Make a P-STAT Data Set.....	92
3.4.7.1. Specifying the Retrieval and Output Criteria.....	92
3.4.7.2. Specify Output Options.....	93
3.4.7.3. Output Processing.....	93
3.5. Function 5 – Graphs.....	96
3.5.1. Option 1 -- X,Y Plot.....	98
3.5.2. Option 2 – Boxplots.....	99
3.5.3. Option 3 -- Stiff Diagrams.....	102
3.5.4. Option 4 -- Piper Diagrams.....	104
3.5.5. Option 5 -- Regression Plots.....	107
3.5.6. Option 6 -- Summary Statistics Table.....	108
3.5.7. Option 7-- Detection Limits Table.....	110
3.6. Option 6-- Support Files.....	112
3.6.1. Option 1 -- List Site Records.....	112
3.6.2. Option 2 -- Check Parameter Code Dictionary.....	113
3.6.3. Option 3 -- List Parameter Code Dictionary.....	113
3.6.4. Option 4 -- Check Geologic Unit Code File.....	114
3.6.5. Option 5 -- Check Federal Information Processing Standards (FIPS) Code.....	114
3.6.6. Option 6 -- List State/County Data.....	114
3.6.7. Option 7 -- Dump Parameter Code Dictionary with	

Precision Codes.....	115
3.6.8. Option 8 -- Display Contents of Algorithm File.....	116
3.6.9. Option 9 -- Display Contents of Parm Method Table.....	117
3.7. Option 7 – Utilities.....	119
3.7.1. Option 1 -- Change Database Number.....	119
3.7.2. Option 2 -- Add New Site or Modify Site Information.....	119
3.7.3. Option 3 – Station Change: Inventory, Change, or Delete.....	120
3.7.4. Option 4 -- Count Water Quality Records.....	120
3.7.5. Option 5 -- Set District Processing Status Flag.....	121
3.7.6. Option 6 -- Set Data Quality Indicator (DQI) Code.....	122
3.7.7. Option 7 -- Inventory DQI Codes.....	124
3.7.8. Option 8 -- Produce Drinking-Water Alert Limit Table.....	126
3.8. Function 8 -- Batch Processing.....	128
3.8.1. Option 1 -- Retrieve National Water-Quality Laboratory Data.....	132
3.8.2. Option 2 -- Process Batch File for All Logged In Samples.....	134
3.8.3. Option 3 -- Process Batch File for All Samples.....	135
3.8.4. Option 4 -- Process Batch File for All Logged In QA Samples.....	135
3.8.5. Option 5 -- Process Batch File for All QA Samples.....	135
3.8.6. Option 6 -- Produce Batch Output.....	135
3.8.7. Option 7 -- Review/Edit Batch files.....	136
3.8.8. Option 8 -- Produce 1- and *-Card Output.....	137
3.8.9. Option 9 – Reload QWDATA from Batch File, Overriding DQI.....	137
3.8.10. Option 10 – Reload QA Data from Batch File, Overriding DQI.....	138
3.9. Miscellaneous Programs.....	139
3.9.1. Program to Concatenate Tab-Delimited Batch Files (qwcat).....	139
3.9.2. Program to Subset Tab-Delimited Batch Files (qwsplit).....	140
3.9.3. Program to Edit Existing Precision Codes in Field Values (qwfix).....	142
3.9.4. Program to Convert 1 and * Card Batch Files to Tab-Delimited Batch Files (star2pair).....	144

3.9.5. Program to Convert RDB Output Files to Excel Files.....	144
3.9.6. Program to Adjust Stored Sample Times.....	146
4. Appendices.....	148
4.1. Appendix A: Codes Used in Water-Quality System.....	148
4.2. Appendix B: Fixed Value Codes.....	172
4.3. Appendix C: Output Examples.....	250
4.4. Appendix D: Calculated Parameters.....	277
4.5. Appendix E: Alert Limits.....	292
4.6. Appendix F: Batch File Formats.....	295
Appendix F Examples.....	300
4.7. Appendix G: Input File Formats.....	302
4.8. Appendix H: Parameters That Allow Negative Values.....	305
4.9. Appendix I: Parameters That Can Be Recensored if Stored Value Is Zero.....	320
4.10. Appendix J: Time-Related Codes.....	322
5. Tip Sheets.....	325
5.1. Cursor Control How do I move around on the screens?.....	325
5.2. Login Samples/Enter Field Data How do I login my sample and enter field data?.....	326
5.3. Custom Field Forms How do I design a field form?.....	328
5.4. Viewing Data (QWlist) How do I view my data in the database?.....	330
5.5. Editing Data How do I edit data that are already in the database?.....	332
5.6. Retrieving Tables How do I table data in publication-style table format?.....	334
5.7. Flat Files How do I make flat files to use data in programs outside of QWDATA?.....	336
5.8. Parameter Code Dictionary How can I find a parameter code number or name?.....	339
5.9. Batch Processing How do I load data using batch processing?.....	341

- 5.10. Large-Scale Changes to the Database (batch output; global edit; re-enter; qwfix)
 - How do I make large-scale changes to data?..... 343
- 5.11. Null-Value Data Entry
 - How do I use null values?..... 345
- 5.12. Retrieving Records
 - How do I retrieve records for use in other QWDATA programs?..... 346
- 5.13. Problem-Reporting System – GNATS
 - How do I enter reports into the problem-reporting system?..... 348
- 5.14. X, Y Plots
 - How do I make linear plots of my data?..... 352
- 5.15. Boxplots
 - How do I make boxplots of my data?..... 354