Version 3: 04/2003

U. S. GEOLOGICAL SURVEY SURFACE-WATER QUALITY NOTES

NWIS RECORD NO ___ ___ ___ ___ ___ ___ ___ ___

STATION NO. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ SAMPLE DATE ___ ___/___ ___/___ ___ ___ ___ MEAN SAMPLE TIME(CLOCK) __ __ __ __

STATION NAME _____ SAMPLE MEDIUM _____ SAMPLE TYPE _____ TIME DATUM _____ (eg. EST, EDT, UTC)

PROJECT NO. ___ ___ ___ ___-___ ___ ___ ___ ___ PROJ NAME_____ SAMPLE PURPOSE (71999) ___ PURPOSE OF SITE VISIT (50280) ___

SAMPLING TEAM _____ TEAM LEAD SIGNATURE _____ DATE ___/___/_____

START TIME __ __ __ __ GAGE HT _____ TIME __ __ __ __ GHT _____ TIME __ __ __ __ GHT _____ TIME __ __ __ __ GHT _____ END TIME __ __ __ __ GHT _____

QC SAMPLE COLLECTED? EQUIP BLANK ___ FIELD BLANK ___ SPLIT ___ CONCURRENT___ SEQUENTIAL __ SPIKE ___ TRIP BLANK ___ OTHER ___

NWIS RECORD NOS. _____ _____ _____ _____ _____ _____ _____ _____

LABORATORY INFORMATION

SAMPLES COLLECTED: NUTRIENTS ___ MAJOR IONS ___ TRACE ELEMENTS: FILTERED ___ UNFILTERED ___ MERCURY ___ VOC ___ RADON ___

TPC ___ (VOL FILTERED_____mL) TPC ___ (VOL FILTERED_____mL) PIC ___ (VOL FILTERED_____mL) DOC ___ ORGANICS: FILTERED ___ UNFILTERED ___

ISOTOPES ___ MICROBIOLOGY ____ CHLOROPHYLL ____ BOD ____ COD ____ ALGAE ____ I NVERTEBRATES ____ FISH ____ BED SED. ____

SUSP. SED. ____ CONC. S/F SIZE RADIOCHEMICALS: FILTERED ___ UNFILTERED ___ OTHER _____ OTHER _____

LABORATORY SCHEDULES: _____ _____ _____ _____ _____ _____

LAB CODES: _____ ADD/DELETE _____ ADD/DELETE _____ ADD/DELETE _____ ADD/DELETE _____ ADD/DELETE _____ ADD/DELETE

COMMENTS: _____ DATE SHIPPED __ __ /__ __/__ __ __ __

FIELD MEASUREMENTS

GAGE HT (00065) _____ ft	COND (00095) _____ µS/cm@25 °C	CARBONATE (00452) _____ mg/L
Q, INST. (00061) _____ cfs MEAS. RATING EST.	TEMP, AIR (00020) _____ °C	HYDROXIDE (71834) _____ mg/L
DIS. OXYGEN (00300) _____mg/L	TEMP, WATER (00010) _____ °C	E. COLI ( ) _____ col/100mL
BAROMETRIC PRES. (00025) _____ mm Hg	TURBIDITY (61028) _____ ntu	FECAL COLIFORM (31625) _____ col/100mL
DO SAT. (00301) _____ %	ALKALINITY ( ) _____ mg/L	TOTAL COLIFORM (31501) _____ col/100 mL
eH (00090) _____ mvolts	ANC ( ) _____ mg/L	OTHER: _____
pH (00400) _____ UNITS	BICARBONATE (00453) _____ mg/L	OTHER: _____

SAMPLING INFORMATION

Sampler Type (84164) _____ Sampler ID _____ Sample Compositor/Splitter: PLASTIC TEFLON CHURN CONE OTHER _____

Sampler Bottle/Bag Material: PLASTIC TEFLON OTHER _____ Nozzle Material: PLASTIC TEFLON OTHER _____ Nozzle Size: 3/16" 1/4" 5/16"

Stream Width: _____ ft mi Left Bank _____ Right Bank _____ Mean Depth: _____ft Ice Cover _____% Ave. Ice Thickness _____ in.

Sampling Points: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Sampling Location: WADING CABLEWAY BOAT BRIDGE UPSTREAM DOWNSTREAM SIDE OF BRIDGE _____ ft mi above below gage _____

Sampling Site: POOL RIFFLE OPEN CHANNEL BRAIDED BACKWATER Bottom: BEDROCK ROCK COBBLE GRAVEL SAND SILT CONCRETE OTHER _____

Stream Color: BROWN GREEN BLUE GRAY CLEAR OTHER _____ Stream Mixing: WELL-MIXED STRATIFIED POORLY-MIXED UNKNOWN OTHER _____

Weather: ***SKY-*** CLEAR PARTLY CLOUDY CLOUDY ***PRECIP-*** LIGHT MEDIUM HEAVY SNOW RAIN MIST ***WIND-*** CALM LIGHT BREEZE GUSTY WINDY EST. WIND SPEED___

TEMP- VERY COLD WARM HOT ***COMMENTS***_____

Sampling Method (82398): EWI [10] EDI [20] SINGLE VERTICAL [30] MULT VERTICAL [40] OTHER _____ Stage: STABLE, NORMAL STABLE, HIGH RISING FALLING PEAK

OBSERVATIONS: _____

COMPILED BY: _____ **CHECKED BY:** _____ **DATE:** _____

STN NO_____

METER CALIBRATIONS

TEMPERATURE Meter MAKE/MODEL _____ S/N _____ Thermister S/N _____ Thermometer ID _____

Lab Tested against NIST Thermometer/Thermister? N Y Date: ___ ___/___ ___/ ___ ___ ___ ___ ±_____ °C

Measurement Location: CONE SPLITTER CHURN SPLITTER SINGLE POINT AT _____ ft DEEP VERTICAL AVG. OF _____ POINTS

FIELD READING # 1 _____ # 2 _____ # 3 _____ # 4 _____ # 5 _____ **MEDIAN:**_____ **ºC REMARK** ___ ___ **QUALIFIER** ___ ___

pH Meter MAKE/MODEL _____ S/N _____ Electrode No. _____ Type: GEL LIQUID OTHER _____

Sample: FILTERED UNFILTERED CONE SPLITTER CHURN SPLITTER SINGLE POINT AT _____ FT DEEP VERTICAL AVG. OF _____ POINTS

pH BUFFER	BUFFER TEMP	THEO-RETICAL pH FROM TABLE	pH BEFORE ADJ.	pH AFTER ADJ.	SLOPE	MILLI-VOLTS	BUFFER LOT NO.	BUFFER EXPIRA-TION DATE	COMMENTS
pH 7									
pH 7									
pH 7									
pH ___									
pH ___									
pH ___									
CHECK pH ___									

TEMPERATURE CORRECTION FACTORS FOR BUFFERS APPLIED?

CALIBRATION COMMENTS:

_____
_____
_____
_____
_____
_____
_____

FIELD READING # 1 _____ # 2 _____ # 3 _____ # 4_____ # 5 _____ **USE:** _____ **UNITS REMARK** ___ ___ **QUALIFIER** ___ ___

SPECIFIC CONDUCTANCE Meter MAKE/MODEL _____ S/N _____ Sensor Type: DIP CUP FLOW-THRU OTHER_____

Sample: CONE SPLITTER CHURN SPLITTER SINGLE POINT AT _____ ft DEEP VERTICAL AVG. OF _____ POINTS

Temperature compensation:

AUTO

MANUAL CORR. FACTOR= _____

STD VALUE	STD TEMP	SC BEFORE ADJ.	SC AFTER ADJ.	STD LOT NO	STD EXPIRATION DATE	COMMENTS

FIELD READING # 1 _____ # 2 _____ # 3 _____ # 4_____ # 5 _____ **MEDIAN:** _____**µS/cm REMARK** ___ ___ **QUALIFIER** ___ ___

DISSOLVED OXYGEN Meter MAKE/MODEL _____ S/N _____ Probe No. _____

Sample: SINGLE POINT AT _____ ft DEEP VERTICAL AVG. OF _____ POINTS BOD BOTTLE OTHER_____ Stirrer Used? Y N

Air Calibration Chamber in Water___ Air-Saturated Water ___ Air Calibration Chamber in Air ___ Winkler Titration ___ Other_____

Battery Check: REDLINE _____ RANGE _____ THERMISTER Check? Y N _____ Zero DO Check: Y N Solution Date _____

WATER TEMP ºC	BAROMETRIC PRESSURE mm Hg	DO TABLE READING mg/L	SALINITY CORR. FACTOR	DO BEFORE ADJ.	DO AFTER ADJ.

Zero Meter Reading _____mg/lL Adj. to _____ mg/L

Membrane Changed? N Y Date: ____/____/_____ Time: _____

Barometer Calibrated? N Y Date: ____/____/_____ Time: _____

FIELD READING # 1 _____ # 2 _____ # 3 _____ # 4_____ # 5 _____ **MEDIAN:** _____ **mg/L REMARK** ___ ___ **QUALIFIER** ___ ___

STN NO_____

ALKALINITY/ANC CALCULATIONS

BEGINNING H_2O TEMP. _____ °C

pH	ΔpH	VOL ACID DC OR mL	ΔVOL ACID DC / mL	ΔpH / ΔVOL ACID	pH	ΔpH	VOL ACID DC OR mL	ΔVOL ACID DC / mL	ΔpH / ΔVOL ACID

CALCULATIONS

ALKALINITY OR ANC (meq/L) = 1000 (B) (C_a) (CF) / V_s

ALKALINITY (mg/L AS $CaCO_3$) = 50044 (B) (C_a) (CF) / V_s

where:

B = volume of acid titrant added from the initial pH to the bicarbonate equivalence point (near pH 4.5), in milliliters. To convert from digital counts to milliliters, divide by 800 (1.00 mL = 800 counts)

C_a = concentration of acid titrant, in milliequivalents per milliliter (same as equivalents per liter, or *N*)

CF = correction factor (obtain from OWQRL for Hach acid cartridges of certain lot numbers — default value is 1.00)

V_s = volume of sample, in milliliters

For samples with pH ≤ 9.2:

BICARBONATE (meq/L) = 1000 (B-2A) (C_a) (CF) / V_s

BICARBONATE (mg/L) = 61017 (B-2A) (C_a) (CF) / V_s

CARBONATE (meq/L) = 2000 (A) (C_a) (CF) / V_s

CARBONATE (mg/L) = 60009 (A) (C_a) (CF) / V_s

where:

A = volume of acid titrant added from the initial pH to the carbonate equivalence point (near pH 8.3), in milliliters. To convert from digital counts to milliliters, divide by 800 (1.00 mL = 800 counts)

NOTE: For samples with pH > 9.2, these equations for bicarbonate and carbonate will fail to give accurate results. Use the Alkalinity Calculator at http://oregon.usgs.gov/alk

HACH CARTRIDGE CORRECTION FACTOR _____

[SEE QWQRL WEB PAGE (NEWS) FOR INFO]

FIRST TITRATION RESULTS

DATE ___ ___/___ ___/___ ___ ___ ___

TIME ___ ___ ___ ___ TEMP _____

ALKALINITY/ANC _____ meq/L

ALKALINITY/ANC _____ mg/L AS $CaCO_3$

BICARBONATE _____mg/L _____meq/L AS HCO_3^-

CARBONATE _____mg/L _____ meq /L AS CO_3^{2-}

ACID: 1.6N 0.16N 0.01639N

OTHER:_____

ACID LOT NO. _____

ACID EXPIRATION DATE __ __/__ __/__ __ __ __

SAMPLE VOLUME: _____mL

___ FILTERED ___ UNFILTERED

___ INFLECTION POINT TITRATION
___ GRAN METHOD

STIRRING METHOD: ___ MAGNETIC ___ MANUAL

SECOND TITRATION RESULTS

DATE ___ ___/___ ___/___ ___ ___ ___

TIME ___ ___ ___ ___ TEMP _____

ALKALINITY/ANC _____ meq/L

ALKALINITY/ANC _____ mg/L AS $CaCO_3$

BICARBONATE _____mg/L _____meq/L AS HCO_3^-

CARBONATE _____mg/L _____ meq /L AS CO_3^{2-}

ACID: 1.6N 0.16N 0.01639N

OTHER:_____

ACID LOT NO. _____

ACID EXPIRATION DATE __ __/__ __/__ __ __ __

SAMPLE VOLUME: _____mL

___ FILTERED ___ UNFILTERED

___ INFLECTION POINT TITRATION
___ GRAN METHOD

STIRRING METHOD: ___ MAGNETIC ___ MANUAL

COMMENTS/CALCULATIONS:

STN NO_____

MICROBIOLOGY

FECAL COLIFORM

Time collected: __ __ __ __

time in: __ __ __ __ date __/__/_____

time out: __ __ __ __ date __/__/_____

VOLUME mL	COUNT COL/100mL	USED IN CALC?	REMARKS*
BLANK			
BLANK			

INCUBATE 24 hrs @44.5ºC FILTER SIZE=0.7 µM

IDEAL COUNT= 20-60 COL/100mL

RESULT (31625) _____ COL/100 mL

*REMARK ___ ___ **QUALIFIER ___ ___

*REMARKS E=ESTIMATED
<=LESS THAN >=GREATER THAN
**QUALIFIER K=NON-IDEAL COUNT

TOTAL COLIFORM

Time collected: __ __ __ __

time in: __ __ __ __ date __/__/_____

time out: __ __ __ __ date __/__/_____

VOLUME mL	COUNT COL/100mL	USED IN CALC?	REMARKS*
BLANK			
BLANK			

INCUBATE 24 hrs @35 ºC FILTER SIZE=0.45 OR 0.7 µM

IDEAL COUNT= 20-80 COL/100mL

RESULT (31501) _____ COL/100 mL

*REMARK ___ ___ **QUALIFIER ___ ___

*REMARKS E=ESTIMATED
<=LESS THAN >=GREATER THAN
**QUALIFIER K=NON-IDEAL COUNT

E. COLI

Time collected: __ __ __ __

time in at 35ºC: __ __ __ __ date __/__/_____

time in at 44.5ºC: __ __ __ __ date __/__/_____

time out: __ __ __ __ date __/__/_____

VOLUME mL	COUNT COL/100mL	USED IN CALC?	REMARKS*
BLANK			
BLANK			

INCUBATE [SEE NFM] FILTER SIZE=0.45 µM

IDEAL COUNT= [SEE NFM]

RESULT ( ) _____ COL/100 mL

*REMARK ___ ___ **QUALIFIER ___ ___

*REMARKS E=ESTIMATED
<=LESS THAN >=GREATER THAN
**QUALIFIER K=NON-IDEAL COUNT

QUALITY-CONTROL INFORMATION

LOT NUMBERS

PRESERVATIVES 7.5N HNO_3 (FOR METALS&CATIONS) _____ 6N HCl (FOR Hg) _____ 4.5N H_2SO_4 (FOR NUTRIENTS&DOC) _____

1:1 HCL (FOR VOC) _____ CONC. H_2SO_4 (FOR COD, PHENOL, O&G)_____ NaOH (FOR CYANIDE) _____

OTHER _____ _____ _____ **COMMENTS** _____

SPIKE VIALS (99104) _____ _____ _____ **SURROGATE VIALS** _____ _____ _____

BLANK WATER INORGANIC (99200)_____ (992021_____ PESTICIDE (99202)_____ (99203)_____ VOC (99204) _____ (99205)_____

FILTERS CAPSULE_____ PLATE _____ ORGANIC CARBON _____ OTHER _____

CROSS SECTION NOTES

STATION	ft FROM LEFT BANK (00009) OR ft FROM RIGHT BANK (72103)	TIME	DEPTH ft (81903)	DO mg/L (00300)	DO SAT % (00301)	pH units (00400)	Sc µS/cm (00095)	TEMP ºC (00010)	GAGE HT ft (00065)	SUB Q (INST) cfs (00061)	

STN NO_____

OXYGEN DEMAND (BOD) (CBOD)

BLANKS

BOTTLE NO.	INITIAL BOD	DO OR CBOD	5-DAY BOD	DO OR CBOD	BOD	CBOD	AVERAGE BOD	AVERAGE CBOD

SAMPLE

BOTTLE NO.	SAMPLE SIZE DILUTIION	INITIAL BOD	DO OR CBOD	5-DAY BOD	DO OR CBOD	BOD	CBOD

RESIDUAL CHLORINE

	positive/ negative	sodium sulfite added	sodium sulfite normality
field test	+ / -		
lab test	+ / -		
After 5-day bod/cbod	+ / -		

CALCULATIONS

$$BOD_5 \text{ (mg/L)} = \frac{D_1 - D_2}{P}$$

where D_1 = initial DO of sample
D_2 = final DO of sample after 5 days, and
P = decimal volumetric fraction of sample used.

COMMENTS_____

_____

_____

DISSOLVED OXYGEN USING WINKLER METHOD

TITRANT: PAO SODIUM THIOSULFATE OTHER _____TITRANT NORMALITY _____N **D.O. =** _____ **mg/L**

FINAL BURETTE READING						
INITIAL BURETTE READING						
mL TITRANT USED						
mL WATER TITRATED						

COMMENTS_____

_____

_____

_____

$$\text{DISSOLVED OXYGEN (mg/L)} = \left(\frac{200}{\text{mL water titrated}} \right) \times \text{mL TITRANT} \times CF^*$$

*APPLY CORRECTION FACTOR (CF) IF TITRANT HAS A NON-STANDARD NORMALITY (STANDARD NORMALITY = 0.025N) CF = NORMALITY OF TITRANT/0.025

TURBIDITY CALIBRATION

Meter: MAKE/MODEL _____ S/N _____ Type: TURBIDIMETER SUBMERSIBLE SPECTROPHOTOMETER

Sample: SAMPLE STORED? Y N HOW LONG? _____

SAMPLE DILUTED? Y N VOL. OF DILUTION WATER _____ mL SAMPLE VOLUME _____ mL

NTU = A x (B+C) / C

A= NTU IN DILUTED SAMPLE
B= VOLUME OF DILUTION WATER, mL
C= SAMPLE VOLUME, mL

	Date Prepared	Concentration NTU	Temperature °C	Initial instrument reading	Reading after adjustment
Stock Turbidity Standard					
Zero NTU Standard *(DIW)*					
Standard 1					
Standard 2					
Standard 3					

COMMENTS_____

_____

_____

_____

_____

FIELD READING #1 _____ #2 _____ #3 _____ #4 _____ #5 _____ **MEDIAN** _____NTU **REMARK** ___ ___ **QUALIFIER** ___ ___

DIGITAL PICTURE OF SITE CAN BE INSERTED HERE

COMMENTS/CALCULATIONS

REFERENCE LIST FOR CODES USED ON THIS FORM

Sample Medium Codes
9 Surface water
R Quality-control sample (associated environmental sample –9 (SW))
Q Blanks

Sample Type Code
9 Regular
7 Replicate
2 Blank
1 Spike

Time Datum Codes

Time Zone	Std Time Code	UTC Offset (hours)	Daylight Time Code	UTC Offset (hours)
Hawaii-Aleutian	HST	-10	HDT	-9
Alaska	AKST	-9	AKDT	-8
Pacific	PST	-8	PDT	-7
Mountain	MST	-7	MDT	-6
Central	CST	-6	CDT	-5
Eastern	EST	-5	EDT	-4
Atlantic	AST	-4	ADT	-3

Null-value Qualifiers
e required equipment not functional or available
f sample discarded; improper filter used
o insufficient amount of water

Value Qualifiers
e see field comment
f sample field preparation problem
k counts outside the acceptable range

82398 SAMPLING METHOD
10 Equal Width Increment (Ewi)
20 Equal Discharge Increment (Edi)
25 Timed Sampling Interval
30 Single Vertical
40 Multiple Verticals
50 Point Sample
70 Grab Sample (Dip)
80 Discharge Integrated, Equal Transit Rate (Etr)
90 Discharge Integrated, Centroid
120 Velocity Integrated
8010 Other
8030 Grab Sample At Water-Supply Tap

84164 SAMPLER TYPE
100 Van Dorn Sampler
110 Sewage Sampler
125 Kemmerer Bottle
3039 US D-77 Tm
3040 US D-77 Tm Modified Teflon Bag Sampler
3044 US DH-81
3045 US DH-81 With Teflon Cap And Nozzle
3046 Sampler, D-77 Tm, W/Reynolds Oven Collapsible Bag
3047 Sampler, Frame-Type, Plastic Bottle W/Reynolds Oven Bag
3048 Sampler, Frame-Type, Teflon Bottle
3049 Sampler, Frame-Type, Plastic Bottle
3050 Sampler, Frame-Type, Plastic Bottle W/Teflon Collapsible Bag
3051 US DH-95 Teflon Bottle
3052 US DH-95 Plastic Bottle
3053 US D-95 Teflon Bottle
3054 US D-95 Plastic Bottle
3055 US D-96 Bag Sampler
3060 Weighted-Bottle Sampler
3061 US WBH-96 Weighted-Bottle Sampler
3070 Grab Sample
3080 VOC Hand Sampler
4010 Thief Sampler
4115 Sampler, point, automatic
8000 None
8010 Other

71999 SAMPLE PURPOSE
10 Routine
15 NAWQA
20 NASQAN
30 Benchmark
40 SW Network
60 Lowflow Network
70 Highflow Network
110 Seepage Study
180 Cross-Section Variation

ALKALINITY/ANC PARAMETER CODES
39086 Alkalinity, water, filtered, incremental titration, mg/L
00410 ANC, water, unfiltered, incremental titration, mg/L
29802 Alkalinity, water, filtered, Gran titration, mg/L
29813 ANC, water, unfiltered, Gran titration, mg/L

50280 PURPOSE OF SITE VISIT
1001 Fixed frequency, surface-water
1002 Storm hydrograph, surface-water
1003 Extreme high flow, surface-water
1004 Extreme low flow, surface-water
1005 Diurnal, surface-water
1006 Synoptic, surface-water
1098 NAWQA surface-water quality control
1099 Other, surface-water

3001 NAWQA Occurrence Survey
3002 NAWQA Spatial Distribution Survey
3003 NAWQA Synoptic Study
3098 NAWQA bed-sediment or tissue quality control
3099 Other, bed sediment and tissue

A COMPLETE SET OF FIXED-VALUE CODES CAN BE FOUND ON-LINE AT:
http://wwwnwis.er.usgs.gov/nwisdocs4_3/qw/QW.user.book.html

SAFETY FIRST – EVERY JOB – EVERY TIME