

Department of Environmental Quality, Water Quality Program Required Data Elements Policy

BACKGROUND

High quality data is important to the Department of Environmental Quality (DEQ) because environmental monitoring generally requires a large investment of resources, often thousands of dollars and hundreds of person-hours for a single project. The ability to provide a level of assurance that allows data to be of scientific value in the future or to other researchers is not only cost effective, but also an essential component of any good quality environmental monitoring program. When resources are expended to collect data but the data are not qualified or in a standardized, useful format, the data collection effort becomes a one-time only effort, and the data will be viewed as data of the lowest level or unknown quality. Data of unknown quality can not be used by others that need high quality data and can undermine scientific credibility. Knowing the quality of data is critical to evaluating the applications for which they are appropriate. For example, when data are provided in a standard format and at a defined and accepted level of quality, the collector is protected from liability when the data are used inappropriately. Establishing standards also protects users from relying on inappropriate information.

The value of data, and the information generated from data, increases the more it is used, shared, and disseminated. In the past, DEQ has received raw data, reports, and water quality studies in paper or “hard copy” format. Hard copy format does not lend itself well to information sharing or further research efforts. If DEQ staff, or others, want to use the data they must re-enter the data into a computer system. Not only is this a duplication of effort and financial resources but also introduces opportunities for data entry and interpretation errors. Submitting information and data electronically provides the means for information to be shared easily, disseminated to a larger audience, and used for a broader range of applications and interests.

To encourage and enhance the widest possible use of environmental data that is of known quality, collected in Oregon, DEQ has established the Required Data Elements policy for data submission to the agency. The reason DEQ is requiring this information is to ensure that data collected by agency staff, private contractors, consultants, volunteers, or others are submitted electronically, standardized, and documented.

INTRODUCTION

DEQ has recognized the need for all environmental data collected and submitted to the agency to be qualified, standardized, and in easily usable, electronic formats. In order to facilitate this need, data submitted to the agency must be of known quality, meet documented quality assurance procedures, and provide standardized, consistent information that allows effective use of the data. In addition, a minimum of formatting, editing, insuring software compatibility, etc.

should be necessary. Requiring specific information when submitting data to DEQ will help to ensure that the data management goals of the agency will be met.

In developing these requirements, DEQ attempted to balance the following three goals:

1. Encourage the submission of as much data of known quality as possible.
1. Obtain sufficient *meta-data*, or information about data, to allow users to make full and effective use of the data, and understand the quality of the data over time.
1. Encourage the submission of data in a format that requires minimal additional formatting or manipulation by DEQ.

This document describes the required data elements for chemistry data submitted to DEQ Water Quality and Laboratory Divisions.

REQUIRED DATA ELEMENTS

The following elements are required for submitting data to DEQ. DEQ reserves the right to refuse to accept data that is not in a format that can be readily downloaded.

SAMPLE COLLECTION ACTIVITY ELEMENTS

- 1) **Sample Project.** Specify: ambient, mixing zone, TMDL, Watershed Council, or other.
- 1) **Organization.** The name of the organization, group, or watershed responsible for data collected, and the current contact person, title and phone number.
- 1) **Station Name.** The sampling point name (*Example name: BEAR CREEK @ KIRTLAND RD 0.5 mi. D/S OF JACKSON CK CONFLUENCE, where @ means "at", mi. means "miles", D/S or U/S means "down-" or "up-stream"*).
- 1) **Station ID Code.** The station identification number or code. The station identification number or code is assigned by the organization collecting the data. This code must be unique for each sampling site and identical each time data is reported, because it will be used as an identification code in the DEQ database (*Example code: BEAR001 or 402728*).
- 1) **Location.** This is provided in three parts, the latitude and longitude (or multiple latitudes and longitudes for area stations) in degrees, minutes, and seconds. *Attachment A* contains a list of resources for obtaining latitude and longitude. Include the source of location information that was used.
- 1) **Station Elevation and sample depth** below ground (for wells) or water surface. The elevation is used to calculate the percent of dissolved oxygen saturation and is useful when interpreting temperature data. Please indicate units of measurement for elevation in feet.

Elevations can be estimated from US Geological Survey (USGS) topographic maps, generally with contour intervals of 40 or 100 feet. Elevations can be estimated in the field with an altimeter calibrated at the nearest USGS benchmark or site of known elevation.

- 1) **Date of sample collection.** Please use MM/DD/YYYY format (*Example: 05/31/1999*).
- 1) **Time of collection.** Please use the 24 hour clock and HH:MM format (*Example: 14:35 to designate 2:35 p.m.*).
- 1) **Method(s) used in sample collection,** as documented in the sample project's Quality Assurance Project Plan. If method used is not an EPA or DEQ approved, or Standard Method, documentation must be supplied in electronic format.
- 1) **Sampling equipment.** Type of sampling equipment used.
- 1) **Sample Matrix.** This describes the physical state of the sample. *Attachment B* contains sample matrix descriptors, such as "ambient air", "surface water", or "sediment".
- 1) **Sample Classification.** Specify: continuous, grab, or composite.
- 1) **Sample Comments.** Any comments, if appropriate.

ANALYTIC ACTIVITY ELEMENTS

Note: The following data elements apply only when field or laboratory analytical results are submitted to DEQ. If only samples are submitted, and not analytical data, the following elements are not required.

- 14) **Parameter.** This is the physically measurable property of a medium such as temperature, pH, or lead. *Attachment C* contains parameter modifiers, such as "dissolved", "lab", or "water". Up to four modifiers may be used to fully describe the parameter. The order of modifiers does matter and the parameter is specified first. Please contact the DEQ Laboratory QA/QC Officer for further clarification.
- 14) **Result.** This is the actual measurement. See *Attachment D* for result descriptors. Choose one descriptor to describe the result.
- 14) **Units of measurement.** See *Attachment E* for units.
- 14) **Results comment.** Results exception comment, if appropriate. See *Attachment F*.
- 14) **Data Quality Level.** A data quality level must be assigned to each parameter sampled (as applicable). See *Table 1* for data quality levels.
- 14) **QA/QC classification.** Sample QA/QC classification, if appropriate. See *Attachment G*.

14) **Method(s) used in analysis**, as documented in the sample project's Quality Assurance Project Plan. If method used is not an EPA or DEQ approved, or Standard Method, documentation must be supplied in electronic format.

14) **Analytic equipment**. Type of analytic equipment used.

14) **Name of laboratory** where analysis was performed, contact person, address, phone number, if appropriate.

CONTACT INFORMATION:

DEQ Laboratory QA/QC Officer: Chris Redman (503) 229-5983

303(d) List Contact: Jan Renfroe (503) 229-5589

DEQ Volunteer Monitoring Coordinator: Karen Williams (503) 229-5983

DEQ Northwest Region Monitoring Coordinator: Larry Caton (503) 229-5983

DEQ Western Region Monitoring Coordinator: Dennis Ades (503) 229-5983

DEQ Eastern Region Monitoring Coordinator: Larry Marxer (503) 229-5983

Attachment A

Obtaining Latitude and Longitude Information

When supplying sampling data, it is important to provide the latitude and longitude where the data was collected. Without this locational information, the data cannot be used in Geographic Information Systems (GIS) or other mapping efforts. The practice of analyzing watersheds via GIS is becoming increasingly common. Also, the ability to resample at the same site or analyze data from a known location at some point in the future is dependent on high-quality geographical information. The failure to supply latitude/longitude limits the validity of any efforts to provide data of known quality.

There are several ways to obtain latitude/longitude data for sampling sites. These are listed below.

1. Use a Global Positioning System (GPS) device. These hand-held devices are becoming increasingly affordable and easy to use in the field. They are available through electronics supply stores, camping/expedition stores, or nautical supply stores.
2. Read it off a USGS map. USGS maps can be obtained from stores that sell camping/expedition equipment, some travel/bookstores, and they are also found at some libraries.
3. Call a software supplier and obtain a CD-ROM that has maps with latitude/longitude included.

SOURCES of locational information used -

Uncorrected GPS

Corrected GPS

USGS Topo Map, 1:100,000

USGS Topo Map, 1:24,000

Other Method used

Attachment B

SAMPLE MATRIX DESCRIPTORS TABLE

MATRIX KEY	SAMPLE MATRIX	SAMPLE MATRIX DESCRIPTION
1	Surface water	River, streams
2	Bay/Estuary	Saline waters.
3	Groundwater	Water from subsurface aquifers
4	Finished waters	Water processed for final use (effluent).
5	Municipal waste	Domestic waste: (influent)
6	Industrial wast	Industrial process: (influent)
7	Pure Product	Pure / near pure compound
8	Sediment	Soil from water body.
9	Solid/soil	Solid/Soil.
10	Leachate	Water filtered through waste.
11	Whole body	Tissue from entire animal.
12	Round	Cross sectional cut with guts.
13	Liver	Liver of animal.
14	Organs	Any combination of organs.
15	Edible flesh	Meat portion of steak.
16	Steak	Cross section minus internals.
17	Fillet	Edible flesh plus skin.
18	Ambient air	Ambient air
19	Stack gases	Industrial stack emissions
20	Canal	Agricualtural irrigation Canal
21	Reservoir	Reservoir
22	Combined	Combined Industrial/Municipal (effluent)
23	Lake	Lake water
24	Mixing zone	Municipal/industrial mixing zone
25	Oil	Oil or oily sludge
26	TEMPORARY	UNDEFINED FOR HISTORICAL DATA
27	Tissue, Fish	General Sample matrix (see tissue table)
28	Tissue, Shellfi	General Sample matrix (see tissue table)
29	Tissue, Mamal	General Sample matrix (see tissue table)
30	Tissue, Insect	General Sample matrix (see tissue table)
31	Gonads	Reproductive organs
32	BLANK	Lab Blank Water
33	Pool Biota	Biota of pool in water body
34	Riffle Biota	Biota of riffle in water body
35	Run Biota	Biota of run in water body
36	Lipid	Fatty tissue
37	Scale	Scales
38	Shell	Shell of crustacean
39	Ditch/Pond	Water in surface ditch or pond
40	Const. Material	Construction Materials
41	Gasoline	Gasoline or gasoline testing
42	Tissue, Crustac	General Sample matrix (see tissue table)
43	Stormwater	
44	Fallout	

Attachment B (Continued)

SAMPLE MATRIX DESCRIPTORS TABLE

MATRIX KEY	SAMPLE MATRIX	SAMPLE MATRIX DESCRIPTION
45	Dust	
46	Art Media	
47	Consumer Prodct	Products related to retail/consumer usage
48	Containers/Food	
49	OD Amb. Air	Outdoor Ambient Air
50	ID Amb. Air	Indoor Ambient Air
51	Process Waste	Waste from an industrial process
52	Non-Aqueous Liq	Non-Aqueous Liquid mixture

Attachment C

PARAMETER MODIFIER TABLE

MODIFIER KEY	ABBREVIATION	MODIFIER DESCRIPTION
1	Total	
2	Total Recoverable	Less rigorous procedure for preparing sample.
3	Dissolved	Sample is filtered. Usually as soon as possible.
4	Suspended	Material that is filtered from solution.
5	Amenable to Chlorine	Used with cyanide, often called "free"
6	pH adjusted	Associated with color analysis.
7	TCLP	Toxic Compound Leachate Procedure: SW846 1310.
8	TCLP extraction I	TCLP extraction using fluid I.
9	TCLP extraction II	TCLP extraction using fluid II.
10	Available	Non extracting procedure "free".
11	Apparent	Associated with color analysis.
12	True	Associated with color analysis.
13	Manual	Wet chemistry analysis as opposed to automated.
14	Automated	Automated wet chemistry.
15	Absorbable	Associated with Organic Halides.
16	N/A	Not Applicable
17	Extractable	Extractable portion by whatever extraction means
18	Diluted	Sample Diluted (BOD)
19	Un-Diluted	Sample Not Diluted (BOD)
20	Substrate	Channel Substrate
21	Left	Left
22	Right	Right
23	Middle	Middle
24	Thalweg	Thalweg: deepest part of channel
25	Bank	Bank
26	Upstream	Upstream
27	Downstream	Downstream
28	North	North
29	East	East
30	South	South
31	West	West
32	South East	South East
33	South West	South West
34	Wet Weight	Wet
35	Bank full	Bank full
36	5 Day	Incubated for 5 days
37	18 Day	Incubated for 18 days
38	20 Day	Incubated for 20 days
39	28 Day	Incubated for 28 days

Attachment C (Continued)

PARAMETER MODIFIER TABLE

MODIFIER KEY	ABBREVIATION	MODIFIER DESCRIPTION
40	30 Day	Incubated for 30 days
41	56 Day	Incubated for 56 days
42	Field	Measured in field
43	Lab	Measured in laboratory
44	Un-ionized	
45	Carbonaceous	
46	Nitrogenous	
48	Dry Weight	Dry
49	Organic	Organic material
50	Composite	Composite samples
51	Percent Saturation	
53	MPN	Most Probable Number
54	Membrane filter	Membrane filter
55	Calculated	Calculated from other measured parameters
56	Bottom	Bottom of water body
57	Stream	Stream
58	Instantaneous	
59	Ambient	
60	Reactive	
61	Volatile	
62	Ultimate	
63	Microscopic	
64	GCMS	
65	PAH Fingerprint	
66	Non-methane	
67	Oxygen	
68	Operations and Maintenance	
69	Organism	
70	Particle	
71	Chlorinated	
72	Organophosphate	
73	Setup	
74	Removal	
75	10µm	0-10µm size particles
76	2.0µm	0-2.0µm size particles
77	2.5µm	0-2.5µm size particles
78	Quartz	
79	Teflon	

Attachment C (Continued)

PARAMETER MODIFIER TABLE

MODIFIER KEY	ABBREVIATION	MODIFIER DESCRIPTION
80	Data Summary	
81	Settleable	
82	14 Day	Incubated for 14 days
83	Split	
84	PFO	
85	Herbicide	
86	Pesticide	
87	EP Tox	
88	TCLP	
89	TPHD	
90	TPHG	
91	TPHID	
92	TPHIR	
93	TPHNW	
94	Semi-Volatiles	
95	Metals	
96	Organics	
97	GCID	
98	HCID	
99	PCB	
100	PAH	
101	Percent	
102	Bicarbonate	
103	Duplicate QA	
104	MTEC	Culture media
105	Hydrocarbon	
106	Inter-gravel	
107	Air	In ambient air
108	Water	In water
109	Residual	Refers to Chlorine in Effluent
110	TSP	Total Suspended Particulate
111	HV	High Volume
112	MV	Medium Volume
113	LV	Low Volume
114	FRM	AQ Federal Reference Method
115	Start	Beginning
116	Stop	Ending
117	PFO	Fallout
118	Coarse	2.5-10 um
119	Fine	0-2.5 um

Attachment C (Continued)

PARAMETER MODIFIER TABLE

MODIFIER KEY	ABBREVIATION	MODIFIER DESCRIPTION
120	BSO	Benzene soluble
121	>2.0mm	Gravel (Particle sizing)
122	0.5-2.0 mm	Coarse Sand (Particle sizing)
123	0.125-0.5 mm	Fine-Medium Sand (Particle sizing)
124	0.0625-0.125 mm	Very Fine Sand (Particle sizing)
125	<0.0625 mm	Silt and Clay (Particle sizing)
126	PHL	PHL Lab
127	Minimum	
128	Maximum	
129	Average	
130	Wind	
131	Removed frm Sampler	
132	Returned to Lab	
133	Max. Temp. Diff.	Maximum temperature difference
134	%CV	
135	Filter	
136	Total Suspended	
137	Loading	
138	Concentration	
139	Climatronics	
140	HV1200	
141	MV ODEQ	
142	P2000	
143	P2025	
144	Survey 15LPM	
145	Survey 5LPM	
146	Prim	Primary sample of QA
147	Transported	
148	Applied	
149	Clarifier Blanket	
150	Reduced	
151	Dosing	
152	Screen	
153	Monitoring Ports	
154	Tank	
155	Pump	
156	Transmittance	
157	Mean Cell Residence	
158	Mixed Liquor	
159	Acid	
160	Meter Calibration	
161	Carbonaceous	
162	Carbonaceous Loading	
163	Carbonaceous Removal	

Attachment D

RESULT DESCRIPTOR TABLE

RESULT TYPE	ABBREVIATION	DESCRIPTION
1	Numeric	Simple numeric result
2	Text	Short text result
3	Memo	Long text result
4	OLE	A binary object such as word processor document, spreadsheet, image, etc.
5	Qualified Numeric	A numeric result with some qualifications
6	Under Reporting Limit	Value reported as a "Non-detect", usually higher than MDL or PQL
7	Qualified Under Reporting Limit	A numeric reporting limit with some qualifications
8	Minimum Detection Limit	Minimum Detection Limit (MDL) reported for "Non-detect"
9	Qualified MDL	An MDL with some qualifications
10	Practical Quantitation Limit	Practical Quantitation Limit (PQL) reported for "Non-detect"
11	Qualified PQL	A PQL with some qualifications
12	Qualified Text	A short text result with some qualifications
13	Over Reporting Limit	Value reported as greater than
14	Qualified Over Reporting Limit	Over Reporting Limit with qualifications
15	Estimated Numeric	Estimated Result
16	Estimated URL	Estimated under reporting limit
17	Estimated ORL	Estimated over reporting limit
18	Estimated MDL	Estimated Minimum Detection Limit
19	Estimated PQL	Estimated Practical Quantitation Limit

Attachment E

UNIT TABLE

UNIT KEY	UNIT ABBV	UNIT CONV	UNIT DESCRIPTION
1	mg/L	1	Milligrams per liter
2	g/L	0.001	Grams per liter
3	ug/L	1000	Micrograms per liter
4	pg/L	100000	Picrograms per Liter
5	mg/Kg dry	1	Milligrams per Kilogram - dry
6	mg/Kg wet	1	Milligrams per Kilogram - wet
7	ug/M3	1	Micrograms per cubic meter 25C
8	%	0.0001	Percent
9	ppm	1	Part per million
10	ppb	1000	Parts per billion
11	ppt	100000	Part per trillion
12	g	1000	Grams
13	Kg	1	Kilogram
14	lbs	2.204622	Pounds
15	ml	1000	Milliliter
16	L	1	Liter
17	gal.	0.264178	Gallon U.S.
18	cm	100	Centimeter
19	M	1	Meters
20	ft	3.2808	Feet
21	°C	1	Degrees Centigrade
22	°F	1.8	Degrees Fahrenheit
23	SU	1	Ion selective units
24	umhos/cm	1	Micromhos per centimeter @25 C
25	NTU	1	Nephelometric turbidity units
26	mf/l	1	Microfilaments per liter
27	CU	1	Color units
28	TON	1	Threshold Odor Number
29	cls./100 ml	1	Colonies per 100 ml
30	CFU/100 ml	1	Colony Forming Units per 100 m
31	%EFF:NOE	1	
32	%EFF:NOE	1	
33	%EFF:NOE	1	
34	IC25S	1	
35	IC25G	1	
36	IC25R	1	
37	NA	0	
38	m^2	1	Square meter
39	ft^2	10.76387	Square feet

Attachment E (Continued)

UNIT TABLE

UNIT KEY	UNIT ABBV	UNIT CONV	UNIT DESCRIPTION
40	cm^2	1000	Square centimeter
41	sq yds	1.195985	Square yards
42	sq inch	1549.9969	Square inches
43	hrs	1	Hours
44	min	60	Minutes
45	sec	360	Seconds
46	days	0.416666	Days
47	weeks	0.005952	Weeks
48	months	0.001384	Months
49	yrs	0.000115	Years
50	cfm	0.0284	Cubic feet per minute
51	lpm	1	Liters per minute
52	Yes/No	0	Yes/No (True/False)
53	ft/sec	1	Feet per Second
54	°	1	Degrees, angle
55	Count	1	Count
56	Phylum	0	Phylum
57	Class	0	Class
58	Order	0	Order
59	Family	0	Family
60	Tribe	0	Tribe
61	Genus	0	Genus
62	Species	0	Species
63	Variation	0	Variation
64	mg/M^2		Milligrams per square meter
65	mg/M^3(25DEG)		Milligrams per cubic meter
66	g/M^2/m		Grams per cubic meter per month
67	MPN		Most Probable Number
68	ug/ft^2		Micrograms per cubic foot
69	(Text)		Text
70	Datetime		Date / time
71	Date		Date
72	Time		Time
73	BTU/lb		BTU's per pound
74	cfs		Cubic feet per second
75	mg		Milligrams
76	ng/L		Nanograms per liter
77	mV		Millivolts
78	lb/gal		Pounds per gallon
79	ug/M3	1	Micrograms per cubic meter

Attachment E (Continued)

UNIT TABLE

UNIT KEY	UNIT ABBV	UNIT CONV	UNIT DESC
80	mq/M3		Micrograms per cubic meter STP
81	Bscat		Backscatter Coeff x 10 ⁴
82	mb		Millibars
83	ly		Langley
84	RH		Percent relative humidity
85	lq/min		langleys/minute
86	ng/M3 (25C)		Nanograms/cubic Meter (25C)
87	COHS/1000		coefficient of haze / 1000 ft
88	MPS		Meters per second
89	MPH		Miles per hour
90	RH		Relative Humidity (%)
91	in Hg		inches of mercury
92	mm	0.001	Millimeters
93	Cal/cm ² /hr		Calories/sq.cm./hour
94	°K		Degrees Kelvin
95	ppth	0.001	Parts per Thousand
96	Watts/M ²		Watts per square meter
97	LBS/DAY		Pounds per Day
98	g/M ²		Grams per square meter
99	mg/L as P	1	Milligrams per Liter as Phosphorus
100	M ³ (LTP)		Cubic Meters at LTP
101	in		Inches
102	GPD		Gallons per day
103	MGD		Million gallons per day
104	yd ³		Cubic yards
105	ft ³		Cubic feet
106	in/acre		Inches / acre
107	lb/day		Pounds per day
108	mg/L O ₂ /mn		Milligrams per liter oxygen per
109	mg/L O ₂ /gr		Milligrams per liter oxygen per gram
110	mL/g		Milliliters per gram
111	mL/L		Milliliters per liter
112	BTU		British Thermal Unit
113	FNU		Formazin Nephelometric Unit
114	mWsec/cm ²		Milliwatt-second/square centimeter

Attachment F

STANDARD COMMENT TABLE

STANDARD_COMMENT_KEY	COMMENT
1	Mean of two or more determinations
2	Estimate
3	Detected but not quantified
4	Presumptive evidence of presence of material
5	Not measured. Calculated from other measured parameters
6	Estimate, analyzed beyond recommended holding time
7	Analyte found in blank
8	Void: sample lost at lab.
9	Estimate; subsample variation not found in basic poly.
10	Exceeds calibration range
11	Subsample variation confirmed on reanalysis
12	Ran long
13	Ran short
14	Make up for
15	No sample
16	Filter damaged
17	Instrument malfunction
18	Last sample

Attachment G

QA/QC CLASSIFICATION TABLE

QA	QC	CLASS KEY	CLASS
		1	Field Duplicate
		2	Field Replicate
		3	Field QC Standard
		4	Lab Duplicate
		5	Lab Replicate
		6	Lab QC Standard
		7	Calibration Standard
		8	Blank
		9	Surrogate Spike
		10	Matrix Spike
		11	Blank Spike
		12	Transfer Blank
		13	Transport Blank
		14	Blind Sample
		15	Matrix Spike Duplicate
		16	Method Blank
		17	Calibration Blank
		18	Reagent Blank
		19	Proficiency Test Sample

Table 1

WATER QUALITY PARAMETERS BY DATA QUALITY LEVEL

Data Quality Level	Quality Assurance Plan	Water Temperature Methods	pH Methods	Dissolved Oxygen Methods	Turbidity Methods	Conductivity Methods	E. coli Bacteria Methods	Potential Data Uses
A	QAPP approved by DEQ. <i>QA criteria met.</i>	Thermometer or datalogger. Accuracy checked with NIST standard. A = +/- 0.5 C P = +/- 1.0 C	Calibrated pH electrode A = +/- 0.2 P = +/- 0.3	Winkler Titration or calibrated Oxygen Meter A = +/- 0.3 mg/l P = +/- 0.5	Nephelometric Turbidity Meter A = +/- 5% of std. value. P = +/- 5%	Meter. Temperature correction to 25C. A = +/- 7% of std. value. P = +/- 2%	DEQ Approved Methods Split Sample P = +/- 0.5 log	Regulatory. Permitting. Compliance with water quality standards.
B	Meets DEQ Data Acceptance Criteria	Thermometer or datalogger Non NIST accuracy check. A = +/- 2.0 C P = +/- 1.0 C	Any method with: A = +/- 0.5 P = +/- 0.5	Winkler Titration or calibrated Oxygen Meter A = +/- 1 mg/l P = +/- 1 mg/l	Any method with: A = +/- 30% P = +/- 30%	Meter. Temperature correction to 25C. A = +/- 10% of std. value. P = +/- 5%	DEQ Approved Methods Split Sample P > +/- 0.5 log	Screening level info. – Red flag or early warning
C	Meets DEQ Data Acceptance Criteria	Un-calibrated thermometer	Any method +/- 1 pH unit	Any method +/- > 1 mg/l	Observations clear, muddy, etc.	Meter without routine calibration.	Presence - Absence test kits	Education

Note: In “Methods” boxes, A = Accuracy and P = Precision.

Data Quality Level depends on a combination of quality control and method selection.