

Considerations for Selecting and Using a Contract Laboratory

The following is a list of things to consider when choosing and using a laboratory. Not all of the items in the following table need to be considered for all projects; it depends on your purpose and anticipated data uses.

Laboratory considerations

Bottles and preservatives	Ask if they will provide appropriate bottle types with preservatives.
Cost	Consider the cost not only of the sample analyses, but also of shipping. Tell them the number of samples you anticipate. You may be able to get a better price for large orders.
Chain of custody	If chain of custody is important for your monitoring purpose, ask for a description of their chain of custody procedures and copies of their chain of custody forms.
Consistency	If you have a long-term project, consider a laboratory you know will be around for the length of the project. Staying with the same laboratory for the duration of the project will help minimize variability between laboratories/analysts.
Delivery and shipping	Ask if they have a delivery service and whether or not this cost is included in the cost per sample analysis. Some labs allow sample drop-off to satellite locations, which avoids shipping costs.
Detection limits	Make sure that the laboratory can achieve the detection limits you need for your project. Ask if they have the necessary equipment to achieve these limits.
Hours of operation	Make sure the laboratory will be able to receive samples at the times you anticipate collecting and be able to complete the analysis within specified holding times.
Methods	Specify the methods you want used. Ask if the laboratory has experience with these methods and if they have Standard Operating Procedures already prepared for these methods. If so, you may want to ask for copies.
QA/QC	Ask for a copy of the laboratory's Quality Assurance/Quality Control Manual. Check to make sure that the laboratory's data quality goals are consistent with your project objective and needs.
Reporting	Tell them what format you want the results reported in (e.g., paper report, electronic). Ask them to include results of laboratory QA/QC efforts for precision and accuracy and to note if data quality goals were met in the reports.

Laboratory Analytical Costs

An important thing to consider when selecting a laboratory is cost. The rates listed here present an example of analytical costs from the Vermont Department of Environmental Conservation's LaRosa Laboratory in Waterbury. Costs at other labs may be slightly higher or lower than those presented here. This is included merely as general guidance as to what to expect for lab analytical costs.

Visit the DEC's LaRosa Laboratory online at www.anr.state.vt.us/dec/lab.

VTDEC LaRosa Laboratory Rates (2004)

Cost Per WTU: \$2.00

WTU = Work Time Unit (one minute of billable lab time)¹

Test	WTU's	Cost per test
Ammonia	10	20
Phosphorus, Total or Dissolved	10	20
Nitrate + Nitrite	10	20
Total Nitrogen	10	20
<i>E. coli</i> by Quanti-Tray	8	16
Alkalinity	16	32
Chlorophyll- <i>a</i>	12	24
D.O.– Winkler & Probe	6	12
pH	3	6
Conductivity	5	10
Turbidity	8	16
Total Suspended Solids (TSS)	18	36

¹ The LaRosa Laboratory has calculated what it costs to analyze different samples based on Work Time Units (WTU). A Work Time Unit is one minute of billed laboratory time, or simply one minute of laboratory work. Each analysis requires different lengths of work time, hence the price differences in sample analysis.

U.S. EPA-approved¹ Analytical Methods Suggested by the Water Quality Division

Bolded analytical methods indicate the methods followed by the VTDEC's LaRosa Laboratory

Parameter	U.S. EPA Method	Standard Method	Preservation	Max. Holding Time
Un-ionized ammonia ²	350.1/350.2/350.3	4500-NH₃ G	H ₂ SO ₄ to pH < 2, cool to 4 °C	28 days
Chloride	325.2/325/3	4500-Cl E	None	28 days
Dissolved oxygen	360.1/360/2	4500-O G	Fixed with MnSO ₄ + iodide-azide, keep dark	8 hours if fixed in field
Temperature	170.1	2550	None	Immediately (measured in field)
pH	150.1/150.2	4500-H ⁺ B	None	Immediately (best if measured in field)
Turbidity	180.1	2130 B	Cool to 4 °C	48 hours (best if measured in field)
<i>E. coli</i>	---	9223 B	Cool to 4 °C	8 hours (6 hours in transit, 2 hours for lab setup)
Total phosphorus	365.1/365.2/365.3	4500-P F	None	28 days
Chlorophyll-a	445	---	Freeze, keep in dark	21 days (shorter if not field-filtered)
Total suspended solids	160.2	2540 D	Cool to 4 °C	7 days
NO ₂ /NO ₃ nitrogen	353.2	4500-NO₃ F	H ₂ SO ₄ to pH < 2, cool to 4 °C	28 days
Conductivity	120.1	2510 B	Cool to 4 °C	28 days
Alkalinity	405.1	2320 B	Cool to 4 °C	14 days

¹From 40 CFR part 136, table IB: http://www.access.gpo.gov/nara/cfr/cfrhtml_00/Title_40/40cfr136_00.html, or *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998, American Public Health Association.

²Record sample pH and temperature. Analyze for Total Ammonia nitrogen. Consult pH vs. temperature chart to determine percent of sample that is un-ionized.

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Independent Laboratories for Sample Analysis

Analytical Services Inc.

130 Allen Brook Lane

Williston, VT 05495

(802) 878-5138

1-800-723-4432

Aquacheck Labs

7290 Route 31

Perkinsville, VT 05151

(802) 263-9595

Eastern Analytical Inc.

25 Chenell Drive

Concord, NH 03301

(603) 228-0525

Endyne Inc.

160 James Brown Drive

Williston, VT 05495

(802) 879-4333

Endyne Inc.

342 River Street

Montpelier, VT 05602

(802) 223-1032

Sci-Test (Dubois & King Lab)

Route 66

Randolph, VT 05060

(802) 728-6313

Severn Trent Laboratories

55 South Park Drive Suite 1

Colchester, VT 05446

(802) 655-1203