

## Technical Notes

### Wisconsin Environmental Laboratory Survey Design

The Wisconsin Environmental Laboratories Survey was conducted from early February through mid-May, 2005. The entire population of 450 environmental laboratories registered or certified by the Wisconsin Department of Natural Resources in December 2004 was invited to participate.

The survey was first made available to respondents on the WSLH Web site. After the survey was “on-line” for approximately six weeks, paper surveys were mailed to the laboratories that had not yet responded. A total of 170 laboratories (38% of all invited) responded via the Web (N=102) or by mail (N=68). This included 53 private sector and 117 public sector laboratories. Four (4) occupational health labs, which are not DNR certified or registered, were also invited to participate at the request of a WSLH Board member. None returned a completed survey to WSLH. Additional technical information regarding characteristics of the final survey sample is included in the Introduction to this report.

Table 31 shows the roles of the 170 respondents in their respective laboratories as indicated in response to a survey question.

**Table 31: Wisconsin Environmental Laboratory Survey Respondents, by Sector**

Role in Laboratory	Laboratory Sector			
	Private Sector		Public Sector	
	N	%	N	%
<b>Owner</b>	6	11%	0	0%
<b>Director</b>	11	21%	24	21%
<b>Manager</b>	18	34%	68	58%
<b>Analytic Supervisor</b>	6	11%	4	3%
<b>Other*</b>	12	23%	19	16%
<b>No Answer</b>	0	0%	2	2%
<b>All Respondents</b>	53	100%	117	100%

\* The 31 respondents, who described their roles as “other,” said their job titles include combinations of the above, “wastewater superintendent, treatment plant operator, laboratory supervisor, waste water operator/lab tech, operator/lab analyst, plant manager, head operator, client services representative 13 years with the company, EVN and Safety MGR, lab technician, environmental and safety specialist for site, administrative manager, senior plant chem. tech, contracts officer, quality assurance director, client services/sales, laboratory QA/QC chemist, QA officer, wastewater utility superintendent, wastewater supt. (who) oversees and holds license for plant, and wastewater operator in chief for this one man operation.”

The survey questions were designed by the contracted survey consultant and WSLH staff, who incorporated many suggestions from the Wisconsin environmental laboratory associations and individual laboratorians. The complete questions with “quick answers” from all 170 participating laboratories are available in Appendix 2 (page 37); verbatim qualitative question responses in Appendix 3 (page 75), and a list of all “no answer” responses to individual survey questions is available in Appendix 4 (page 102).

Mail survey data were hand entered on the Web survey and a combined data set was created by the WSLH Webmaster. This data set was edited by the survey consultant, who prepared the final data set for analysis. It was noted that a small number of laboratories did not answer demographic questions about 1) whether or not they are a Wisconsin-based laboratory, and 2) whether they are a private or public sector laboratory. To assure that all laboratories were coded on those two key analytic variables, the consultant worked with the DNR staff and its registration/certification data base to classify all 170 laboratories by those two characteristics.

Respondents were assured by WSLH that they could complete the survey anonymously and that results would be reported in any publications generated by WSLH as grouped data only. In addition, individual laboratory identification numbers were deleted from the final stored data set.

### **Definitions of Terminology Used in This Report**

For purposes of this report, the following definitions apply:

***Private Sector*** includes 25 commercial, 14 industrial wastewater, 13 industrial laboratories, and one hazardous waste laboratory(s).

***Public Sector*** includes 106 municipal wastewater, three municipal drinking water, five public health departments, two academic or research laboratories and one military laboratory. All are Wisconsin-based labs.

***Commercial*** includes private sector laboratories whose predominant business is general environmental testing. All but 13 commercial labs are Wisconsin-based labs. Commercial laboratories currently do not have an emergency response role unless already under contract with some entity for that function.

***Industrial*** includes industrial, industrial waste water and, except for Table 1, Table 2 and Figure 1, the one hazardous waste water laboratory in the data set. All but one industrial lab are Wisconsin-based labs. Industrial labs are generally laboratories within a company that have a DNR permit for wastewater discharge. As such, these laboratories perform functions similar to the public wastewater treatment labs, i.e., making sure their

facility is in compliance with their permit. Hazardous waste laboratories also do work for their own company, or for their company's "customers" in determining the hazardous characteristics of waste so the waste can be disposed of and/or stored. The company with the laboratory would generally store/dispose of waste for the customer. As such, industrial and hazardous waste laboratories have interests in common with public laboratories. While they are all classified as "private sector" laboratories, their "missions" are different than those of commercial laboratories. Industrial/hazardous waste facilities are required under the federal Clean Air Act to have emergency response plans developed and on file with the Environmental Protection Agency, primarily to handle emergencies arising from their own operations.

***Municipal*** includes both municipal wastewater treatment plants and municipal drinking water facilities ranging from very small, one-person plant operations to facilities in some of the state's largest communities.

***Other Public*** laboratories include public health departments, military and academic/research laboratories. All are Wisconsin-based labs.

***A Sample*** means the collection of a single specimen upon which multiple tests may be performed. This is usually indicated by a single laboratory specimen number.

***Test(s)*** refers to one or more laboratory tests for analytes that may have been conducted on a given sample.

## **Tables in This Report**

All data presented in this report are from the 2005 Wisconsin Environmental Laboratory Survey. All percentages used in tables, notes or narrative are rounded to the nearest whole number.

## **Statistical Tests**

A statistical test was used each time a difference between two groups is identified in tables, notes, or in the narrative of this report. Only those differences that are statistically significant at the 0.05 level using Chi-square and t-tests are mentioned in this report.