

**APPENDIX A
PROCESS BENCHMARKING SURVEY
FOR LABORATORY BENCHMARKING**

Human Resources

1. *How are staffing levels determined? What criteria are used to establish the need for a position?*
2. *How are recruitments conducted? For example, is an internal recruitment required prior to advertising externally? If you have assistance from an HR group, what kind of assistance do they provide? For example, do they help with the recruitment process and screening applications? Are you working within a civil service system? What advertising techniques do you use or have you found most successful in recruiting qualified pools of applicants? To what level and how do you involve staff in the hiring process? How is salary established for new hires (i.e., how do you determine where to place them on the salary scale)?*
3. *Do you have the ability to hire temporary staff based on workload (e.g., staffing up temporarily for a special project)? If so, do you use a contract agency or hire through your agency process? How does the budget process work for temporary staffing? Are there time limits on how long you can retain any one individual hired in a temporary position? Have you identified any strategies that have been successful in identifying a qualified pool of individuals available to work temporarily on short notice?*
4. *Do you utilize student interns at your laboratory? Are they included as temporary staff? Do you have any cooperative arrangements with universities or colleges (e.g. to conduct investigations/testing your staff do not have time for, or to meet course/degree requirements through work experience or a research project conducted at your facility)?*
5. *Describe the steps of a hiring process in your agency (from initial approval to fill a position through final job offer).*
6. *How is career development handled in your agency? What is the strategy employed, and how are employees promoted? For example, do you have a job progression system in which employees can advance without vacancies occurring, and if so, how does the system work. If advancement is limited to competition for vacancies, does your system allow for internal recruitment at the lab level, department level, agency level, etc.?*
7. *Do you have a strategy for maintaining a balance of technicians and professional level staff. If not, how are more routine tasks such as sample preparation handled?*
8. *Do you have a cross-training program among different analytical sections in your lab? Are staff ever rotated to work in different analytical areas, field sampling, operator training or process control. If so, how is this handled?*
9. *Do employees have annual training plans? Do you have a training budget, and how are training dollars allocated to individuals? Does your training include funds for OSHA, HAZ MAT waste disposal, and/or laboratory ethics training? Is training limited to that which is required to perform the job, or are employees given the latitude to pursue career or personal development training? Does your agency reimburse tuition costs, and if so, how does the system work. Is there any training that is mandatory for your laboratory, and if so, what?*
10. *How are performance appraisals conducted in your agency, and what is the timeframe (annual, semi-annual). Does your system include a numerical rating? Narrative information? Do you*

conduct subordinate or peer appraisals? Do you solicit customer input to performance appraisals? How are salary increases (COLA, raises) handled, and are they tied to the performance appraisal? Do you have a gainsharing program or other innovative way of providing monetary incentive to employees? If you have a gainsharing or monetary incentive program, how does it work?

11. *What techniques do you use to communicate information within the lab? To customers? Do you hold regular staff meetings, and if so, what is the frequency and who attends the meetings? Do you publish a monthly report, a newsletter, annual report to customers, etc.? Are there any techniques that you have found effective at getting timely and accurate information to staff (i.e., controlling the rumor mill)?*
12. *How are disciplinary actions handled (verbal warning, letter of reprimand, suspension, etc.), and what is the process for taking a disciplinary action in your organization?*

Support Systems

1. *Is your sample receiving system centralized or decentralized? Are there any systems that you have found particularly effective at getting samples to the appropriate analytical sections in a timely way and with accurate information? Do you have an individual or individuals whose job it is to handle sample receiving and distribution, or is this responsibility spread throughout the organization? Do you have a chain of custody system, and if so, how does it work?*
2. *Do you have an individual or individuals whose job it is to handle project/program management (i.e. work as an interface between customers and the lab)? If so, how does your system of project/program management work?*
3. *Do you have staff within the laboratory who are responsible for collecting samples? If so, what type of work do they do, and what type of equipment do you have available? If samples are collected externally, who does this work? Does the lab provide any training or oversight of these individuals? How do you ensure that samples are collected using correct procedures? Do you have staff who are responsible for field data collection or the calibration of on-line equipment at the treatment plant? If so, what type of work do they do, and how is this coordinated with laboratory work?*
4. *How is purchasing handled at your lab? Do you have an individual or individuals whose job it is to do the purchasing, or is the responsibility spread throughout the lab? What types of purchasing procedures are available to you (petty cash, purchase orders, blanket purchase orders, access to state contracts, etc.)? What are the dollar limits for the various options, and what process is required for each (phone quotes, written quotes, sealed bids, etc.)?*
5. *Do you have a system for receiving shipments and distributing them to the appropriate individuals? Is each person responsible for monitoring a receiving area when they are expecting packages, is there an individual or individuals who do this for the lab, etc.? Are there any systems that you have found effective at streamlining this process and minimizing confusion over receiving? Do you have identified receiving hours for delivery companies?*
6. *Do you have a system for managing disposal of samples after analyses are completed and data have been reported. If so, who is responsible for handling the tracking and disposal?*
7. *Is your agency involved in any storm sampling programs, and if so, what is your system for collecting and analyzing storm samples. Does your agency handle samples after hours or on weekends? If so, how are employees scheduled and compensated for this work? What about other analytical programs such as biosolids, groundwater monitoring for RCRA compliance, run-off due to fire-fighting efforts, waste characterization, or emergency response?*

8. *What types of other non-analytical positions do you have to provide support to the laboratory (e.g. clerical, budget)?*

Planning

1. *Do you have a planning process to identify and prepare for future work, such as an annual workload planning process? If so, how does the system work? How do you handle requests for new work, special projects, unanticipated samples?*
2. *What is the approximate percentage of planned (ongoing and regular) work versus unscheduled samples or samples resulting to changes in work plans? Approximately what percentage of your work is done on a rush basis (24 to 48 hour turnaround)? Do you have established criteria for accepting rush tests?*
3. *Have you done contingency planning to be prepared for unforeseen circumstances such as power outages, business recovery in the event of an earthquake, etc.? Do you have contingency plans that address chemical/collection system response in the event of unforeseen circumstances? If so, briefly describe plans you have in place or expect to put in place in the near future.*
4. *How do you plan and budget for future equipment needs and equipment replacement?*

Data Management

1. *Do you have a LIMS system? If so, is it a commercial system, or was it written in house? If it is a commercial system, to what extent has it been modified internally. Is the hardware for your system part of the laboratory's capital assets, or is it 'owned' by another part of the organization?*
2. *Do you have a LAN within the laboratory or a WAN that ties you into your department or agency? Is internet access available to employees, and if so, to which employees? How do employees receive training in using LIMS or other software needed for their job?*
3. *How do you provide/receive support for your LIMS and/or computer network? Are the staff who support your computer and LIMS system analytical staff who have been trained to do this work in addition to or instead of their laboratory work, or are they individuals with a computer background, such as programmers, systems analysts, etc.? Do you have an individual or individuals whose job it is to support your LIMS and or computer network system, or is this responsibility spread throughout the organization?*
4. *How does your system work for reporting data to regulatory agencies? To other customers? Does the information go via electronic or hard copy format? What type of documentation do you maintain after analytical work has been completed and reported, and how long do you maintain this information?*
5. *Do you maintain an historical database of data generated by your laboratory? Do customers have access to this database? If so, do you keep data for some customers segregated on your database so that it cannot be accessed by others? Do customers have access to your LIMS system. If so, how have you addressed system security issues?*

Analytical Work

1. *Is sample preparation done by individuals whose job it is to prep samples, or is this work done by analysts who also run the instruments, review data, etc.? Is your sample preparation system centralized or decentralized? How is extraction/sample preparation information communicated to*

analysts, and do you have feedback loops to sample preparation staff to alert them to problems with the analysis such as low recoveries or blank contamination?

- 2. Is your QA/QC system centralized or decentralized? Do you have a quality assurance officer, or is this responsibility handled by the lab manager? Supervisors? Staff who do this in addition to other analytical work?*
- 3. What are your criteria for corrective actions, and how are they documented? How were your criteria for corrective actions determined (accreditation requirements, laboratory management policy, collaboration between QA officer and management/staff, etc.)?*
- 4. What is your policy for the level of QC performed (5%, 10%, etc.), and how was it determined? How do you determine an appropriate or sufficient level for QC, i.e. how much is enough?*
- 5. Does your laboratory have a Quality Assurance Manual? Who was responsible for writing the original manual? How often is it updated and by whom? Also, who is responsible for writing SOPs, and how often are they updated?*
- 6. What analyses (analytical methods) do you conduct at your laboratory, and for what matrices? Do you use modified or alternative methods, and if so, for which analyses? What is your procedure for making method modifications, and how do you validate new methods you bring on line.*
- 7. Do you have a system for certifying analysts (i.e., successful demonstration of proficiency in performing certain analyses).*
- 8. Which, if any, analyses have you automated (e.g., autosamplers, robotics)? Which methods have you converted from bench to instrumental testing?*
- 9. Please list the major equipment (>\$5,000) at your lab?*

Safety and Waste Management

- 1. Do you have a Chemical Hygiene Plan and Chemical Hygiene Officer for your lab, and how do you staff this responsibility?*
- 2. How is safety training conducted for new employees (Right to Know). How are needs for ongoing safety training identified and prioritized?*
- 3. How is accident reporting handled, and do you have a feedback system to debrief on accidents (i.e., discuss to identify procedural changes, equipment/facility changes, etc., to reduce future risk)?*
- 4. How is hazardous waste management and disposal handled at your lab (i.e., waste stream identification, satellite storage, disposal, etc.)? Do you ever have samples that are hazardous, and if so how are they identified and disposed?*

Quality Improvement

- 1. Do you have, or have you in the past had, a TQM or other form of continuous quality improvement program at your lab? If so, please describe the program (i.e., elements, training, performance measures, etc.), and list savings and improvements that you have been able to attribute to that program.*

2. *Do you conduct an annual customer survey? Staff survey? If so, how were these surveys developed, and how is the data reported out? How do you follow-up on survey results?*
3. *What performance measures do you monitor on a routine basis (on-time work, amount of rework, % errors in data checked, etc.), and how do you publish or display this information?*

Miscellaneous

1. *Are there any unique characteristics or programs at your laboratory from which you think others may benefit?*
2. *If you had the budget and authority to make changes at your laboratory, what would be your top three priorities?*