Subject Index

A
Accuracy of measurements, 5  
Definition, 45  
EPA assessment methods, 41  
Acid precipitation and deposition, 96, 272, 375  
Aerometric data validation, 65  
Aerosol testing, 297  
Air quality measurement  
data quality assessment, 65, 76, 89  
EPA reference materials, 360, 370, 378, 417  
manual source sampling, 169  
meteorological quality assurance, 253  
Method 6B, 160  
NBS Standard Reference Materials, 346  
particle size data validation, 147  
personal exposure monitoring, 284  
Ames test, 260  
Ammonium, 89  
Analytical chemistry, 5, 103, 346  
Analytical methods, 5, 103, 133, 305, 334, 346  
ASTM Standard D 4210: 417  
Atmospheric acid deposition, 96, 272, 375  
Audits, quality, 9

B
Biological-material analysis, 334  
breath analysis, 284

C
Calibration flowrate, 297  
Calibration standards (see Reference standards and materials)  
Cascade impactors, 147, 297  
Certification, 103, 200  
Chain of custody, 391  
Chemical analysis, 5, 103, 346  
Circles of quality, 10  
Clark, method of, 407  
Clinical Environmental Laboratory, 297  
Collaborative testing, 160  
Collection substrates, 147  
Collocated samplers, 76  
Computer flagging, 65  
Computerized monitoring, 68  
Consistency checks, 89 (see also Reference samples and materials)  
Contamination sources, 22  
Control charts, 5  
Control limits, 391  
Cooperative monitoring, 53  
Cyclones, 147

D
Data precision (see Precision of measurement)  
Data quality assessment  
accuracy and precision of measurement, 5, 41, 44, 76  
Ames test, 260
Data quality assessment (continued)

EPA methods, 41, 370
human exposure studies, 284, 297
particle size, 147
program management, 391
techniques, 5
Data quality (definition), 5
Data reduction, 36
Discharge monitoring, 200, 216, 237
(see also Water quality measurement)
EPA, 242
Tennessee Valley Authority, 65
Discharge monitoring report—quality assurance, 206, 242
Distribution audit, 297
Drinking water, 103 (see also Water quality measurement)

Effluent monitoring, 216, 237, 242 (see also Water quality measurement)
End-to-end audit, 297
Environmental analysis, 5, 346
Environmental Data Storage and Retrieval (ENDSTORE) system, 68
Environmental Protection Agency (see U. S. Environmental Protection Agency)
Exposure chamber, 297

Field blanks, 272
Fuels, 346

Gas chromatography, 116, 178, 284
Gaseous pollutants, 297
Great Lakes, 407
Groundwater monitoring, 22

Hazardous-waste incineration, 173
Herbicides, 116
High-volume sampling, 76
Human exposure testing, 284, 297
Hyacinths (water), 305

Incineration, 173
Inorganic compounds, 370
Intercomparison samples, 360 (see also Reference samples and materials)
Interlaboratory quality control, 379, 407
(see also Reference samples and materials; Round-robin intercalibration)
ASTM D 4210: 417
Internal consistency checks, 89
Intersampler comparisons, 89
In vivo studies, 305
Ion balance, 89

Laboratory certification, 103, 200
evaluation, 189
facilities, 133
local, 103
operations, 133, 233
personnel, 133, 234
practices, good, 7
Local laboratories, 103

Major dischargers, 206
Manual source sampling, 169
Marine analysis, 334
Marine Analytical Chemistry Standards Program (MACSP), 334
Marine reference materials, 305, 319, 334, 407
Marine sediment analysis, 334
Marine standards, 319, 334, 407
Mass balance, 89
Measurement
  accuracy and precision of, 5, 41, 76
  completeness of, 41, 45
  data quality (see Data quality assessment)
  error assessment, 22
Metals, 305
Meteorological measurements, 253
Method detection limit, 41
Method 6B, 160
Method standardization, 260
Methylene chloride extraction of pesticides, 116
Microbiology, 103, 133
Monsanto Analytical Testing program, 237
Motivation of testing personnel, 169
Mutagenicity testing, 260

N
National Bureau of Standards, 346
National Pollutant Discharge Elimination System (NPDES) permittees, 206, 242
pulp and paper industry experience, 216
self-monitoring data, 189, 216, 237
Wisconsin implementation, 200
National Research Council of Canada, 334
Nitrate, 89
Nitric acid, 89
Nitrogen dioxide testing, 372
Nonlinear measurement methods, 22
Nonnormal errors, 22
Nonprimacy, 103

O
Operator certification, 200
Organic compounds, 370

P
Particle size distribution, 147
Particulate sampling, 147, 350, 376
Performance evaluation limits, 206
Personal exposure monitoring, 284, 297
Pesticides
  analysis of, 116
  intercomparison study, 368
  in surface waters, 110
pH measurements, 110, 272
Physiological data acquisition, 284, 297
Plant discharge, 216, 237, 242
Potable water, 103 (see also Water quality measurement)
Precipitation, 96, 253, 272, 375
Precision of measurement, 5, 76
  definition, 44
  EPA assessment methods, 41
Priority pollutants, 346
Probability plot, illus., 38
Program management, 391
Pulp and paper industry, 216

Q
Quality assessment (see Data quality assessment)
Quality assurance
  acid precipitation measurements, 272
  aerometric data management, 65
  ambient air analysis, reference materials, 370
  Ames test, 260
  certification of public water testing laboratories, 103
  collaborative testing of Method 6B, 160
  collocated ambient high-volume samplers, 76
  data validation, 89
  definition, 5
  design for groundwater monitoring, 22
Quality assurance (continued)
DMR-QA studies
   Region VII (EPA) follow-up, 242
   reference samples, 378
   statistics and limits, 206
EPA program, 12, 42
establishing QA program, 391
Great Lakes Monitoring Programs,
   interlaboratory aspects, 407
human exposure studies, 297
TEAM, 284
manual source sampling, 169
meteorological measurements, 253
microbiological analyses of water, 133
Monsanto testing program, 237
National Discharge Monitoring Re­
   port (DMR), 189
National Research Council of Can­
   ada—Marine Analytical Chem­
   istry Standards Program, 334
NBS Standard Reference Materials,
   346
   program design and development,
      53, 237, 253, 391, 407
pulp and paper industry, 216
U.S. Geological Survey (USGS)—
   water quality
   field measurements, 110
   reference samples (natural water), 319
Wisconsin NPDES program, 200
Quality Assurance Project Plan (EPA),
   15, 42
Quality control program
pesticides in surface waters, 116
Quality control samples (see Reference
   samples and materials)

R
Radiochemistry, 103
Reference samples and materials, 305,
   319, 334
EPA, 360, 370, 378, 417
Great Lakes Monitoring Program,
   407
   National Bureau of Standards, 346
   Relative humidity, 253
   Replicate sampling, 76
   Round-robin intercalibration, 237, 342
   Safe Drinking Water Act, 103
   Safety audit, 297
   Salmonella, 260
   Sampling error assessment, 22
   Sampling nozzles, 147
   Seawater analysis, 334
   Sediment analysis, 334, 346
   Single filter sampler, 297
   Solar radiation, 253
   Specific conductance, 110
   Stability of toxic materials, 305
   Stack gas sampling methods, 173
   Standard Operating Procedure of EPA, 16
   Standard reference materials (see Reference
      samples and materials)
   Standard Reference Water Sample
      (SRWS) project, 320
   Statistical estimates, 189
   Statistical treatment and analysis, 5, 22,
      78, 206, 328
   Sulfate, 89
   Sulfur dioxide emissions testing, 160,
      372
   Systems audit, 297

T
Temperature, 253
Tenax GC, 285
Tennessee Valley Authority, 65
Thermal oxidation of hazardous waste,
   173
   Total Exposure Assessment Method­
      ology (TEAM), 284
Total suspended particulate, 76, 89
Toxic elements, 305
Trace analysis, 346
Training of testing personnel, 169

U
U.S. Environmental Protection Agency
analysis of effluent samples, procedures for, table, 227
data quality assessment methods, 41
Discharge Monitoring Report—
Quality Assurance, 206, 242
guidelines for quality assurance plan, 254
laboratory certification, 103
Method 6B, 160
National Pollutant Discharge Elimination System, 189, 216
quality assurance program, 12, 41, 53, 103, 133, 391
reference materials, 360, 370, 378
U.S. Geological Survey water quality measurements, 110, 319

V
Variance analysis, 22
Volatile organic compounds, 284

W
Warning system, 103
Wastewater monitoring and analysis, 133, 378 (see also Water quality measurement)
Water analysis (see Water quality measurement)
Water hyacinth, 305
Water quality measurement
EPA drinking water certification program, 133
EPA reference samples, 378
EPA results, 242
error assessment, 22
Great Lakes, 407
laboratory certification, 103
Marine Analytical Chemistry Standards Program (MACSP), 334
microbiological analysis, 133
modeling, 25
Monsanto Analytical Testing Program, 237
NBS Standard Reference Materials, 346
personal exposure monitoring, 284, 297
pesticides in surface waters, 116
pulp and paper industry, 216
U.S. Geological Survey measurements, 110, 319
Work/Quality Assurance Project Plan, 53
Wind direction, 253
Wind speed, 253

Y
Youden, method of, 408