

Subject Index

- A**
- Alternative hypothesis, 48
 - defining, 50
 - Ancillary tank equipment, definition, 25
 - Assessment phase, waste pile example, 60
 - ASTM D 1452, 20
 - ASTM D 1586, 19
 - ASTM D 1587, 20
 - ASTM D 4387, 19
 - ASTM D 4448, 19–20
 - ASTM D 4700, 19–20
 - ASTM D 4823, 20
 - ASTM D 5013, 20
 - ASTM D 5358, 20
 - ASTM D 5495, 20
 - ASTM D 5956, 24
 - ASTM D 6009, 55
 - ASTM D 6051, 23, 60
 - ASTM D 6232, 18
- B**
- Boundaries, 5
 - defining, 57
 - Box and whiskers plot, 62–63
 - 40 CFR 260.10, 25
 - 40 CFR 261.24, 6, 56
- C**
- Chain of custody form, 29–30
 - Chain-of-custody procedures, samples, 29–31
 - Coefficient of variation, 62, 64
 - Comprehensive Liability Act of 1980, 29
 - Confidence intervals, 36, 43
 - Container, definition, 25
 - Contamination problem, description, 3
- D**
- Data
 - checking for normality, 34
 - preparing for statistical analysis, 34
 - transformations in statistical tests, 35–36
 - Data assessment phase, 33–37
 - Data collection, 16–29
 - chain-of-custody procedures for samples, 29–31
 - composite sampling, 20, 23
 - field records and sample identification, 28
 - field screening, 20
 - heterogeneous waste, 23
 - investigation derived waste, 26–28
 - laboratory coordination, 16
 - mobilization, 17–18
 - particle size reduction, 25
 - personnel decontamination, 26
 - sample location selection, 19
 - sample shipment, 28
 - sampling equipment
 - decontamination, 26
 - selection, 18–19
 - sampling waste units, 25
 - site entry and reconnaissance, 16–17
 - waste pile example, 57–60
 - Data life cycle, Data Quality Assessment, 33
 - Data Quality Assessment, 33
 - conclusions and reports, 36
 - data life cycle, 33
 - data preparation for statistical analysis, 34
 - overview, 33
 - preliminary data analysis, 34–35
 - review DQOs and sampling design, 33–34
 - statistical assumption check, 34–35
 - statistical testing, 35–36
 - Data Quality Objectives, 1–4
 - boundaries, defining, 5
 - composite sampling, 9
 - data collection and design
 - optimization, 6–9
 - decision errors, specifying limits on, 6
 - decision rule development, 5–6
 - defining, 2
 - identifying decisions, 3–4
 - identifying inputs to decisions, 4
 - impact of process on project, 2
 - process and overall decision process, 3
 - review, 33–34
 - waste pile example, 60
 - sample size
 - estimating requirements, 8
 - post-study assessment, 8
 - sampling designs, see Sampling designs
 - stating the problem, 3–4
 - waste pile example, 55–57
 - DataQUEST, 33–35
 - Decision errors
 - false positive and negative, 48, 50
 - identifying, 48–50
 - parameter values where consequences are minor, 51
 - potential consequences, 50
 - specifying tolerable limits, 6, 47–52
 - background, 47–48
 - determining possible range of parameter of interest, 48
 - expected outputs, 47
 - waste pile example, 57
 - tolerable probability, 51
 - Decision rules, 5–6
 - developing, 57
 - Disposable equipment, 26
- E**
- EPA QA/G-4, 2, 6, 34
 - see also Decision errors
 - EPA QA/G-9, 33–36, 60, 62–63
 - EPA SW-846, 25, 35–36, 56–57
- F**
- False positive and negative, 48, 50
 - 55 Federal Register 26990, 25
 - Field documentation, 28–31
 - Field records, 28–29
 - Field screening, 20
- H**
- Histogram, 62
 - Hypothesis tests, 43
- I**
- Implementation phase, see Data collection
 - Investigation derived waste, 26–28
- M**
- Minimum detectable difference, 51
 - Mobilization, data collection, 17–18
- N**
- Null hypothesis, 36, 48
 - choosing, 48–50
 - defining, 50
- O**
- Optimal allocation, 8–9
 - Outliers, assessing, 35
- P**
- Particle size reduction, 18, 25
 - Performance evaluation, 32
 - Personnel, decontamination, 26
 - Personnel protective equipment, 26
 - Planning phase, 2–15
 - see also Data Quality Objectives
 - Population sampling, difficulties, 1
 - Proportional allocation, 8–9
- Q**
- Quality Assurance Project Plan, 7
 - sample locations, 19
 - Quantile-quantile probability plot, 35, 63
- R**
- Reagents, used during decontamination, 25–26
 - Receipt for samples form, 29, 31
 - Resource Conservation and Recovery Act of 1976, 29
 - waste characterization, 23

S

Samples

- chain-of-custody procedures, 29–31
- estimating number required, 8
 - waste pile example, 58
- identification, 28–29
- post-study assessment of number, 8
- shipping, 28
- Sampling designs, 9–14
 - authoritative, 9, 14
 - waste pile example, 57–64
 - composite, 9, 14
 - data collection, 20, 23–24
 - not meeting Data Quality Objectives, 60
 - probabilistic, 14
 - probability, 13
 - review, 33–34
 - selection, 10–12
 - simple random, 8, 14
 - waste pile example, 58–59, 60
 - stratified, 8–9, 14
 - waste pile example, 67–68
 - stratified systematic, waste pile example, 59–60
 - systematic, 8, 14
 - systematic grid
 - with compositing, waste pile example, 66–67

- waste pile example, 59–60
 - without compositing, waste pile example, 65–66
- waste pile example, 57–58
- Sampling equipment, decontamination, 25–26
- Shapiro-Wilk test for normality, 34, 63, 65
 - coefficients of a^i , 70–71
 - quantiles of t distribution, 73
 - quantiles of W test, 72
- Site
 - components, 18
 - entry, 16
 - reconnaissance, 16–17
 - work zones, 17
- Statistical analysis, preparing data for, 34
- Statistical outlier, 35
- Statistical quantities, 34
- Statistical tests
 - data transformations, 35–36
 - selecting and performing, 35–36
- Sump, definition, 25
- Superfund, 29
- Support zone, 18
- Surveillance, 32

T

- Tank, definition, 25
- Technical assessments, 29, 32

- Technical system audits, 32
- Toxicity Characteristic Leaching Procedure, 25, 55–56
 - versus total results, waste pile example, 62–63
- Toxicity Characteristic Rule, 55–56

U

- Upper confidence limit, 63–67

W

- Walk-through, 18
- Waste
 - heterogeneous, data collection, 24
 - investigation derived, 26–28
- Waste pile, 24
 - example, 55–68
 - authoritative sampling design, 57–64
 - cost of sampling, 59–60
 - data collection, 57–60
 - Data Quality Objectives, 55–57
 - implementation phase, 60
 - inputs to decision, 56–57
 - non-normal data distribution, 64–65
 - topographic base map, 55–56
- Waste units
 - containerized, 25
 - sampling, 23
 - uncontainerized, 25