

CHAPTER 25

SAMPLING AND LABORATORY TESTING

25-1 Scope

25-1.1 This chapter contains policy and guidance applicable to environmental sampling and laboratory testing for Navy shore facilities. It identifies requirements and responsibilities to ensure that measurements and collected data are accurate, that they meet requisite data quality objectives, and are appropriate for use by the Navy in making decisions concerning the environment. The provisions of this chapter apply to all organizations, public and private, that perform environmental sampling and testing for the Navy. Chapter 19 discusses afloat issues.

25-1.2 This chapter sets uniform standards to ensure high quality, timely, and cost effective environmental sampling and testing for Navy.

25-1.3 For the purposes of this chapter, environmental sampling and testing is defined as sampling and testing performed to comply with, or to determine the need to comply with, regulatory requirements. This chapter does not supersede more stringent requirements that may be invoked by other documents issued by the Environmental Protection Agency (EPA), the Navy Occupational Safety and Health Program (NAVOSH), the Navy Installation Restoration (IR) and Base Realignment and Closure (BRAC) Cleanup Program, other Federal, State and local regulations, or the Navy Nuclear Propulsion Program.

25-1.4 References. Although this chapter deals primarily with guidance on environmental sampling and testing, an effective program for the management and control of these activities must also integrate sampling and testing requirements with other policies provided in references (a) through (cc):

a. ISO Guide 25, "General Requirements for the Competence of Calibration and Testing Laboratories" 1990;

b. 29 CFR 1910.1200, Occupational Safety and Health Administration (OSHA) Hazard Communication Standard;

c. 29 CFR 1910.1450, OSHA Occupational Exposure to Hazardous Chemicals in Laboratories;

d. NFESC Interim Guidance Document, Navy Installation Restoration Laboratory Quality Assurance Guide (Feb 1996);

e. OPNAVINST 5100.23D, Navy Occupational Safety and Health Program Manual;

f. 40 CFR 141-143, National Primary Drinking Water Regulations;

g. 40 CFR 150-186, Federal Insecticide, Fungicide, and Rodenticide Act Regulations;

h. 40 CFR 260-270, Resource Conservation and Recovery Act Regulations;

i. 40 CFR 279, Standards for Management of Used Oil;

j. 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan;

k. 40 CFR 350, 355, 370, and 372, Emergency Planning and Community Right-To-Know Act Regulations;

l. 40 CFR 401 - 433, Effluent Guidelines and Pretreatment Guidelines for Wastewater;

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m. 40 CFR 700-763 and 790-799, Toxic Substances Control Act Regulations;

n. 40 CFR 792, EPA Good Laboratory Practice Standards;

o. 40 CFR 797, EPA Environmental Effects Testing Guidelines;

p. 49 CFR 100 - 199 Department of Transportation (DOT) Hazardous Materials Regulations; particularly 49 CFR 172-199;

q. EPA SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods;

r. EPA 540/G-93/071 Data Quality Objectives Process For Superfund, Interim Final Guidance;

s. International Standardization Organization (ISO) Guide 2, "General Terms and Their Definitions Concerning Standardization and Certification" 1990;

t. ASTM E 548-91, "Standard Guide for General Criteria Used for Evaluating Laboratory Competence;"

u. ASTM E 1187-90, "Standard Terminology Relating to Laboratory Accreditation;"

v. 40 CFR 50-80 Clean Air Act Regulations;

w. 40 CFR 110-140, Clean Water Act Regulations; particularly 40 CFR 136, Guidelines Establishing Test Procedures For the Analysis of Pollutants;

x. Department of the Navy Report, "Study on Navy Environmental Testing Costs and

Environmental Laboratory Improvements," July 1994;

y. EPA, QAMS, Quality Assurance Glossary and Acronyms (11 Feb 1991);

z. EPA PB83-124503, Handbook for Sampling and Sample Preservation of Water and Wastewater, Sept 82;

aa. EPA 833-B-92-001, NPDES Storm Water Sampling Guidance Document, July 92;

bb. EPA/600/4-85/013, Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, March 85;

cc. Navy Environmental Compliance Sampling and Field Testing Procedures Manual, NAVSEA T0300-AZ-PRO-010;

25-2 Legislation

25-2.1 The Navy requires sampling and testing to determine compliance with environmental regulations. States and local agencies may invoke more stringent laws and regulations including requirements such as certification for sampling and testing. It is imperative that managers consult the applicable regulations and/or regulatory agencies in order to identify specific requirements.

25-3 Terms and Definitions

These terms and definitions come principally from ISO Guide 25, reference (a). Other documents may provide more specific detail than the following general definitions. Where the terms are defined in laws, regulations, and associated test methods, those definitions take precedence.

25-3.1 Accreditation. A formal recognition that an organization (i.e., laboratory) is competent to carry out specific tasks (i.e., tests) or specific types of tasks.

25-3.2 Calibration. The set of operations, which establishes, under specified conditions, the relationship between values indicated by a measuring instrument, measuring system, or values represented by a material measure, and the corresponding known values of a measurand.

25-3.3 Certification. Procedure by which a regulatory agency or third party gives written assurance that a product, process or service conforms to specified requirements.

25-3.4 Data Quality Objectives. (DQOs). Qualitative and quantitative statements that specify the study objectives, domain, limitations, the most appropriate types of data to collect, and specify the levels of decision error that will be acceptable for the decision.

25-3.5 Laboratory. A body that calibrates and/or tests. In cases where a laboratory forms part of an organization that carries out other activities besides calibration and testing, the term "laboratory" refers only to those parts of the organization that are involved in the calibration and testing process. As used herein, the term "laboratory" refers to a body that carries out calibration or testing at or from a permanent location, at or from a temporary facility, or in or from a mobile facility. Specifically, the Navy defines an environmental laboratory as any fixed or mobile facility, in whole or in part, that performs testing for the purpose of environmental regulatory reporting and/or to determine compliance with federal, state, regional and/or local environmental laws and regulations. Note: This excludes process environmental control laboratories, provided

none of the results are reported to a regulatory agency to determine compliance.

The Navy has both single service and multi-service laboratories. Single service laboratories are defined as those laboratories that exist to perform testing in support of a particular function at an activity, such as wastewater treatment. Multi-service laboratories are defined as those laboratories that exist to perform testing in support of multiple functions at an activity (i.e., hazardous waste disposal, drinking water monitoring, wastewater treatment, etc.).

25-3.6 Method. (reference method) A sampling or measurement procedure that has been officially specified by an organization as meeting its data quality requirements.

25-3.7 Procedure. A set of systematic instructions for performing an operation.

25-3.8 Proficiency testing. Determination of field or laboratory testing performance by means of inter-laboratory comparisons.

25-3.9 Quality Assessment. The evaluation of data to determine if they meet the quality criteria required for a specific application.

25-3.10 Quality Assurance. An integrated system of activities involving planning, quality control, quality assessment, reporting and quality improvement to ensure that sampling and testing meet defined standards of quality with a stated level of confidence.

25-3.11 Quality Control. The aggregate of activities whose purpose is to measure and control the quality of sampling and testing so that it meets the needs of users and provides assurance that the appropriate level of confidence is achieved.

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25-3.12 Quality Manual. A document stating the quality policy, quality system, and quality practices of an organization. The quality manual, however named, may call up other documentation relating to the operation's quality arrangements.

25-3.13 Quality System. The organizational structure, responsibilities, procedures, processes, and resources for implementing quality management.

25-3.14 Raw data. Any worksheets, records, memoranda, notes, or exact copies thereof, that are the result of original observations and/or activities of a study and are necessary for the reconstruction and evaluation of the report of that study. Raw data may include photographs, microfilm or microfiche copies, computer printouts, magnetic media, including dictated observations, and recorded data from automated instruments.

25-3.15 Reference substances. Any chemical substance, mixture, analytical standard, or material other than a test substance administered or used in analysis for the purpose of establishing a basis of comparison with the test substance of a known chemical or biological measurement.

25-3.16 Test. A technical operation that consists of the determination of one or more characteristics or performance of a given product, material, equipment, organism, physical phenomenon, process or service according to a specified procedure. A document sometimes called a test report or a test certificate normally records the test result.

25-3.17 Traceability. The property of a sample or measurement relating it to appropriate international or national standards through an unbroken chain.

25-3.18 Verification. Confirmation by examination and provision of evidence that specified requirements have been met.

25-4 Requirements

25-4.1 General

a. Navy activities shall perform environmental sampling and laboratory testing per Federal, state and local regulatory requirements, and Navy policy and procedures. Individuals and/or laboratories involved in sampling and testing shall have appropriate certifications, accreditations or evaluations as required by the applicable regulation, policy, or procedure.

b. Requirements and interpretations of requirements vary widely, and some regulations provide advisory or recommended guidelines for sampling and testing. To ensure consistent quality in the test data collected for environmental determinations, all commands shall ensure that sampling and testing are performed per regulatory requirements.

25-5 Navy Policy

25-5.1 Conformance with Uniform Standards. Navy activities shall perform sampling and testing per a documented quality system. The quality system shall be appropriate to the type, range, and scope of sampling and testing performed. As a minimum, sampling and testing programs shall meet the following Uniform Standards. A quality system that meets the requirements of ISO Guide 25, reference (a) meets the intent of this chapter.

25-5.2 Uniform Standards for Sampling

a. **Quality System.** Activities shall document, implement, communicate, and make understood to all personnel concerned, the elements of the quality system. Documentation may be in the form of a sampling quality assurance manual or other written instruction.

b. **Organization and Management.** Sampling operations shall have an organizational structure that allows it to maintain satisfactory sampling functions. Activities shall clearly define and document overall authority and responsibility.

c. **Personnel.** The sampling operation shall have a sufficient number of personnel who have the necessary education, training, technical knowledge and experience relative to their assigned functions. Keep training of personnel up-to-date, and maintain records on their relevant qualifications, training, skills, and experience. See paragraph 25-5.8 for specific requirements.

d. **Quality Assurance/Quality Control (QA/QC) Coordinator.** There shall be a designated QA/QC coordinator, however named, who has responsibility for the quality system. The QA/QC coordinator shall continually monitor operations to ensure conformance with the documented quality system. This function should be separate from, and independent of, personnel engaged in the performance of the work although the assignment may involve collateral duties. When staffing does not allow for an independent function, the activity shall ensure that an individual does not perform QA/QC oversight of his or her own work. Activities must document the separation of QA/QC functions from work performed.

e. **Environment.** The environment in which sampling activities are undertaken shall not invalidate the subsequent results or adversely effect the representativeness of the sample. (Take particular care when undertaking such activities at sites other than permanent facilities). The sampling operation shall provide for the effective monitoring, control and recording of environmental conditions as appropriate. Note: it is the sampling operation's responsibility to comply with the relevant health and safety requirements as defined in references (b), (c), (d) and (e).

f. **Equipment, Instruments, Reference Materials and Supplies.** All equipment, instruments, reference materials, and associated supplies shall be available for the correct performance of work. Label, mark, or otherwise identify each instrument or item of sampling equipment used for measuring to indicate calibration status. Maintain instruments to meet the requirements of the manufacturer's specifications and/or approved maintenance procedures.

g. **Measurement Traceability and Calibration.** Activities shall calibrate, standardize, and verify at appropriate intervals all measuring devices having an effect on the validity of a sampling event before placing them into service. The calibration of instruments and equipment shall meet the requirements of the manufacturer, applicable regulations, or specific methods, whichever is more stringent. As applicable, the calibration of instruments and equipment shall also meet the requirements of the Navy Metrology Calibration Program. Measurements made shall be traceable to national or international standards of measurement or physical constants, where such standards exist. Retain for the same period as the field or laboratory analytical data, all calibration and

standardization records for sampling instruments and equipment.

h. Reagents and Solutions. Activities shall label all reagents, solutions, preservatives, (including water type) to indicate identity, concentration (where applicable), and the grade or quality of the material. Labeling shall also indicate the preparation or receipt date and the shelf life. Document working reagents and solutions as to their preparation, traceability to lot or batch of stock solution and protected from deterioration and contamination. Do not use outdated reagents and solutions unless their integrity is verified by testing. In certain instances, pre-authorization by appropriate program managers may be required in order to use outdated reagents or standards.

The operation must comply with waste disposal requirements as defined by Resource Conservation and Recovery Act (RCRA) regulations, and state, local and Navy requirements.

i. Sampling Procedures and Methods. Activities shall perform sampling in compliance with written procedures based on approved methods issued by environmental regulations where applicable. They shall document routine sampling operations in step by step procedures to provide for consistent and uniform sampling operations. Activities shall maintain an historical file of SOPs, and all revisions thereto, including the dates of such revisions so that the procedure used is retrievable for correlation with the sampling event. They shall retain this file for the same period of time as the analytical data.

j. Handling of Samples or Test Items. A documented system for uniquely identifying samples or test items shall be established. Document sample preparation, storage, and

handling including any departures from documented procedures or standard conditions. They shall maintain, monitor, and record storage conditions where necessary.

Activities shall perform sample tracking using chain of custody documentation. Include a chain-of-custody (COC) document with all samples taken for environmental determinations. COC and sample tracking shall be maintained from the time the sample is taken, until the time the analyses are complete.

49 CFR 172 applies when samples are shipped by common (commercial) carrier or sent through the United States mail. The person offering such material for transportation is responsible for ensuring compliance. 49 CFR 172 also provides some exemptions for regulating transportation of preserved samples, (i.e., reference Table II of 40 CFR 136). When shipping samples from overseas locations, ensure applicable host nation regulations are followed.

Samples must be traceable from collection to disposal. Sample disposal shall comply with Federal, State and local requirements relative to environmental compliance and protection of human safety and health.

k. Records and Documentation. The sampling operation shall maintain all records as required to comply with any applicable regulations. Sampling records will contain the following information: sampling date, sampling time, location sampled (supported by tables, graphs, sketches and photographs as appropriate), name of individual(s) collecting sample, number/unambiguous identification of sample, type of sample, description of sample, reference to sample collection procedures used, preservation used, COC documentation, measurements, examinations and derived results, and records of

calibration relative to equipment used. Record and document data in a system that provides for the ability to retrieve and trace the sample source, associated sample collection, and test data.

l. Data Verification and Retention.

Activities shall record and report sampling data with sufficient figures to be statistically significant. Review field records for accurate reporting and adherence to documented procedures. Duly note any record modifications or amendments. (At a minimum include date, the person making the change, and the reason.) Retain as required by specific regulations, contract requirements, or for at least 3 years, all *field records including raw data*. Field records will be retrievable within a reasonable time.

m. Sampling Reports. Activities shall report accurately, clearly, and objectively within the guidance of any procedures or instructions for the operation, *all sampling data for each sampling event*. Reports may be in the form of field log book notes, standardized field form records or formal consolidated reports describing the sampling operation or event.

(1) Each report will include at least: the identification of the operation; location where the sampling was carried out; unique identification of the report (such as serial number) and of each page, the total number of pages and the date of issue; name and address of customer; description and unambiguous identification of the sample; characterization and condition of the sample; information on the sampling event including environmental conditions; date of sampling event; unambiguous description of any non-standard method used; reference to sampling procedure; reported measurements and units of measure; and a signature and title, or equivalent, of the person(s)

accepting responsibility for the content of the report.

(2) Where subcontractors are used they shall be clearly identified.

(3) Formally document in the form of an amended report, all amendments to a sampling report. The project manager will notify customers promptly, in writing, with an explanation of any event (such as the identification of defective measuring equipment) that casts doubt on the validity of results given in a report or amendment to a report.

n. Contracting and/or Sub-contracting of Sampling. Place, with a sampling operation complying with the requirements of this chapter, any sampling operation contracts, sub-contracts, or any part of its sampling responsibilities. All contractors and sub-contractors involved with the *sampling event must demonstrate proficiency and the ability to perform sampling by prescribed procedures through a documented training program*. Maintain records and details of the investigation regarding the proficiency and conformance of the contractor/sub-contractor to the requirements of this chapter.

o. Complaints. The sampling operation shall have a documented procedure for the resolution of complaints or circumstances raising doubt concerning the sampling. Make a record of the complaint or circumstance. It shall include the substance of the complaint and its resolution.

p. Audits. Organizations responsible for sampling work performed for the Navy shall arrange for and/or submit to audits of its activities at appropriate intervals. Audits shall verify that the operations continue to comply with the requirements of the quality system.

Sampling operations shall be subject to evaluation as part of the Navy's Environmental Compliance Evaluation (ECE) program and/or Installation Restoration and BRAC Cleanup Laboratory Evaluation Program, as appropriate. Conduct and document on a continual basis, and at least once per year for repeat sampling events, all internal audits by the QA/QC Coordinator.

25-5.3 Uniform Standards for Laboratory Testing

a. **Quality System.** Laboratories shall document, implement, communicate to, and make understood by all personnel concerned, the elements of the quality system. Documentation may be in the form of a laboratory quality assurance manual or other written instruction.

b. **Organization and Management.** The laboratory shall have an organizational structure that allows it to operate and maintain satisfactory testing functions. Clearly define overall authority and responsibility.

c. **Personnel.** The testing laboratory shall have a sufficient number of personnel having the necessary education, training, technical knowledge and experience relative to their assigned functions. The laboratory shall ensure that the training of its personnel is kept up-to-date. The laboratory shall maintain records on the relevant qualifications, training, skills and experience of the technical personnel. See paragraph 25-5.8 for specific requirements.

d. **Quality Assurance/Quality Control (QA/QC) Coordinator.** There shall be a designated QA/QC coordinator, however named, who has responsibility for the quality system. The QA/QC coordinator shall continually monitor operations to ensure conformance with the

documented quality system. This function shall be separate from, and independent of, personnel engaged in the performance of the work although the assignment may involve collateral duties. When staffing does not allow for an independent function, the activity shall ensure that an individual does not perform QA/QC oversight of his or her own work. Document all separation of QA/QC functions from work performed.

e. **Accommodation and Environment.** Each test facility shall be of suitable size and construction to facilitate the proper conduct of testing. Design testing facilities so that there is a degree of separation that will prevent any adverse effects on testing. The laboratory will provide facilities for the effective monitoring, control and recording of environmental conditions as appropriate. Note that it is the laboratory's responsibility to comply with the relevant health and safety requirements as defined in references (b), (c), (d) and (e).

f. **Equipment, Instruments, Reference Materials and Supplies.** All equipment, instruments, reference materials, and associated supplies shall be available for the correct performance of work. Label, mark, or otherwise identify each item to indicate calibration status of equipment (measuring instruments and reference materials). Maintain equipment to meet the manufacturer's specifications and the requirements of approved calibration procedures and schedules.

g. **Measurement Traceability and Calibration.** Laboratories shall calibrate, standardize, and verify before being placed into service and at appropriate intervals thereafter, all measuring and testing equipment having an effect on the accuracy or validity of calibrations or tests. The calibration of instruments and equipment shall meet the requirements of the manufacturer,

applicable regulations, or specific methods, whichever is more stringent. As applicable, the calibration of instruments and equipment shall also meet the requirements of the Navy Metrology Calibration Program. Measurements made shall be traceable to national or international standards of measurement or physical constants, where such standards exist. Retain calibration and standardization records for the same period as the field or laboratory analytical data.

h. Reagents and Solutions. Laboratories shall label all reagents, solutions, preservatives, (including water type) to indicate identity, concentration (where applicable), and the grade or quality of the material. Labeling shall also indicate the preparation or receipt date and the shelf life. Document working reagents and solutions as to preparation, traceability to lot or batch of stock solution and protected from deterioration and contamination. Do not use outdated reagents and solutions unless their integrity is verified by testing. In certain instances pre-authorization, by appropriate program managers, may be required in order to use outdated reagents/standards.

The operation must comply with waste disposal requirements as defined by Resource Conservation and Recovery Act (RCRA) regulations, and state, local and Navy requirements.

i. Test Methods. Perform laboratory testing in strict compliance with the test methods approved by environmental regulations. The laboratory will establish step by step "bench procedures" for the analyst, such as standard operating procedures (SOP). These procedures will establish the exact steps to be taken by the laboratory where one or more options is available in the method. Maintain a historical file of SOPs,

and all revisions thereof, including the dates of such revisions so that the method used is retrievable for correlation with reported data.

j. Handling of Test Items. The laboratory shall have a documented system for uniquely identifying the sample to be tested. Upon receipt, record the condition of the sample including any departures from standard conditions. Maintain, monitor, and record appropriate storage conditions where necessary.

The laboratory shall have documented procedures for the receipt and retention of samples. Include a chain-of-custody (COC) document with all samples taken for environmental determinations. COC and sample tracking shall be maintained from the time the sample is taken, until the time the analyses are complete.

49 CFR 172 applies when samples are shipped by common (commercial) carrier or sent through the United States mail. The person offering such material for transportation is responsible for ensuring compliance. 49 CFR 172 also provides some exemptions for regulating transportation of preserved samples, (i.e., reference Table II of 40 CFR 136).

Laboratories shall establish sample disposal procedures and dispose of unused samples as agreed upon with sample originators. Sample disposal shall comply with Federal, State and local requirements relative to environmental compliance and protection of human safety and health.

k. Records and Documentation. The laboratory shall maintain all records as required to comply with any applicable regulations, pursuant to the work performed. Record and document data in a system that provides for the ability to retrieve and trace the sample source and

associated sample collection and test data. (Sampling and test data may be stored separately; however, all data associated with a sample must be documented and retrievable.)

Testing records will contain the following information: sampling date, sampling time, location sampled (supported by tables, graphs, sketches and photographs as appropriate), name of individual(s) collecting sample, number/unambiguous identification of sample, type of sample, description of sample, reference to sample collection procedures used, preservation used, laboratory verification of preservation, COC documentation, analytical method(s) used, name of person(s) performing each test, date and time of test, measurements, examinations and derived results, and records of calibration relative to equipment used.

l. Data Verification and Retention.

Laboratories shall record and report test results with sufficient figures to be statistically significant. Review data for accurate reporting and adherence to documented procedures. Duly note all data modifications or amendments. (At a minimum include date, the person making the change, and the reason.) Retain records as required by specific regulations, contract requirements, or for at least 3 years including raw data. Records will be retrievable within a reasonable time.

m. Reports. -Laboratories shall report accurately, clearly, unambiguously, objectively, and within the guidance of any instructions within the test methods, the results of each test or series of tests.

(1) Each report will include at least: the identification of the laboratory and the location where the test was carried out if different from the address of the laboratory; unique

identification of the test report (such as serial number) and of each page, the total number of pages and the date of issue; name and address of customer; description and unambiguous identification of the item tested, characterization and condition of the item(s) tested; date of receipt and date(s) of performance of test; identification of the test method used, unambiguous description of any non-standard method used; reference to sampling procedure, where relevant, reported measurements and units of measure; and a signature and title, or equivalent, of the person(s) accepting responsibility for the content of the report.

(2) Where the report contains results of tests performed by sub-contractors the results shall be clearly identified.

(3) Formally document amendments to a test report in the form of an amended report. The laboratory will notify customers promptly, in writing, with an explanation, of any event (such as the identification of defective measuring or test equipment) that casts doubt on the validity of results given in a test report or amendment to a report.

n. Sub-contracting of Testing. When any laboratory sub-contracts any part of the testing, place this work with a laboratory complying with the requirements of this chapter. The laboratory shall ensure and be able to demonstrate that its sub-contractor(s) is able to perform the activities in question, and able to comply with the same criteria of competence as the laboratory sub-contracting the work. The Navy shall approve, in advance, any sub-contracting by private laboratories.

o. Complaints. The laboratory shall have a documented procedure for the resolution of complaints or circumstances raising doubt

concerning the data. Make a record of the complaint or circumstance and include in the file the substance of the complaint and its resolution.

p. **Audits.** All laboratories performing work for the Navy shall arrange for and/or submit to audits of its activities at appropriate intervals to verify that its operations continue to comply with the requirements of the quality system. Laboratories (in-house and private) shall be subject to evaluations as part of the Navy's Environmental Compliance Evaluation (ECE) program and/or Installation Restoration Laboratory and BRAC Cleanup Evaluation Program, as appropriate. Conduct and document on a continual basis (at least once per year) internal audits by the QA/QC Coordinator:

q. **Field and Mobile Facility Testing Requirements.** Testing performed in the field or in a mobile facility is subject to the same requirements as testing performed in a permanent laboratory facility.

25-5.4 Environmental Laboratory Advisory Council. The Navy has established an Environmental Laboratory Advisory Council, (ELAC) under the auspices of the CNO (N45), to provide overall guidance and direction for environmental sampling operations and laboratory testing improvement initiatives. The Council shall coordinate efforts across commands. The Council shall provide a forum for continuous process improvement and cost efficiencies for Navy sampling and laboratory support services. The Council helps ensure compliance with the Navy's Uniform Standards as outlined in this document.

25-5.5 Laboratory Certification. Testing shall be performed by certified laboratories having appropriate credentials to perform testing, as required by the applicable regulatory agency.

Require credentials for the specific type of regulatory testing (i.e., Safe Drinking Water Act (SDWA)), and for a specific test and/or parameter. Typically, credentials are obtained as certifications or accreditations from Federal, State or sometimes local regulatory agencies. Certification in one program or State cannot be used as justification to perform testing in another program or State (unless reciprocity or equivalency of certification is recognized by the appropriate regulatory agency).

25-5.6 Laboratory Accreditation. In the absence of certification requirements, laboratories shall demonstrate competency to perform environmental testing, required by their customers, through accreditation. All laboratories shall acquire the required accreditation from a Federal (including Navy), State, or third party, nationally recognized accreditation system, for all environmental testing performed by the laboratory. Accrediting agencies shall evaluate laboratories performing IR and BRAC Cleanup testing by means of the IR and BRAC Cleanup Laboratory Quality Assurance Program before beginning work.

Accreditation requirements shall include laboratory site assessments, requirements for QC data, and participation in on-going proficiency testing. Process exemptions to this accreditation requirement as waivers from CNO (N45). All laboratories must either be accredited or have sought and obtained waivers within 2 years from the issuance of this chapter.

25-5.7 Contract Improvement. The Navy shall amend the technical requirements of contracts by incorporating the Uniform Standards and require Contracting Officers Representatives (CORs) to be or to consult technically qualified personnel when providing contract support services. Use the source selection mechanism whenever

practicable as a means of ensuring the quality and cost effectiveness of sampling and testing services provided by contract. The Navy shall document quality problems, identify poor performance, and execute default clauses, where appropriate.

25-5.8 Specific Training Requirements. Personnel involved in sampling and testing shall have the appropriate education, experience, and training to perform their assigned tasks. Laboratories shall document training and keep records up to date.

a. Training Requirements for Navy Environmental Professionals, Specialists and Technicians. Personnel acting as environmental program managers, who routinely request sampling and testing and/or develop sampling and testing plans as part of their management of a program(s) shall have the following minimum training, provided via a documented training plan:

- (1) Environmental laws and regulations, relative to proper sampling (i.e., 40 CFR 136, 40 CFR 141, etc.);
- (2) Basic determinations of Data Quality Objectives (DQOs);
- (3) Training, applicable to the specific area(s) of program management relative to sampling plan development (i.e., sampling and testing for National Pollutant Discharge Elimination System (NPDES) compliance, hazardous waste management plan development, etc.).

b. Training Requirements for Sampling Personnel. A documented plan shall exist which, minimally, must include the following training:

- (1) Basic sampling techniques (grab sampling, composite sampling, how to avoid contamination, use of preservatives, etc.);
- (2) Specific sampling techniques as required (i.e., NPDES sampling, potable water bacteriological sampling, etc.);
- (3) Completion of environmental sampling paperwork including sample container labeling, sample field logs and sample notebooks, COC documentation;
- (4) Field testing techniques. Certain tests (i.e., pH, chlorine residual, dissolved oxygen, turbidity, temperature, etc.) due to method requirements must be performed in the field. Sampling personnel performing field analyses are subject to the same requirements as laboratory analysts, and therefore, shall be properly trained. See the training requirements for laboratory technicians;
- (5) Health and safety training.

c. Training Requirements for Laboratory Personnel. The laboratory shall have a policy and procedures for identifying training needs and providing training of personnel. Appropriately supervise personnel undergoing training.

Laboratory scientists and technicians shall have education or training appropriate to the tasks assigned. As a minimum, this shall include:

- (1) Training in the laboratory quality system;
- (2) Training in general laboratory operations;
- (3) Specific training applicable to the tests to be performed;
- (4) Health and safety training.

The laboratory shall have a written training plan and maintain documentation of all training including demonstrations of proficiency. Demonstration of proficiency must take place within established guidelines that are documented in the laboratory's quality manual or other referenced instruction.

The laboratory shall maintain records of the relevant competence, education and professional qualifications, training and experience of all personnel concerned with testing. These records shall include the date of authorization to perform particular types of tests, to authorize test reports and to operate particular types of equipment or to make professional judgment.

25-6 Responsibilities

25-6.1 CNO (N45) shall:

- a. Chair the Navy's Environmental Laboratory Advisory Council (ELAC).
- b. Issue policy/guidance, as appropriate, based on recommendations made by the ELAC.

- c. Issue policy/guidance and approve, as appropriate, requests for waivers as outlined in this chapter.

25-6.2 Environmental Laboratory Advisory Council (ELAC) shall:

- a. Coordinate claimant approval and implementation of ELAC recommendations.
- b. Develop an integrated approach to environmental sampling and testing.
- c. Recommend improvements in the Navy's sampling and testing program.

25-6.3 Major claimants shall:

- a. Provide technical assistance and prepare appropriate manuals or other forms of guidance for implementing proper sampling and testing techniques at Navy activities.
- b. Plan, program and budget for current and future environmental sampling and testing.
- c. Provide a member to the Environmental Laboratory Advisory Council (*only applies to major claimants that perform environmental sampling in-house, have environmental testing laboratories, or contract for at least \$25,000 in laboratory services annually*).
- d. Ensure shore activities comply with the requirements of this chapter.

25-6.4 Commanding Officers of Shore Activities shall:

- a. Ensure that in-house environmental sampling operations and laboratories, under their command, comply with the requirements of this chapter.

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b. Ensure that mechanisms are in place so that *environmental sampling and testing*, contracted out by the shore activity, as a minimum, meet all baseline Uniform Standards set forth in this chapter, as well as Federal, State, local and other Navy sampling and laboratory testing requirements.

c. Ensure that CORs), under their command, involved in oversight of sampling and testing contracts, consult with or be technically qualified scientists or technicians.

d. Ensure that training programs are established and maintained for sampling and testing personnel under their command, and that training is performed and properly documented.