State Water Resources Control Board

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Arnold Schwarzenegger
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TO: Mark Bradley, Enforcement Manager

FROM: Karol Enferadi, Engineering Geologist

DATE: August 31, 2007 (Revised January 28, 2008)

SUBJECT: Must Any Sample Used for Regulatory Purposes be Analyzed By A Certified Laboratory?

Generally YES, the requirement governing the use of certified laboratories with qualified staff to produce analytical data reported to state and federal agencies to determine compliance with effluent permit standards originates in Federal law, California's primacy agreement with EPA and, is expanded under California law.

Section 510 of the Federal Clean Water Act stipulates in part that California's program requirements are no less stringent than Federal requirements. Further, 40 CFR part 122.41 (j) (4) requires that monitoring must be conducted according to test procedures approved under 40 CFR Part 136.

California Water Code expands this requirement to all regulatory programs. WC section 13176 requires laboratory analysis submitted under Division 7 of the Water Code must be from a certified laboratory. Division 7 of the California Water Code includes waste discharge requirements, individual disposal systems, onsite sewage treatment systems, grey water systems, as well as compliance with the provisions of the Federal Water Pollution Control Act and Clean Water Act establishing the NPDES permitting program.

Health & Safety Code section 100825 (b) requires that laboratory analysis of environmental samples used for regulatory purposes be from certified laboratories. The relevant cites are:

> WC section 13176 (a) The analysis of any material required by this division shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 of Chapter 4 of Part 1 of Division 101 (beginning with section 100825) of the Health and Safety Code.
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> WC section 13176 (b) No person or public entity of the state shall contract with a laboratory for environmental analyses for which the State Department of Health Services requires accreditation or certification pursuant to this chapter, unless the laboratory holds a valid certification or accreditation.
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> HSC section 100825 (b) Laboratories that perform analyses on any combination of

environmental samples, …for regulatory purposes shall obtain a certificate of accreditation pursuant to this article.

HSC section 100825 (c) (3) "Certificate" means a document issued to a laboratory that has received certification or accreditation pursuant to this article.

HSC 100825 (c) (16) "Regulatory purposes" means a statutory or regulatory requirement of a state board, office, or department, or of a division or program that requires a laboratory certified under this article or of any other state or federal agency that requires a laboratory to be accredited.

SAMPLING: How samples are collected affects the analytical process, and the consistency and representativeness of the results. Samples for compliance monitoring must be collected in a prescribed fashion. Parts 122 and 403 of Title 40 of the CFR spell out sampling requirements for regulatory programs.

Sampling requirements include sample collection, preservation by means of temperature and chemicals, and holding times. Failure to follow proscribed protocol invalidates the sample results.

Although permits may differ among dischargers, there are common requirements for collecting grab samples for certain pollutants. 40 CFR Part 136 states that grab samples must be used for the following pollutants: pH, temperature, residual chlorine, dissolved oxygen, oil & grease, fecal coliform, fecal streptococcus, E. coli, cyanide, total phenols, Enteroccocci, and volatile organics.

40 CFR Part 136 specifies that all other pollutants must be collected as composite samples. For these pollutants, a 24-hour composite sample using a minimum of four (4) grab samples, must be used.

Even when the Regional Board or laboratory personnel do not collect the sample, it is important to understand federal sampling requirements because there is little point in analyzing an improperly collected sample because the results may not be used for compliance monitoring.

TESTING: 22 CCR section 64811 (a) requires certified laboratories to use analytical methods found in 40 CFR Part 141. All of the approved analytical testing methods incorporate a rigorous and standardized approach to quality control. Approved methods include EPA test procedures, as well as protocols in the 18th, 19th and 20th editions of Standard Methods.

Utility-owned laboratories are strongly urged to follow approved testing methods. Analytical data derived from unapproved methods, unapproved changes to existing methods or taking

"shortcuts" may not be used for compliance reporting. "Shortcuts" are not to be confused with flexibility.

There is flexibility to modify an analytical method to improve method performance to make it more specific for a given pollutant. Flexibility is not permitted if the altered technique would be less precise or less accurate than the standard approved analytical method. The permittee should contact ELAP (the regulatory authority) with questions and guidance on what constitutes allowable flexibility.

REVIEW OF DATA FROM PERMITTEE SUBMITTALS: A responsible party should review data submitted to EPA and the State for permit compliance monitoring. The Regional Board permit writer or other individual has the authority and responsibility to assure that the test data submitted contain the required elements. Otherwise, the data may be considered unacceptable for compliance monitoring.

The required elements include, but are not limited to, necessary QA/QC testing results submitted at the time the compliance results are submitted; completed chain of custody for all sample results; the testing method detection limit or minimum level; and analysis of travel blanks/lab blanks, if appropriate.

CERTIFICATION OF UTILITY-OWNED LABORATORY: CA Health and Safety Code (HSC) section 100825(b) and WC section 13176 require certification of a laboratory performing analyses of wastewater for regulatory purposes. 22 CCR section 64805 describes the application and certification process.

About 800 laboratories are certified by ELAP, of which about 700 are located in the State of California, and about 100 are from out of state. These laboratories are composed of facilities from the commercial, municipal, State, and federal sectors. Laboratories may be certified in one or more of about 50 Fields of Testing (FOT) that are targeted to the requirements of a specific regulatory program.

Data from a certified laboratory may be used to demonstrate compliance with applicable requirements of drinking water, wastewater, food for pesticide residues, shellfish testing, and hazardous waste sections of the California Health and Safety and Water Codes, depending on the FOT for which the laboratory is certified.

Wastewater utility-owned laboratories generally seek certification limited to tests they run. Most basic permit requirements are included in Field of Testing (FOT) No. 16: Wastewater Inorganic Chemistry, Nutrients, and Demand. FOT No. 16 includes most of the common effluent limitations such as: ammonia, BOD, chlorine residual, kjeldahl nitrogen, total solids, total dissolved solids, suspended solids, settleable solids, specific conductance, total organic halides.

Utility-owned laboratories doing bacteriological compliance monitoring will also need FOT No. 1: Microbiology of Drinking Water and Wastewater. FOT No. 1 includes detection of total

coliform, fecal coliform organisms by Multiple Tube Fermentation techniques, and Membrane Filter techniques.

HSC section 100890 (b) provides for civil penalty not to exceed five thousand dollars ($5,000) for each separate violation or, for continuing violations, for each day a violation continues.

LABORATORY PERSONNEL: 22 CCR section 64817 requires a certified laboratory to have a director who must meet certain education and experience criteria. The Laboratory Director is the person who is responsible for all analytical and operational activities of the laboratory, who supervises all personnel employed by the laboratory, and is the person responsible for the accuracy and quality of all reported data.

22 CCR section 64817 allows the Laboratory Director of a government utility-owned wastewater treatment plant laboratory performing any of the analyses required under WC section 13176 to fulfill the requirements for Laboratory Director by possession of a lab analyst/Water Quality analyst Certificate from CWPCA or CA-NV/AWWA. CWEA currently does this certification.

If the Laboratory Director is not actually doing the lab tests, the staff doing the testing becomes the Principle Analysts. Both need to be certified lab analysts. 22 CCR section 64817 (h) requires the Principle Analysts of utility-owned water or wastewater treatment plant laboratories performing any analyses under section 4025 of the HSC or section 13176 of the WC be likewise certified at a lab analyst grade based on the FOT for which the laboratory is certified.

For Wastewater Laboratory Directors, the minimum grade of lab analyst certificate acceptable is based on the FOT for which the lab seeks certification; for example, limited testing at many small WWTP's under FOT 1 and 16 would require a Grade I certificate. The Laboratory Director may perform any certified FOT analyses under section 4025 of HSC, or section 13176 of the WC and/or supervise all personnel assigned to work in the laboratory including those designated as Principle Analyst.

At the present time, CWEA (California Water Environment Association) offers certification in six different vocational programs with a total of 23 different certifications in five different disciplines: Collection system Maintenance, Environmental Compliance Inspection, laboratory Analysis, Plant maintenance (Electrical/Instrumentation and Mechanical Technologist), and Industrial Water Treatment Plant operation.

References:

California Health and Safety Code sections 100825-100920.
California Code of Regulations sections 64801-64860.
Office of Water, USEPA. Solutions to Analytical Chemistry Problems with Clean Water Act Methods. EPA 821-R-07-002. Washington, DC. March 2007.