

COLIFORM SAMPLING
 for the
Mariana Islands Water Operator Association Members

April 12, 2016

www.eatonanalytical.com

Presentation Outline


- **Regulatory Requirements**
- **Sampler Qualification**
- **Equipment & Supply Management**
- **Sample Site & Collection**
- **Documentation & Delivery**
- **Sample Management at the lab**

Acknowledgments



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Regulatory Requirements



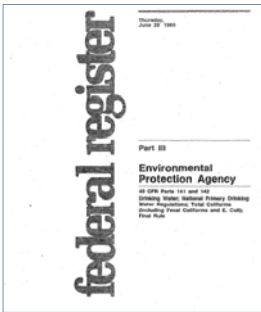
FEDERAL REGISTER
 Vol. 78 Wednesday, February 13, 2013
 No. 30

Part II
 Environmental Protection Agency
 40 CFR Parts 141 and 142
 National Primary Drinking Water Regulations: Revisions to the Total Coliform Rule, Final Rule

The Future

- **Treatment Technique**
- **Self Assessments**
- **PN based on assessment**

Regulatory Requirements



The Present

- **MCL**
- **Repeat Samples**
- **PN based on sample results**

Sampler Qualification



NOTE: This publication is issued as an aid to the staff of the CDFW Drinking Water Program, and cannot be held liable for the consequences of its use. It is published under the authority of the Department of Health and Safety Code. Analytical methods shall be made in accordance with EPA approved methods as prescribed in 40 Code of Federal Regulations Sections 141.21 through 141.80, 141.41, 141.42, 141.66, and 141.80.


§141.21 Laboratory and Personnel.
 (a) Required analyses shall be performed by laboratories approved to perform these analyses by the Department pursuant to Section 141.09, Health and Safety Code. Analyses shall be made in accordance with EPA approved methods as prescribed in 40 Code of Federal Regulations Sections 141.21 through 141.80, 141.41, 141.42, 141.66, and 141.80.

Sample collection and field tests including pH, alkalinity, pH, temperature, and chlorine residual shall be performed by a water treatment operator certified by the Department pursuant to Section 140479 of the Health and Safety Code or by personnel trained to collect samples under permit from the Department, a certified laboratory, or a certified person.

§141.74 General Monitoring Requirements.
 (a) Except as provided in subsection (b), analyses required pursuant to this chapter shall be performed by laboratories certified by the Department to perform such analyses pursuant to Article 2, commencing with section 140425, of Chapter 4 of Part 1 of Division 161, Health and Safety Code. Laboratories not certified by the Department, analyses shall be made in accordance with EPA approved methods as prescribed in 40 Code of Federal Regulations, part 141.131-141.141, Reg. 40444 (December 16, 1998), as amended at 66 Fed. Reg. 3779 (January 16, 2001), 71 Fed. Reg. 479 (January 4, 2006), 71 Fed. Reg. 57168 (June 29, 2006), and 71 Fed. Reg. 30978 (June 29, 2006), which are incorporated by reference.

(b) Sample collection and field tests including pH, alkalinity, and chlorine, chloramines, and chlorine dioxide residual determinations, shall be performed by personnel trained to perform such sample collection and/or tests by:
 (1) The Department;
 (2) A laboratory certified pursuant to subsection (a); or
 (3) An operator certified by the Department pursuant to section 140479 of the Health and Safety Code and trained by an entity in paragraph (1) or (2) to perform such sample collection and/or tests.





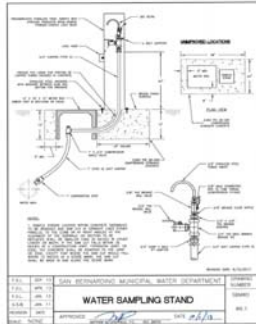
Sampler Qualification 

- ✓ **Distribution 1 Cert or greater**
- ✓ **Demonstration of Capability**
 - **3 weeks with experienced sampler**
- ✓ **Written Testing**
 - **“Water System Operator” course**
- ✓ **Review of SOP**
 - **“Routine Coliform Sampling” video**

Equipment & Supply Management 


- ✓ **Dedicated Tap Stations**
- ✓ **Container (120 ml collert) Checks**
- ✓ **Powder-Free/Nitrile Gloves**
- ✓ **Sample Transport Cooler Cleanings**
- ✓ **Trip and Field Blanks**
- ✓ **Sample Plan and Site Sequencing**
- ✓ **Weather & Wind Management**

Equipment & Supply Management 



Sample Site & Collection 

- ✓ **Remove Impediments (Aeration, Screens)**
- ✓ **Tap (flame, bleach, alcohol, none)**
- ✓ **Flush Time (2-3-5 min, constant temp)**
- ✓ **Residual $\geq 0.01-0.2$ or HPC**
- ✓ **Container/Lid Handling (threads down)**
- ✓ **Headspace (2.5 cm and 100 ml marker)**
- ✓ **Bagged Samples and Sample Segregation**

Sample Site & Collection 

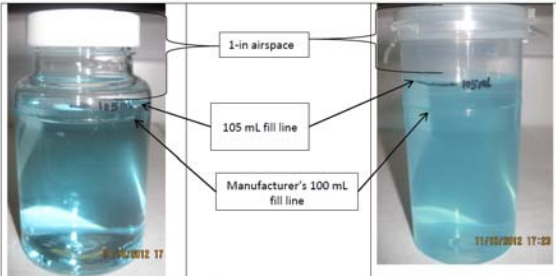


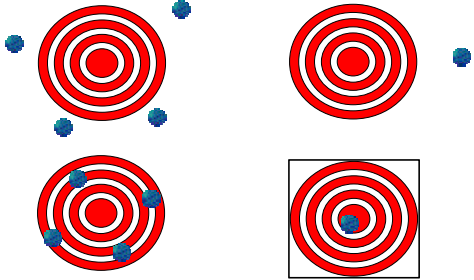



Figure 1. Sample volume according to 40 CFR 141.21(f), Safe Drinking Water Act and EPA Manual for certification of Laboratories Analyzing Drinking Water (EPA 815-R-05-004, January 2005, 5th Edition)

Documentation & Delivery 


- ✓ **Chain of Custody and Container**
 - **“The 5 Items”**
 - **Special Notes**
- ✓ **Temperature Management (2-10°, None)**
- ✓ **Timely Delivery**
- ✓ **Timely Processing**

Sample Management at the lab 



Sample Management at the lab 

- ✓ **Media and Stock Culture Checks**
- ✓ **Autoclave Spore Vial Challenge**
- ✓ **Incubator Checks and Cleanings**
- ✓ **Air Plate Count Tests**
- ✓ **Container Lot, Sterility Dechlor. Tests**
- ✓ **Supply Rotations**
- ✓ **Sample Batch and Analyst QA/QC**

Conclusion 

- 1. Meaningful SOPs**
- 2. Sampler Training**
- 3. Equipment & Supply Checks**
- 4. Sample and Site Integrity**
- 5. Sample Collector “Discipline”**
- 6. Lab QA/QC**
- 7. Documentation = Traceability**

Thank You 

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