

# **ADEM Design Guidance**

## **Plan Preparation and Design Guidance for Drinking Water Facilities**

Alabama Department of Environmental Management

Water Division – Public Water Supply Branch

PO Box 301463  
Montgomery, Alabama 36130  
334-271-7700

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## Treatment

### *Chlorination and Equipment*

1. Use solution feed gas type chlorinators for all groundwater sources, unless written approval for an alternate method is obtained from the Department.
2. Provide equipment sufficient to feed 5 mg/l of chlorine at the anticipated maximum flow rate of the water source.
3. Install automatic switchover units on chlorine cylinders.
4. Use a booster pump when sufficient differential water pressure is unavailable to satisfactorily operate solution feed gas type chlorinators.
5. Provide an adequate supply of finished water obtained approximately 30 feet downstream of the chlorinating point for solution feed gas type chlorinator equipment.
6. Provide a system for accurately weighing each chlorine cylinder.
7. Provide spare parts or duplicate chlorine feed equipment at each treatment site.
8. Locate chlorine cylinders and other equipment which contains chlorine away from electrical control panels and other equipment which could be damaged and render the facility inoperative should a gas leak occur.
9. In common wall construction provide a glass window for viewing of the treatment room.
10. Provide sufficient ventilation of the facility housing chlorinating equipment by using an exhaust fan.
11. Locate the air discharge from the chlorine room approximately 8-inches above the floor with the outside discharge pointing away from the entrance.
12. Locate electrical switches for operation of exhaust fans and lights outside the facility housing solution feed gas type chlorinating equipment.
13. Install a chlorine leak detector with an alarm system.
14. Provide doors with non-locking restrictions to allow opening from inside.

15. Provide controlled conditions inside chlorinator rooms to prevent extreme temperature changes.
16. Provide a self-contained breathing apparatus capable of supplying at least 15 minutes of usable air.
17. Provide proper safety equipment where it can be easily obtained in an emergency situation.

### *Fluoridation*

1. Obtain ADEM authorization prior to the use of fluoride.
2. Administer fluoride chemicals under pressure to the finished water down stream of the meter.
3. Use heavy-duty positive displacement type pumps equipped with backflow prevention devices.
4. Provide scales for accurately weighing the fluoride.
5. Locate the fluoride containers and other equipment, which contains fluoride away from electrical control panels and other equipment which could be damaged and render the facility inoperative should a leak occur.
6. Provide appropriate fluoride testing equipment for determining the fluoride ion concentration in accordance with testing methods established by the Department.
7. Provide protective clothing to include rubber gloves for handling hydrofluosilicic acid.
8. Provide safety equipment to include showers and easily operable eye wash facilities.