1. Location
    a. Outlet for FS-1 Box
    b. Pumps within 5 ft. of FS-1 Box
    c. Lines from pumps to injection ports +/- 20 ft.
    d. Lines from pump to chemical containers – absolutely as short as possible. Less than 10 ft. or less.
2. Pumps
    a. Pumps do not draw chemical easily – short chemical suction lines.
    b. Pumps pump really well.
3. Mounting
    a. Mount FS-1 to pole or wall using the Unistrut, clamps and bolts provided
    b. Mount pumps wall or pole mount brackets
    c. Attach pump platforms using the Unistrut clamps and bolts through the pump platform
        i. The BC pump platform should be mounted towards the front of the mounting bracket
    d. Mount each pump to the platform
        i. Two screws per pump
        ii. The base plate of the pump will need to be drilled bigger, from under the pump platform
4. Connections – electrical and pump communication wires
    a. Plug the pumps into the FS-1 cords
    b. Connect the FS-1 communication cables into each pump
        i. Each pump cable will have a wire tie, pump 1- 1, pump 2 -2 and pump 3-3
        ii. The cable for the flow meter will NOT have a wire tie.
        iii. Connect the cable to the left port on the pump
            1. Note the cable is indexed.
            2. Continue to push the fitting in, while tightening the nut.
            3. Assure the nut is tight.
5. Suction Lines
    a. Totes
        i. If mounting the pump on top of the tote, be sure to use the weight, then the suction strainer. The suction line must NOT lay on the bottom of the container, it must be near upright.
        ii. If mounting to the bottom of the tote, no suction strainer is used.
        iii. Keep all suction lines as short as possible.
        iv. Before connecting the tote Camlock assembly, be sure the male camlock fitting on the tote is tight

v. Before connecting the tote Camlock assembly, be sure the camlock threads are put together with pipe tape, and that the fittings are as tight as possible (the threads should be almost totally consumed into the fitting). This will alleviate leaking.

b. Drums
    i. Be sure to use the weight, then the suction strainer. The suction line must NOT lay on the bottom of the container, it must be near upright.
    ii. Keep all suction lines as short as possible.

c. Suction and Return lines
    i. Drill holes in the cap of the tote and or drum and assure they are “tight” fitting with the tubing to prevent vapor release, to also prevent any form of contaminants entering the container.
    ii. NO CONTAMINANTS CAN ENTER THE BC, WHATSOEVER.
    iii. Each cap will be drilled twice, one for the suction line, and another for the return line used for bleeding the pump head when changing out containers.

d. Chemical Injection Lines
    i. These fittings are unique – a compression cone that fits over the tubing, and is compressed into the port buy the cap.
    ii. Be sure to press the line all the way into the fitting before lowering the compression fitting and tightening down the cap.

6. Chemical Injection Ports
    a. BC is injected into the suction side of the pump station. It may be injected directly into the wet well or into a suction line port
        i. It may be injected using the standard injection quill supplied with the pump
    b. Fertilizer may be injected into the suction side of the pump station; however, it is recommended to be injected into the discharge side of the pump station
        i. It may be injected using the standard injection quill supplied with the pump
    c. Curative is only injected in the discharge side of the pump station past all gauges, meters and fittings
        i. Curative may only be injected using two quills
            1. Quill 1, the factory pump quill
            2. This is placed into the ball valve
            3. The ball valve is connected to the AI Quill
            4. The AI quill is placed into the discharge pipe, placing the point of chemical release within the center of the pipe and water stream

7. Pumps

a. Curative and Fertilizer pumps draw from the bottom and pump from the top
    i. The thumb knob on the side of the pump head is used to bleed air from the pump head. This must remain closed during operation and only opened to draw chemical into the pump head when there may be an air bubble
    ii. This side fitting is run back into the chemical container with a clear tubing
b. BC pump draws from the bottom, and pumps out the end of the head
    i. The top fitting is for the "auto degassing", where periodically the pump will release gasses from the chemical, out the top of the pump
    ii. This top line runs back into the container of chemical
c. Pre-configuration
    i. The pumps are pre-configured to respond to a flow signal from the FS-1 through the communication cable, by the flow meter. No pump setting configurations are necessary in most all cases. A black circle on the pump screen means it is OFF
    ii. A green circle on the pump screen means it is on standby awaiting pulses from the FS-1 and flow meter
d. Priming
    i. Open the thumb Knob on the side of the pump head
    ii. Hold down the Play/Stop button 3 seconds. This will cause the pump to run 60 seconds
    iii. Repeat the process until you hear the chemistry enter the head, then close the knob

8. Flow Meter
    a. The FS-1 is wired for its own flow meter
        i. Insert the flow meter and connect the flow meter wire
    b. To connect to the systems existing flow meter, you'll need to make adjustments for the type of flow meter – analog or digital
        i. Once tapping into the signal, the flow meter wires in the FS-1 will need to be re-configured to meet the meters requirements
        ii. A signal splitter or conditioner is not necessary, these provisions are provided in the FS-1 flow meter configuration options
9. Flow Rates
    a. In most cases, the FS-1 has a K-Factor setting. This is used to synchronize the flow registered on the FS-1 with the flow registering on your pump station.
10. LMI's Multi-function Valve
    a. This component is no longer used
11. Water
    a. Always have available running water when handling the chemistry

b. Rinse any spillage with copious amounts of water
    i. Curative: Rinsing with water will reduce the extremely aggressive fumes of the Curative
    ii. BC: Several minutes of rinsing, the oxidation of the BC on the skin will be reduced to that of consumer-based hydrogen peroxide

12. Programming
    a. There is view, Admin and Maintenance entry levels. Maintenance entry level is the only level that allows for changes, and it is password protected. Follow the prompts to setup the flow meter and chemical feed rate settings.
13. Follow-up
    a. Check all fittings for leaks
    b. “Hand” tighten all fittings periodically the first few weeks.
14. Parts
    a. Keep all unused parts in a box for possible future use.