SECTION 2.1 LEVEL CONTROL SYSTEM
(Integrinex - Air Bubbler)

DESCRIPTION

The liquid level control system operates on AC power and controls the pump motors to maintain the desired liquid level in the wet well. The system automatically starts and stops the motor.

This level control system consists of a model Basic or Standard Integrinex solid state liquid level controller; two air pumps and air piping which extends vertically into the wet well, and ends with an open air bell near the bottom of the well. The air pumps are described further in Section 2.2.

The Integrinex Basic or Standard level controller contains a pressure transducer, an alpha/numeric display, up to eight output relays, and output status LED's. The Integrinex Basic or Standard level controller monitors and maintains the liquid level in the wet well.

The pressure transducer is connected to the air bubbler line. Liquid level in the wet well rising above the air bell causes resistance to the air flow, increasing air pressure in the air line; the higher the liquid rises above the air bell, the greater the pressure becomes. The transducer senses this pressure and provides a proportional electrical signal to turn the outputs on and off.

OPERATION

1. Turn both pump mode selectors to OFF. Turn on control power.

2. Turn on AC air supply (see Section 2.2).

NOTE

Each time an air pump is started, it requires as much as 50 minutes to warm up before full output. If all air piping connections are tight, system operation should not be affected. As a precaution, however, the operator should monitor system operation during the warmup period.

3. Refer to **Adjustments** and adjust the OFF and ON set points for each pump and alarm.

4. After the set point adjustments have been made, close the pump motor branch circuit breakers and set the pump mode selectors for automatic operation. (See Section 3).

5. The operation of the pump motors is now under control of the Integrinex Basic or Standard liquid level controller. The pump motors will start and run as required by the wet well level.

ADJUSTMENTS

Before adjusting the set points, consult the plans and specifications. Wet well design and system characteristics will determine the levels at which the control must be set.

Level set points can be adjusted through the front panel maneuvering to the SETUP menu and selecting LEVEL SETPOINTS.

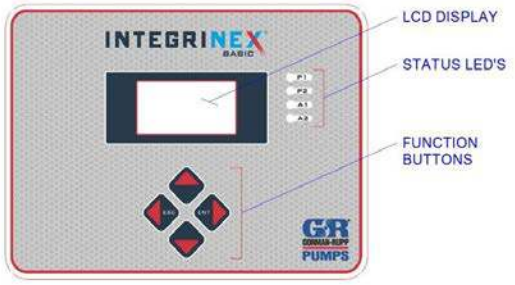

Figure 1, Front Panel

To adjust the levels refer to the following text.

1. Open the motor branch circuits and turn the pump mode selector switches off. Apply control power to the Integrinex Basic or Standard liquid level controller.

2. Press the ENT► button on the front of the Integrinex Basic controller to access the login screen. Enter the Access Code, refer to the Integrinex Setup in section 12.1. If using Integrinex Standard Controller press ENT► and scroll down to SETUP then ENT► to enter Access Code.

3. Use the up and down arrow keys (,) to access the LEVEL SETPOINTS. Press the ENT► button on the front of the Integrinex Basic or Standard controller to select LEVEL SETPOINTS. Use the up and down arrow keys (,) to select desired ON and OFF set points.

4. Use the up and down Arrow keys (,) to adjust the set point levels. Press the ENT► button to save set points.

5. Repeat steps 3 and 4 to set all other set point ON and OFF levels.

NOTE

Pump ON levels should be set at least 0.3 feet or more above the pump OFF levels. Closer settings may cause short cycling of the pumps.

NOTE

The set points are independent and do not interact with other set points. The set point may be adjusted at any time without effecting pump operation. If pumps are operating when set points are changed, pumps need to complete that pumping cycle before new set points take effect.

The Integrinex Basic or Standard controller will return to the Process Display screen automatically after a short delay or immediately by pressing the ◄ESC button twice.

TROUBLESHOOTING

If the Integrinex Basic or Standard liquid level control system fails to function, make certain that the control circuit is energized, that all switches and circuit breakers are closed, and that all fuses are good.

If the pumps and alarm fail to respond at the desired level, check the ON and OFF settings by selecting the LEVEL SETPOINTS in the SETUP menu.

Detailed control assembly troubleshooting is provided in Section 11.1. Also refer to section 12.1 Integrinex Basic or Standard Setup.

SCHEDULED MAINTENANCE

The components of the Integrinex Basic or Standard controller are solid state requiring no scheduled maintenance. Refer to Section 10.3 for general control maintenance.

REPAIR

WARNING

The level control system is under automatic control and may be energized at any time. Make sure electrical circuit to the control system are de-energized before disconnecting electrical leads; severe electrical shock may result otherwise.

CAUTION

When repairing or replacing liquid level control components, it may be necessary to disconnect them from the air tubing. Make certain the air line to the wet well is shut-off or plugged to prevent back flooding through an open air line.

1. The components of the Integrinex Basic or Standard liquid level controller are not repairable. Please contact your Gorman-Rupp Representative for replacement.

2. Refer to Section 10.3 for repair of the air bubbler system components.