Personnel responsible:

1. Lead Operator, Material Handler

Safety:

Safety shoes and safety glasses are required when working in, on, or around the digesters. Sulfuric acid is highly corrosive to clothing and the human body. If you come into contact with it, immediately flush the affected area(s) with water for 10 minutes.

Summary:

The pH and density of the first digester are controlled to produce mud suitable for filtering into brine. The pH is controlled by the Monitoring System receiving a signal from the pH meter and feeding acid to the Digester accordingly. In a similar fashion, the density is controlled by the Monitoring System getting a signal from the density meter and feeding water to the digester. Both control systems depend on the circulation loop to operate properly.

Warning – the acid will not run if the circulation loop is flowing less than 60 gallons per minute. Make sure the circulation loop is running properly before starting the digester.

Control systems are not perfect, so the Digesters must be monitored by hand to ensure proper function of the control systems.

Procedure:

1. **pH CONTROL – Check the pH at least once per hour**
    a. Pull out about a 2 inch strip of pH paper from the dispenser and tear it off.
    b. Pull a sample from the circulation loop with the sample dipper.
    c. Dip the pH paper in the mud.
    d. Compare the color of the dipped paper with the colors on the pH paper dispenser to get an estimate of the pH.
    e. Compare the pH from the pH paper with the pH meter reading.
    f. If the pH paper and meter disagree by a significant amount, the pH meter may need to be recalibrated. Note the difference on the shift log and contact Technical for help.

2. **DENSITY CONTROL- Check the density at least once per hour**
    a. Pull a sample from the circulation loop with the sample dipper.
    b. Place a hydrometer in the cylinder and let it come to rest.
    c. Observe the numerical reading on the hydrometer.
    d. Compare the hydrometer reading with the electronic Density and Flow meter reading.
    e. If the hydrometer and Density meter disagree by a significant amount, the Density meter may need to be adjusted. Note the difference on the shift log and contact Technical for help.

Note: What is a significant amount? For pH, **more** that 1 pH unit, for instance the meter reads 3.50 and the paper says 2.0, this is significant. For Density, a difference greater than 0.014 – for instance the Density meter reads 1.385 and the hydrometer reads 1.370, this is significant.

TRAINING DOCUMENTATION

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Revision Number	Revision Date	Revision Author	Revision Description
00	10/28/2005	PO	New Document
01	07/15/2008	PO/SL	1. Add Warning about acid stopping if circulation loop is slow. 2. Added wording for monitoring system 3. Changed Heading for Giles Chemical 4. Advised Revision page.
02	10/21/2008	SL	1. Placed document of new procedure format