

GPI Electronic Digital Meter
Chapter 10: FIELD OPERATIONS
AHETF-IO.FI.

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APPROVAL <u>William Otterly</u>	DATE <u>3-5-04</u>
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1.0 PURPOSE AND SCOPE

- 1.1 This Standard Operating Procedure (SOP) provides the steps to properly operate, calibrate and maintain the Great Plains Industries, Inc. (GPI) Electronic Digital Meter for recording application solution amounts during Agricultural Handlers Exposure Task Force (AHETF) worker exposure studies.
- 1.2 This SOP was revised to correct typographic errors.

2.0 EQUIPMENT REQUIRED

- 2.1 The following equipment is needed to calibrate the flow meters:
- a. GPI Electronic Digital Meter
 - b. "Calibrated" Bucket/Container or equivalent
 - c. Water Source
 - d. GFI Electronic Water Meter Operations Guide and Owner's manual

3.0 CALIBRATION VERIFICATION PROCEDURE

- 3.1 If necessary, prepare the meter according to the manufacturer's directions by installing two lengths of pipe (20" and 5", minimum) on the inlet and outlet ends, respectively.
- 3.2 Attach the water source to the inlet pipe. Secure the connection and ensure that there are no leaks.
- 3.3 Zero the meter by pressing and holding the DISPLAY button for three seconds. The meter should read zeros on the display.
- 3.4 Turn on the water source and fill the container to the predetermined volume mark. Use a continuous, full stream for the flow. Turn off the water.
- 3.5 Record the reading on the meter. Compare to the predetermined volume and calculate the percent difference.
- 3.6 Repeat steps 3.3 to 3.5 a minimum of three times for each meter until all meters to be used have been calibrated. Each meter should be within 5% of the expected volume.
- 3.7 If the reading on the meter is consistently greater than 5% of expected, then the meter must be electronically calibrated according to the manufacturer's directions. Refer to the Calibration section in the Owner's manual, pp. 10-13. After electronically calibrating the meter, recheck the meter as described above.

4.0 OPERATION

- 4.1 A complete description of operation controls is described in the Owner's Manual, Operations section, pp. 6-10.
- 4.2 Turn the meter on by pressing and releasing the DISPLAY button. The meter will automatically turn on when liquid flows through it. The meter will automatically turn off after approximately four minutes of non-use.
- 4.3 To clear the batch totals display, press and hold the DISPLAY button for three seconds. The cumulative total cannot be cleared, except by removing the batteries.

- 4.4 To select a calibration curve, hold the CALIBRATE button while pressing and releasing the DISPLAY button until the desired calibration curve shows on the display. The factory calibration curve should be selected. If a field calibration curve is necessary, then follow the manufacturer's directions for creating a field calibration. See the Owner's Manual, Calibration, pp. 10-13. Document this action in the raw data.
- 4.5 If the display is dim or non-existent, then the batteries are too weak to operate the meter properly.

5.0 MAINTENANCE

- 5.1 A complete description of maintenance procedures is described in the Owner's Manual, Maintenance section, pp. 14-16.
- 5.2 During daily or routine use, these meters are maintenance-free.
- 5.3 The meter should be cleaned after each use to prevent debris from accumulating on the interior, which can degrade accuracy and damage the turbine. Dried material should be cleaned with a penetrating lubricant, such as WD-40[®]. Do not submerge the meter.
- 5.4 If the reading is dim or blank, replace the batteries. Remove the cover by unscrewing the four face screws. Lift-off the faceplate, remove the old batteries, clean the battery terminal, and replace with fresh batteries. Replace the faceplate, and retighten the four screws.
- 5.5 If the meter fails to operate properly, cannot be adequately calibrated, or otherwise does not operate, then the meter should be removed from service, and either returned to the manufacturer for repair, or be replaced. Do not attempt to repair or modify the internal structures.
- 5.6 Record battery changes as "routine" maintenance. Record cleaning procedures and "routine" maintenance. Record non-functioning returned for repair or replacement and "non-routine" maintenance.

6.0 REFERENCES

- 6.1 For complete and detailed information on the operation, calibration, and maintenance procedures refer to:

6.1.1 GPI Electronic Digital Meter Owner's Manual No 920685-8

6.1.2 GPI Operations Guide for Electronic Digital Meter No 920731-2

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7.0 REFERENCE DIAGRAMS

