CHAPTER 4

TESTING AND OPTIMIZING

4-1. Equipment and Personnel. Test equipment should consist of a fresh and calibrated copper-copper-sulfate reference cell, a submersible connection, cabling suitable for immersion use, and a high-impedance voltmeter capable of measuring polarized potentials with the CPS on. Sensitivity should be more than 5 meg-ohms per volt. The reference electrode should be placed in the electrolyte adjacent to and within 200 mm to the face of the gate at each test point. All tests should be supervised by an NACE-certified corrosion specialist, senior corrosion technologist, or cathodic protection specialist, a licensed corrosion engineer, or a Corps of Engineers representative assigned and qualified to do this work.

4-2. Optimizing System. Data collected during the test should be reviewed, and any necessary adjustments should be made. The system should be properly optimized by adjusting the rectifier until 90 percent of the potentials fall within the range of polarized (cathodic) potential of between negative 850 mV and negative 1200 mV, or 100-mV polarization according to NACE RP0169-2002. A report on test results should be prepared and retained at the district. Research and development work on low-cost remote monitoring systems has been performed recently to increase reliability, extend service life, minimize maintenance requirements, and automate CPS testing, evaluation, and diagnostic procedures in order to reduce CPS life-cycle costs (Van Blaricum et al. 2001). For further information about CPS remote monitoring systems, contact the Corrosion Control and Cathodic Protection Systems DX at Mobile District or CECW-E at HQUSACE.