CHAPTER 2

CORROSION MITIGATION PLAN

2-1. Corrosion Protection Coordinator. Each district should designate a person who has experience and is familiar with cathodic protection techniques to serve as the district corrosion protection coordinator. Such a person may be a licensed professional engineer or a person certified as being qualified by NACE International as a cathodic protection specialist, corrosion specialist, or senior corrosion technologist. This individual will be responsible for ensuring that the CPSs are tested against the applicable corrosion protection criteria and for ensuring that reports on the results of these tests are prepared and maintained at the district for review and reference.

2-2. Plan.

a. Development. A corrosion mitigation plan should be developed by the district corrosion protection coordinator for each hydraulic structure.

(1) New projects. A corrosion mitigation plan should be developed and included in the design memorandum. For a previously completed design memorandum, the plan should be developed and submitted as a supplement to the design memorandum prior to completion of plans and specifications.

(2) Existing projects. A corrosion mitigation plan should be developed and presented as an appendix in a Periodic Inspection Report for reference in subsequent inspections. Corrosion mitigation plans should consider the condition of existing structures, factors that affect the rate of corrosion, methods of corrosion control, and cathodic protection of the structure.

b. Execution. The following policy on optimization, testing, and reporting of the CPS for each structure should be followed.

(1) A survey of the structure-to-electrolyte potential, using a standardized reference cell, should be performed. Any system failing to operate in accordance with established criteria should be optimized by adjustment.

(2) A report showing the condition of the CPSs and including any plans to repair the systems should be prepared and kept at the district for review.

(3) Any inoperable CPS should be repaired as needed.

2-3. Tests and Adjustments.

a. Tests, adjustments, and data collection. Tests should be performed in accordance with the corrosion mitigation plan. Rectifier voltages and currents should be recorded. There are no prescribed time intervals for testing new systems, but measurements should be taken and recorded monthly after initial energization or subsequent re-energization until steady-state conditions are reached. Then, based upon the judgment of the corrosion protection coordinator, tests should be performed at about 6-month intervals for a year or more, and thereafter at yearly intervals. It would be appropriate to monitor critical or strategic structures more frequently. Based upon the measurements taken, the rectifier current and voltage should be adjusted to produce either a negative polarized (cathodic) potential of at least 850 mV with the cathodic protection applied or other minimum cathodic polarization such as 100-mV polarization as described in NACE RP0169-2002 for steel and cast iron piping. This potential should be achieved over 90 percent of each face of each gate leaf. Readings should not exceed a polarized (cathodic) potential of 1200 mV at any location. Acceptance criteria for CPSs should be as defined in NACE RP0169-2002 unless otherwise noted in this manual.

b. Reports. Reports should be prepared and kept at the district. These reports should be prepared in a format similar to that shown in the miter gate sample and table in Appendix A, which presents measurements taken and data obtained. For other types of installations, the report should be modified to show similar data applicable to the respective installation. This report should be completed annually, not later than December.

c. Data. The data accumulated in these reports should be retained to provide a database for consideration of possible improvements to CPS techniques. Reports on the current corrosion deterioration status of the structures should be maintained.