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SPECIFICATION: **G-8201-4a**

TITLE: **ELECTRICAL SPARK INSPECTION OF COATING ON STEEL PIPE**

VOLUME: **2 (Section 1.0), 10 & Yellow Book**

COURSE ID: **GAS0604 GAS0302 (HOT)**

CORE GROUP: **Corrosion Control**

TARGET AUDIENCE: **Gas Construction, Gas Contractors, Corrosion Control and Construction**

REV 4a:	An internal audit revealed that this specification contains O&M activity and should be included in Volume 10. Added Volume 10 on the Cover Page and Footers. **(11/25/19)**

REVISIONS: (See ★)

1)	Section 3.7	Edited wording.
2)	Section 5.0	Removed restriction in note concerning electrical inspection of mastic coating.
3)	Section 6.2	Edited wording.
4)	Subsection 6.5	New Subsection 6.5 added regarding pace used to perform test and renumbered all subsequent subsections.

Gas Operations Standards

TITLE: ELECTRICAL SPARK INSPECTION OF COATING ON STEEL PIPE

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1.0. SCOPE

1.1 This specification covers all aspects of electrically inspecting the coating on steel pipe using a holiday detector. Unless otherwise, specified all gas and electric feeder pipes used by the Company underground shall be inspected.

1.2 Underground coatings are sometimes used for above ground installations, such as across bridges, in tunnels, in manholes, etc. Unless otherwise specified, these coatings shall also be inspected in accordance with this Specification.

2.0. LEGAL REQUIREMENTS

State: 255.461; Federal: 192.461

3.0. DEFINITIONS

3.1 **Coater:**

The party, approved by the Company, to apply coating on bare steel pipe at a mill prior to delivery to the Company.

3.2 **Coating Contractor:**

The party, contracted by the Company, to apply field coating on Company piping.

3.3 **Company:**

Consolidated Edison Company of New York, Inc.

3.4 **Contractor:**

The party or parties, connected by contract with the Company, proposing to do work specified by the Company other than the Coater and the Coating Contractor.

3.5 **Field Representative:**

The Manager of Gas Construction, Construction Management, or their duly authorized representatives.

3.0 **DEFINITIONS** (Continued)

3.6 **Transportation and Stores:**

The Manager of the Company's Corporate Transportation and Stores group or his duly authorized representative(s).

★ 3.7 **Holiday Detector:**

★ A Company-approved electrical spark inspection machine shall be used to perform holiday detection on a coated pipe. Approved machines are:

Spark Inspection Machine	Model	Manufacturer
"Holiday Detector"	Model AP-W Model AP-S	Tinker & Rasor 791 Waterman Ave. San Bernadino, CA 92408
"Spy Holiday Detector"	Model 790	Pipeline Inspection Co., Inc. Houston, TX 77055

4.0. FREQUENCY OF ELECTRICAL INSPECTION

4.1 The coating on all coated steel pipe shall be electrically inspected using a holiday detector as per the schedule set forth in Table I, attached. All damaged coating found as a result of the inspections shall be repaired as per G-8209. See Section 5.0 below for the appropriate voltage setting of the holiday detectors.

4.2 If the coating on steel pipe is electrically inspected when it is first delivered to a Company Storage Yard or to a Job Site, the following guidelines shall be followed for accepting or rejecting the pipe length, or requesting back charges for damaged coating:

A) When holidays (coating damages) are detected, the linear length of each holiday shall be measured. Use 2 linear inches for all holidays less than 2 linear inches. All holiday lengths shall be added and result in a total length of all holidays for each length of pipe.

4.0 **FREQUENCY OF ELECTRICAL INSPECTION** (Continued)

B) If the total length of all holidays is greater than 2 feet on single random pipe (4 feet on double random), the entire pipe length in question shall be rejected and returned either to the Coater or Stores whichever is appropriate.

C) If the total length of all holidays is less than the lengths above, the coating shall be repaired in accordance with G-8209.

D) For all pipe rejected and for any request for back charges for damaged coating, call the "Action Line" at (212) 460-4125 or 4505.

4.3 All electrical inspections of the coating on steel pipe, except when done in the Coater's Yard, shall whenever possible, be witnessed by a Field Representative when on the job site or a Stores inspector when in a Company Storage Yard. Electrical inspections of the coating in the Coater's Yard will be certified in writing by the Coater to Transportation and Stores.

5.0. PEAK VOLTAGE SETTINGS OF HOLIDAY DETECTORS

The holiday detectors, used for the electrical inspection, shall have their peak voltage set, as measured with the electrode in contact with the coated pipe, in accordance with the following:

Type of Coated Pipe	Peak Voltage	Applicable Coating Specs
Gas*	12,000 to 15,000 Volts	G-8209**
Electric Feeder Pipe and Dielectric Return Lines	18,000 to 20,000 Volts	G-8209**

★ *Electrical Inspection of the coating of services in the field is optional.

6.0. HOLIDAY DETECTOR USAGE AND PERSONAL PROTECTIVE EQUIPMENT

6.1 Prior to use, the operator of the holiday detector shall inspect the high voltage detector to ensure that the equipment is fit for use.

A) There shall be no damage to the handle, insulated electrode wand, or ground cable.

B) Verify that the total length of the ground cable is at least 15 feet, and the insulated portion from the handle connection is a minimum of 4 feet.

★ 6.2 Prior to the holiday detector being activated, the operator of the unit shall communicate to co-workers that a coating inspection is going to start and co-workers should immediately exit the structure. This communication avoids inadvertent contact by a co-worker with the energized pipe or equipment being inspected.

6.3 While performing a coating inspection with a holiday detector, the operator shall keep a safe distance from the pipe or equipment such that the operator does not come into contact with the energized pipe or equipment.

6.4 The operator shall avoid contact with the electrode, attachment, and ground cable when using the holiday detector.

★ 6.5 The operator shall move the holiday detector over the coating at a constant speed. The speed of the electrode's travel along the pipe should never be excessive, since faulty inspection may result missing coating faults. Travel speed should not exceed 12 inches per second.

6.6 The operator shall ensure that the holiday detector is safely de-activated (i.e., the control switch is OFF) when the detector is not in use.

6.7 The minimum personal protective equipment that must be worn while operating a holiday detector is:

- Hard hat
- Safety goggles
- 1kV (Class 0) rubber gloves and leather gauntlets
- FR clothing
- Safety shoes

7.0. PERIODIC TESTING OF HOLIDAY DETECTORS

All holiday detectors used on Company coated pipe shall be periodically tested for accuracy of peak voltage setting as follows:

Company/Contractor/Coating Contractor Owned Detectors

7.1 Each detector shall be tested at the start of each major construction job and once a month thereafter for the duration of the job.

7.2 Each holiday detector shall be tested for accuracy of its peak voltage setting. The test shall be performed by Corrosion Control.

7.3 If the holiday detector's peak voltage is not set properly, it shall be properly adjusted at the time of the test. Written verification of the holiday detector's testing shall be kept with the detector in accordance with Section 8.0 Records Retention.

7.4 Gas Construction or Construction Management shall be responsible for inspecting the job; the coating contractor, or contractor owning the holiday detector shall be responsible for making the necessary arrangements to have the detector tested as established in the schedule in Section 7.1 above.

7.5 Each holiday detector is operated by batteries. The charge on these batteries should be checked daily, prior to using the holiday detector. The group performing the electrical inspections shall have that responsibility.

8.0. RECORDS RETENTION

Any records generated in the course of performing work in accordance with this specification shall be maintained as required by Corporate Instruction CI-870-1 "Records Management". Guidance on the retention of Company Gas Operations records can also be found on the Records Management intranet site.

9.0. REFERENCES

CI-870-1 Records Management

G-8209 Field Coating of Steel Pipe and Fittings Installed Underground and in Subsurface Structures

10.0. ATTACHMENT

Table I Frequency of Electrical Inspection

TABLE I
FREQUENCY OF ELECTRICAL INSPECTION

REQUIREMENT	FREQUENCY	LOCATION	PERFORMED BY
Mandatory	Immediately after coating is applied	Coater's Yard	Coater
Optional: at the discretion of Stores	Just prior to shipment (only lengths to be shipped at any one time)	Coater's Yard	Coater
Optional: at the discretion of Stores	As pipe is unloaded, prior to storage	Company Storage Yard	Stores
Optional: at the discretion of Stores	As pipe is loaded, prior to shipment	Company Storage Yard	Stores
Optional: at the discretion of the Field Representative or Contractor	As pipe is unloaded, prior to use or field storage	Job Site	Company, Contractor or Coating Contractor
Optional: At the discretion of the Field Representative or Contractor	Immediately after field coating is applied	Job Site	Company, Contractor or Coating Contractor
Mandatory	Just prior to backfilling the pipe	Job Site	Company, Contractor or Coating Contractor