

State Energy Inspection Services Standard Operating Procedure Full Length Magnetic Particle	Instruction #	Manual
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1.0 Scope

This procedure details the requirements, equipment and procedures to be used for full length magnetic particle (FLMP) inspection of tubulars for the detection of longitudinally oriented imperfections. The requirement of this procedure is to be followed when Full Length Magnetic Particle testing is specified on the State Energy work order.

- 1.2 Area of inspection coverage is 360 degrees of the external surface of the coupling and pipe body.
- 1.3 Areas not covered in this procedure include the internal surface of the pipe, coupling and pin threads.

2.0 Personnel Qualifications

- 2.1 Personnel performing this procedure shall be classified, as a minimum, Level inspector.
- 2.2 Level 1 Inspectors shall be under the supervision of an on-site Level II or Level III Supervisor.
- 2.3 Personnel performing this procedure must be able to distinguish J1 letters at 12 inches on a Jaeger eye chart and have no color vision impairment.

3.0 Reference Documents

- 3.1 The following documents are referenced in preparation of this procedure and should be available on the job site location.
 - ✓ API Spec 5CT
 - ✓ API RP 5A5
 - ✓ Customer specification, as applicable
 - ✓ State Energy's SOP 5.0 (SEA)

4.0 Definitions

- 4.1 Refer to RP5A5 for definitions of wording used in this procedure.

5.0 Equipment

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- 5.1 Equipment required to perform FLMP is as follows:
- a) Magnetizing equipment for circular magnetization
 - b) Aws 86 magnetic particles or equivalent. Particles shall be of a color that will provide a high contrast between the particles and the surface being inspected.
 - c) Magnetic field penetrometer or Burmah Castorl Strip
 - d) Tools for imperfection evaluation of the threads and tube body

6.0 Surface Preparations of the inspection surface

- 6.1 All inspection surface areas, including threads shall be cleaned to insure removal of dirt, grease, thread lubricants, scale, excess paint, sticky coating or other contaminants which could interfere with the movement of magnetic particles used in the inspection.
- 6.2 Any original mill varnish or coating thickness exceeding .031” should be removed, since this could prevent movement of particles to an imperfection.

7.0 Magnetization Technique

- 7.1 Reference State Energy’s SOP 5.0 (SEA), section 7.0 for application of circumferential magnetic field induced for the inspection of longitudinal orientated imperfections to the pipe body and coupling OD.
- 7.2 Only magnetize what you expect to complete in one shifts time.

8.0 Procedure

- 8.1 Reference State Energy’s SOP 5.0 (SEA), section 9.0 for application and procedure for the dry method magnetic particle inspection technique.
- 8.2 White light inspection of the outside for nonlinear imperfections is to be performed.
- 8.3 Dry powder application shall be light and even to ensure consistent coverage.
- 8.4 The tubular product shall be examined in quadrants. Through a full 360° rotation by quadrants.
- 8.5 Each quadrant shall be over lapped to insure complete coverage.

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8.6 All magnetic particle indications shall be circled with a paint marker for evaluation.

9.0 Post Inspection

9.1 Ensure all iron powder is removed from the surface of the pipe.

10.0 Records

10.1 Confirm the final count, tallies, rejects, good joints, and total joints are correctly reflected in the record.

10.2 Confirm all joints have been banded and stenciled properly.

10.3 Records of Thread Gage are to be kept for a minimum of 5 years.