CLOCK SPRING®

INSTALLER EXAM

Contact Information * Date: __

Required Fields *

*Company: _____

*Name: __

*Title: __

Home Address ☐ Work Address ☐

*Address: __

__

__

*City: __

*Phone: __

*Cell Phone: __

*Email: __

Evaluation for: ☐Trainer Certification ☐Trainer Re-Certification

Training Instructor: __

1. Applicant must have received instructions on installation procedures by a certified trainer and have completed “hands-on” training with a certified trainer to be eligible to take the written examination.

2. Revalidation of trainer certification is required annually (any 12 month period) from last certification. Revalidation may be accomplished by: (i) written examination or (ii) training refresher course with associated costs.

3. All written reference information (installation manuals, notes, specification sheets, etc.) may be used by the applicant during the examination.

4. Mail, fax or email examination for scoring to:

Clock Spring Company, L.P.
Training Department
621 Lockhaven
Houston, TX 77073
Office: 281-590-8491
Fax: 281-590-9528
sales@clockspring.com

5. A minimum score of 80% is required in order to attain certification or re-certification.

NOTE: The references to Clock Spring shall be abbreviated as "C/S".

True or False

T☐ F☐ Only certified installers may install C/S for pipe repair?

T☐ F☐ The C/S system can be used to repair cracks?

T☐ F☐ The C/S system may be installed over any type of pipe coating?

T☐ F☐ The C/S system can be used to repair leaks?

T☐ F☐ Gasoline or diesel fuel may be used as a solvent?

T☐ F☐ The C/S must extend a minimum of 2" beyond both sides of the defect area?

T☐ F☐ The C/S system is a permanent repair for external defects with up to 80% wall loss?

Multiple Choice

1. Which application is **NOT** suitable for the use of C/S?
   ☐ a. General Corrosion defects (80% max. through wall defect)
   ☐ b. "Blunt" mechanical defects
   ☐ c. Sharp gouges with stress concentrators
   ☐ d. Girth weld zone repair

2. The key steps to a proper C/S installation are:
   ☐ a. Pipe preparation
   ☐ b. Applying filler to the defect, all tented areas and the leading edge of the starter pad
   ☐ c. Putting on plenty of adhesive
   ☐ d. Attaching the C/S to starter pad and aligning the edges of the C/S
   ☐ e. Tightening down the C/S
   ☐ f. Sealing all edges
   ☐ g. All of the above
   ☐ h. A & B

3. Which of the following defect type(s) are permanently repairable with C/S?
   ☐a. Internal
   ☐b. External
   ☐c. Both

4. After the C/S is installed, the pipe will be restored to _____of original strength in the repair zone.
   ☐a. less than 80%
   ☐b. 80%
   ☐c. at least 100%

5. ___defects that are repaired with C/S are considered to be temporary.
   ☐a. Internal
   ☐b. External

6. _____is the standard for the degree of cleanliness for the pipe preparation.
   ☐a. Wire brush pipe surface
   ☐b. NACE #3 & an anchor pattern
   ☐c. Wipe with acetone

7. If you can not sandblast, which of the following is recommended to prepare the pipe for a C/S installation?
   ☐a. A hand grinder with 24-80 grit sandpaper or disk and solvent wipe with Acetone
   ☐b. Burn coating with gasoline
   ☐c. Only wire brush pipe surface
   ☐d. Cut coating off with a knife and solvent wipe with Acetone or MEK
   ☐e. None of the above

8. Coal tar may be used as a coating after the C/S adhesive has cured.
   ☐a. True
   ☐b. False

9. If the existing pipe coating is fusion-bonded epoxy, just abrade with sandpaper to create an anchor pattern and solvent wipe with Acetone or MEK before applying the C/S.
   ☐a. True
   ☐b. False

10. To determine the quantity of activator to mix with the adhesive and filler, the following information is required.
    ☐a. The type of existing pipe coating
    ☐b. The relative humidity
    ☐c. The ambient and pipe temperature
    ☐d. None of the above

11. The C/S adhesive will typically cure in approximately ____ hour(s).
    ☐a. ½
    ☐b. 1
    ☐c. 1/2
    ☐d. 2

12. Single wrap molds should be used to mold the filler over the girth weld?
    ☐a. True
    ☐b. False

13. When making a bend repair, the maximum gap allowed on the outside of the bend (extrados) between C/S's is _____ inch(s).
    ☐a. ¼
    ☐b. ½
    ☐c. ¾
    ☐d. 1

14. What is “edge effect”?
    - ☐ a. The nervousness experienced by the installer
    - ☐ b. The re-enforcement provided by the C/S extends beyond the physical edge of the C/S
    - ☐ c. The pipe section immediately beyond the physical edge of the C/S is weaker than any other section of the pipe
    - ☐ d. All of the above

15. The C/S filler material is_____.
    - ☐ a. Easily substituted with “Bondo” putty
    - ☐ b. Placed in the defect areas, all tented areas and on the leading edge of the starter pad.
    - ☐ c. A load transfer material which will, when cured, provide a load transfer path to the C/S
    - ☐ d. All of the Above
    - ☐ e. B, C & D

16. The C/S restores the _____ of the pipe.
    - ☐ a. Axial Strength
    - ☐ b. Compressive Strength
    - ☐ c. “Hoop” Strength

17. A pipe coating is recommended over the outside of a cured C/S.
    - ☐ a. True
    - ☐ b. False

18. Describe the purpose of the filler?

19. What can be done to increase the life of the activators by 3 months?

20. If the corrosion is extends 360° around the pipe, what is the repair procedure?

21. How does the C/S system reinforce the pipe and what failure mechanism does it prevent?

22. Describe the purpose of the two (2) black lines on the final wraps of the C/S sleeves?