

**APPENDIX S**  
**TRAINER TEST**

Contact Information

Required \*

Date:

\*Company:

\*Name: \*Title:

Home Address Work Address

\*Address:

\*City: \*State: \*Zip Code:

Country:

\*Phone: Ext: Fax:

\*Cell Phone:

\*Email:

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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.](#)  
621 Lockhaven Dr.  
Houston, TX 77032  
Fax: 281-590-9528  
[sales@clockspring.com](mailto: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 may be used to repair pipe with up to 80% wall loss subject to GRI Wrap?

T F The C/S system may be used to repair defects associated with general corrosion, dents and gouges?

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 To repair dents and gouges, all sharp edges must be removed?

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

T F A coal tar coating helps to cure the C/S adhesive?

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. Thumbnail test & anchor pattern
- b. NACE #3 & an anchor pattern
- c. NACE #1
- d. 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 hand grinder with 24-80 grit sandpaper or disk and solvent wipe with Acetone
  - Burn coating with gasoline
  - Only wire brush pipe surface
  - Cut coating off with a knife and solvent wipe with Acetone or MEK
  - None of the above
8. Coal tar may be used as a coating after the C/S adhesive has cured.
- True
  - 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.
- True
  - False
10. To determine the quantity of activator to mix with the adhesive and filler, the following information is required.
- The type of existing pipe coating
  - The relative humidity
  - The ambient and pipe temperature
  - None of the above
11. Prior to sealing the edges of the C/S with adhesive, all excess filler must be removed and sealed with only the adhesive
- True
  - False
12. The C/S adhesive will typically cure in approximately \_\_\_\_ hour(s).
- ó
  - 1
  - 1/2
  - 2
13. To determine if the adhesive cure is sufficient for applying a pipe coating, the adhesive must reach a minimum hardness of\_\_\_\_\_.
- 40 on a Shore A scale
  - 60 on a Shore A scale
  - 80 on a Shore A scale
  - Granite
14. When installing multiple C/S's on a straight section of pipe, the maximum gap allowed between C/S's is \_\_\_\_ inch (es).
- .
  - ó
  - 1
  - 2
15. Cracks in the girth weld may be repaired with C/S.
- True
  - False
16. When repairing corrosion associated with a girth weld, the following limits apply:

- a. Defect depth must not exceed 50% wall loss and may only encompass 30% of the pipe circumference
- b. Defect depth must not exceed 50% wall loss and may only encompass 50% of the pipe circumference
- c. Defect depth must not exceed 80% wall loss and may only encompass 50% of the pipe circumference
- d. None of the above

17. Single wrap molds should be used to mold the filler over the girth weld

- a. True
- b. False

18. When making a bend repair, it is recommended to pre-mark the c/s and install the first unit in the middle of the defect and work outwards.

- a. True
- b. False

19. When making a bend repair, the maximum gap allowed on the outside of the bend (extrados) between C/S's is \_\_\_\_\_ inch(s).

- a. .
- b. 0
- c. .
- d. 1

20. A standard width C/S can be used to repair any type of bend regardless of the bend radius.

- a. True
- b. False

21. What is "edge effect"?

- a. The nervousness experienced by the installer
- b. The re-reinforcement 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

22. The C/S filler material is\_\_\_\_\_.

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

23. The C/S restores the \_\_\_\_\_ of the pipe.

- a. Axial Strength
- b. Compressive Strength
- c. "Hoop" Strength

24. A pipe coating is recommended over the outside of a cured C/S.

- a. True
- b. False

25. The only two solvents allowed during preparation & pipe cleaning of the C/S are Acetone AND MEK.

- a. True
- b. False

26. In a girth weld repair, the defect zone shall not exceed the following:

- % pipe wall loss
- % of the pipe circumference

27. Describe the purpose of the filler.

28)

29. Explain why two C/S's can be butted up to each other and the pipe will still receive full reinforcement of the damaged area.

30. Can coal tar be used as a pipe coating after the adhesive has attained a full cure?

31. Why is it recommended to use a pipe coating over the C/S after it has cured?

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

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

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

35. What is the GRIWrap program?

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

37. Which temperature is used to determine the quantity of activator to mix with the adhesive or filler?

38. What dimensions are required to determine the width of the coils to be used in a bend repair?

