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練習問題

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1年間無料アップデート

Exam : API-1169

**Title : Pipeline Construction
Inspector Exam**

Version : DEMO

1. When inspecting a pipeline for handling damage before lowering-in, which of the following indicators should be a primary concern for the inspector?

- A. Condensation on the pipeline surface.
- B. Uniform coloration of the coating.
- C. Minor scratches on the pipeline surface.
- D. Presence of dirt and debris on the coating.
- E. Slight discoloration at weld joints.
- F. Visible metal exposure due to coating damage.

Answer: F

Explanation:

Visible metal exposure due to coating damage is a significant concern because it indicates that the protective barrier has been compromised. This exposure leaves the pipeline susceptible to corrosion, which can lead to significant integrity issues over time. Other indicators, such as minor scratches or discoloration, may not be as critical unless they also result in metal exposure. Inspectors must prioritize addressing any areas where the metal is exposed to ensure that repairs are made before the pipeline is lowered into the trench. This proactive approach helps maintain the pipeline's long-term integrity and operational safety.

2. The effectiveness of a cathodic protection system is measured by achieving a potential of volts versus a copper-copper sulfate reference electrode.

- A. -0.65
- B. -0.95
- C. -0.85
- D. -0.75
- E. -1.05
- F. -1.15

Answer: C

Explanation:

The standard criterion for determining the effectiveness of a cathodic protection system is achieving a potential of -0.85 volts versus a copper-copper sulfate reference electrode. This potential indicates that the pipeline has shifted to a more negative state, ensuring that it is more cathodic relative to its environment. Achieving this potential typically signifies that the pipeline is adequately protected from corrosion. This threshold is widely accepted in the industry and serves as a benchmark for assessing the performance of cathodic protection systems. Deviations from this value could suggest that the system is not functioning optimally, necessitating further investigation and adjustments.

3. Which of the following is a primary benefit of bend numbering and traceability in pipeline construction?

- A. Eliminates the need for quality control measures.
- B. Enhances the pipeline's visual appeal.
- C. Allows for random placement of pipeline sections.
- D. Increases the pipeline's flexibility to environmental changes.
- E. Provides detailed records for future inspection and maintenance.
- F. Reduces the need for skilled workers.

Answer: E

Explanation:

Bend numbering and traceability provide detailed records for future inspection and maintenance, which is a primary benefit in pipeline construction. This system enables each bend to be precisely identified and located, ensuring that any potential issues can be addressed efficiently. The records help inspectors and maintenance teams to quickly access relevant information, facilitating quicker assessments and repairs. Additionally, traceability supports compliance with regulatory standards by ensuring that all changes and movements of the pipeline sections are properly documented. This level of detail is crucial for maintaining the integrity and safety of the pipeline over its operational life.

4. When inspecting backfill operations, the use of water to achieve optimal compaction is always beneficial and should be encouraged.

- A. False
- B. True

Answer: A

Explanation:

Excessive use of water during backfill operations can lead to soil saturation, which undermines the compaction process. While moisture is necessary to achieve optimal compaction, too much water can reduce the soil's strength and lead to instability. The goal is to find the right balance, known as the optimum moisture content, where the soil achieves maximum density. This balance helps ensure the long-term stability of the pipeline installation. Therefore, indiscriminate use of water is not recommended and can be detrimental to the integrity of the backfill.

5. During the commissioning readiness checks, it is crucial to verify the position of isolation points to ensure system safety. The isolation point that ensures no cross-contamination between different fluid systems is known as a.

- A. Pressure relief valve
- B. Block valve
- C. Double block and bleed system
- D. Butterfly valve
- E. Gate valve
- F. Check valve

Answer: C

Explanation:

A double block and bleed system is designed to ensure complete isolation between different sections of a pipeline or between different fluid systems. It consists of two block valves with a bleed valve in between. This configuration helps prevent cross-contamination by ensuring that even if one valve leaks, the other will still provide isolation while the bleed valve can safely vent any leakage. Choosing the double block and bleed system for critical isolation points is key in maintaining system integrity and safety, especially during commissioning and maintenance activities.