

Digester Inspection Program Concerns

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Your digester inspection program must be tailored to specific needs and capabilities, generally determined by insurance company mandates and state regulatory agencies. However, with the recent activity surrounding the incident in Panama City, digester inspection programs are receiving minute scrutiny by OSHA.

The concern with digester vessel integrity is centered upon the vessel's current ability to withstand the pressures for which it was originally designed and built. During the years following installation most digesters have seen a pattern of wear and corrosion that has removed metal from the shell. This pattern thinning is the major concern. All vessels have a 'minimum' thickness requirement normally found in the U1 form supplied by the manufacturer with the vessel.

Various lining materials have been used to prevent further wear or corrosion of the shell. The linings include brick, alloy cladding, alloy overlaying and alloy flame or plasma spraying. The problem occurs with thinning of the shell behind these protective yet sacrificial coverings.

In addition many digesters, throughout their lifetime, undergo modifications designed to improve production rates. These modifications may entail a removal of a through-the-wall penetration or the installation of a new insert, for steam or liquor or a sampling device, for example. These 'modifications' change the original vessel's design characteristics and the vessel must undergo NDT testing to demonstrate integrity and its ability to perform at rated pressure.

Digester inspection programs are a critical process for assuring digester integrity. Following are some basic questions relative to a digester inspection program.

Documentation

- Does each digester vessel have its own document, data and history folder?
- Does each digester have an U1 (original) or U1A (calculated) form?
- Is there documentation of the current thickness of the shell, at various locations?
- Are records present that substantiate any repairs, modifications or revisions?
- Is there sign-off by the AI (authorized inspector) for the repairs, testing?
- Are there records supporting the validity of the repairs, personnel, procedures?
- Is there a record of each hydro test? Witnessed by an AI?
- Is there a record of the relief system check?
- Is the historical record of past inspections? Witnessed by an AI?

Process

- Is the AI approved by the state?
- Is the procedure employed by your repair agency approved by the state?
- Has the state approved your relief system inspection and check?
- How often is the digester inspected? Are you inspecting the system, i.e., shell, lining, steam system, liquor fill system, etc?

Digesters are an integral piece of your production capacity. The vessel's system integrity is critical to your continued operation. That integrity is dependent upon an inspection program which ensures that the vessel and system will provide uninterrupted and safe service. Some repairs and modifications will be necessary, the inspections and changes must be documented.