

TOTAL INDUSTRIAL SOLUTIONS

FIRE PROTECTION SOLUTIONS FOR THE OIL & GAS INDUSTRY



“Total Dry Deluge Testing”

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“Total Dry Deluge Testing”



The volume of water used in the traditional wet testing of a firewater deluge system can cause water damage to electrical/production equipment, cause an increase in the rates of corrosion, require a shut down in production and in some instances requires the need to dispose of contaminated water. Regulations require deluge functionality to be tested annually. To eliminate these concerns, we have implemented using the **Patented Siron Dry Deluge Testing Technology**.

To extend the life of a deluge system and the production/electrical equipment contained within the protected areas, we test deluge systems using the **Siron Patented Dry Deluge Testing Technology**. This patented technology uses a vapor generator to blow **dense vapor** through the deluge pipework to replicate the properties of water. Periodical testing utilizing this technology has proven equal to, or better in comparison to full wet tests (while meeting the requirement standards of NFPA and wet tests) but also, dramatically reducing impact and costs because **no - water** is used on/in the equipment area.

Wet Test Disadvantages

- Operational down time during water flow test and clean up
- Growth of MIC (Micro biologically Influenced Corrosion)
- Blockages of piping and spray heads
- Excessive firewater discharge can overflow the sump/drain tanks oil & water separators tanks
- Can cause the need to dispose of contaminated wastewater for environmental reasons
- Freezing of firewater can be dangerous to operations in Arctic conditions
- Risk of unplanned business loss and plant shut-down due to water ingress

Dry Deluge Testing Advantages

- Testing is safer and considerably less expensive.
- The testing can be performed in a segmented way so that operations/production can remain uninterrupted.
- The preparation & clean up work for Dry Deluge Testing is considerably shorter than for regular wet tests.
- Any leakages in the flow pipes are easier to spot.
- The production/electrical equipment is protected from any water contact during testing and remains in better condition.
- Absence of wastewater to be processed/disposed of after completion of testing

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Terminals



Tank Farms



Refineries



Offshore



Chemical



Power Generation



Since the introduction in 2010 Siron Dry Deluge Testing has been conducted on deluge systems for multiple clients globally.

Scope-The 110v/240v vapor generation unit heats up an internal element to heat the test fluid which then produces a water based vapor. A 2” hose is connected immediately downstream of the deluge valve via a check valve on the deluge system that is to be tested. Once at temperature the unit fan is initiated allowing the water based vapor to migrate downstream of the deluge system ultimately exiting the deluge nozzles. While migrating downstream any corrosion or particulate within the system is quickly identified by erroneous spray patterns coming from the nozzles. Any anomalies found are investigated by using a portable borescope camera. Damaged nozzles, blockages and leaks can be quickly identified. Damaged nozzles are one of the most common failure modes on any fire protection system and can affect the density application rates or in worse cases can affect the overall hydraulic balance of the deluge system.

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Dry Deluge Testing is a very simple, cost effective operation. Two operators can do the complete test in a few days. Exact timing will depend on the scale of the deluge system, but typically a single deluge system can be tested in less than one shift regardless of the size.

All equipment needed, can be shipped on a pallet and has a small footprint.

In this container is a mobile workshop with equipment and spare parts. The only other client input required on site is a 110V, 240V or 380V power outlet.



The actual Dry Deluge Testing machine is a black ABS flight case of 28” x 20” x 16” with a weight of approximately 155 lbs.



Additional equipment are the hoses used, a flange, the vapor liquid and in some cases a toolbox.



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Guidelines



Dry Deluge Testing is also according to the following NFPA Standards.

NFPA 25 Paragraph 11.3.2.3

Where discharge from the system discharge devices would create a hazardous condition or conflict with local requirements, an approved alternate method to achieve full flow conditions shall be permitted. (Full Flow Test to be achieved through a Test Header and tests shall be conducted to ensure that the foam-water system(s) responds as designed, both automatically and manually.)

When tested wet or alternative method nozzles should always be checked on:

NFPA 25 Paragraph 11.3.2.6.1

The discharge patterns from all of the open spray devices shall be observed to ensure that patterns are not impeded by;

- plugged discharge devices and to ensure that
- discharge devices are correctly positioned and that
- obstructions don't prevent discharge patterns from covering surfaces.

NFPA 25 Paragraph 11.3.2.6.2

Where obstructions occur, the piping and discharge devices shall be cleaned and the system retested.