COTECH SPRINKLER
LIVE LINE INSULATOR WASHING
“TERGISOL® - SYSTEM”
In today’s world of ever increasing power demand from public and private sector alike, it is vital that electricity supplies are secure and always available. User will no longer tolerate loss of supply with its consequent inconvenience and economic losses, power should be there all the time every time it’s needed!

The salt of the sea, the sand of the desert, the air pollution which every developed society produces all settle on exposed high voltage insulators producing leakage currents with risk of flashover and consequent loss of supply.

Such residual help the superficial discharge and load a very quick wear out of the insulator.

The experience, shown that the most effectives way of evading such trouble is still the insulators cleaning, made manually, in order to remove the residual from the surface of the insulator.

This operation require skill labourers as well as the out of services electricity supply with consequent uneasiness for the customer and operator, and heavy cost of maintenance.

The loss of supply time to switch off to clean insulator in an even bigger blow to profitability and a loss of credibility of the supply company. Electricity supply contracts may be broken and penalties incurred, and loss of industrial production may lead to an action for damages and the utility itself loses income and profit.

The problem has been laid with the first vital condition that the cleaning of the insulator has to be made with the electrical equipment under tension.

Consequently the studies have been directed toward the use of an live washing system to guarantee the supply of high tension electric station submitted to pollution.

We have therefore decided to go on with research and it will be particularly necessary:

· to look into the efficiency of the washing varying the water conductivity
· to obviate the need for large pumping plant and pipe system the insulator or washed in groups or zones
· completed the washing within 30 to 60 seconds
· safe system, reliable and quick in operation thus enabling even the largest of substation to be washed within a short period of time, which may be a critical factor on same sites
· system works by the controlled application under pressure of discrete droplets of low conductivity water on to surface of an energised insulator, without creating a flashover
· study of a particular type of spray pattern nozzle, for minimize water usage whilst max using washing efficiency in which are stressed some proprieties that allow the direct usage on the equipment under tension and make a very quick and a effective cleaning action

Live Line Insulator Washing Equipment has been developed through exhausting research apparts in model substation to allow customer to carry out “more efficient”, “safer” and “more economical” TERGISOL® Live Line Insulator Washing.

Today, Ascotech Sprinkler TERGISOL® Live Line Insulator Washing Equipment, are installed in more than 50 station of salt problem, distributed in Italy and world and givin highly satisfactory performance. Installing a TERGISOL® LLIW System will increase the integrity and availability of your transmission system by helping to protect your valuable investment from pollution.

TERGISOL® - ASCOTECH Live Line Insulator Washing System have been specifically designed to significantly reducer the risk of flashover by efficiently cleaning the polluted insulators when they are still live. The system is proven for use on electricity lines carrying up to 500.000 volts of current.
Above: 230Kv suspension tower being washed under live condition.

Right: Typical spray ring on Tension tower.

Right: 230Kv suspension tower being washed under live conditions.

Above: 230Kv tower washing using small mobile pumping unit and client’s water bowser.

LIVE LINE INSULATOR WASHING FOR OVERHEAD TRANSMISSION LINE
In today’s world of ever increasing power demand from public and private sectors, alike, it is vital that electricity suppliers are secure and always available.

ASCOTEC SPRINKLER manufactures a range of hotline insulator washing equipment designed to prevent power outage by providing high pressure cleaning of substation, distribution and transmission insulator.

Dust, smog, salt or other pollution collect on high voltage insulator. These materials come became conductors of electricity, which will reduce the effectiveness of the insulator and cause problem in electric service such as short circuit.

During the dry season, high voltage can require cleaning as after as every two months, depending upon the amount of rainfall.

ASCOTEC SPRINKLER insulator washer truck have been specifically designed to significantly reduce the risk of flashover by efficiently cleaning the polluted insulator when they are still live.

SOLUTION:
Design a truck mounted high pressure washer specifications:

SPECIFICATIONS:
As hydraulic driven water pump         mod. 7525
Pressure                                               65 bar
Flow                                                    240 LPM
Temperature                                        ambient
Fluid                                                    water

BENEFITS:
· Compact, lightweight mobile unit accommodates the many set-up necessary each day.
· Dependable, low maintenance operation provide the continuous service needed for the frequent insulator washing.
· Fast clean done without interruption of electrical services.

STANDIN FEATURES:
· Stainless steel water tank with 6000 lt. Capacity.
· Hydraulically extended, telescopic booms.
· Operator’s work station with fully adjustable seat.
· Single handle “joystick” controller for boom operation.
· Single handle “joystick” controller for wash monitor operation.
· Automatic low water shutdown.
· Water resistivity monitor.
· Front and rear straight – down outriggers, stay within mirrors.
· Outrigger motion arm.
· 375° non-continuous rotation.
· Side water reels with 15 mt. Of ¾" hose.
· Stainless steel plumbing for water system.
· Tool storage compartment.

AVAILABLE OPTIONS:
· Ratio control system.
· Hand held wash gun.
· Increased flow nozzle.
· Auxiliary hose.
OPERATION:
Dust, smog, salt or other pollution collect on high voltage insulator. These materials come become conductors of electricity, which will reduce the effectiveness of the insulator and cause problem in electric service such as short circuit.

During the dry season in parts of middle east, high voltage insulator can require cleaning as every two months, depending upon the amount of rainfall.

Any conventional means of cleaning this residue from the insulator would mean shutting down the lines and interrupting services to homes, offices, school and businesses.

Tower washing using small mobile pumping unit, connected by flexible hose to fixed washing ring around suspension insulator.

PROBLEM:
To clean insulator without interruption of electrical service.

SOLUTION:
Design trailer mounted insulator washer.

SPECIFICATIONS:

AS PUMPS MODULE…………………………………………..…6020
Pressure.................................................................38 bar
Flow..............................................................167 LPM
Temperature.......................................................Ambient
Fluid.................................................................Water
Duty Cycle.............................................................Intermittent
Drive...............................................................Diesel engine 6000 lt.

BENEFITS:
- Compact, lightweight mobile unit accommodates, the many set-up necessary each day
- Dependable, low maintenance operation provide the continuous service needed for the frequent insulator washing.
- Fast clean done in just 15 second
- Economical cleaning done without interruption of service

Time for set-up must be kept to an absolute minimum.
A unit can be set-up quickly, which is critical, considering the many hundreds of set-up necessary each day, fo each trailer.

Tanks to a unique nozzle developed by the ASCOTECH SPRINKLER engineers, an insulator can be washed in only 15 second from just one location without any power interruption.
Typical arrangement of pipework and spry rings in transformer bay. Pipework can be arranged above or below ground to suit individual requirements.

**List of reference**

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“Exsample of live line insulator washing system”

PAKISTAN
rights 500Kv. support being washed under live condition

QATAR
below 166Kv. high level insulator being washed under live condition

ENICHEM RAVENNA
below and below left 125Kv. circuit breakers and post insulator washed under live condition
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"Turn key" fire fighting system