

APPLICATION NOTE

Nuclear Industry- ELECTROMAGNETIC FLOWMETER – BY FLOWLINE

BACKGROUND:

Nuclear fuel is stored in large ponds of water which forms a radioactive proof barrier and provides cooling for the fuel. Each reactor has a stored supply of fuel ready for use. In each pond the water is circulated and is fed through a resin scrubber package that has a strong affinity for radioisotopes. This resin keeps the water clean of any free radioactive particles.

THE PROBLEM:

Contractors to the Nuclear Energy Suppliers were tasked with finding a detection system for ensuring that the resin does not escape in to the pond.

If the resin becomes free from the scrubbing package it can do serious damage to the stored fuel. As the scrubber is submerged in the pond the problem was to find a solution that would have a recognized resistance to radioactivity and it had to be IP68 as the whole scrubbing package was to be submerged.

FLOWLINE'S METERING SOLUTION:

Flowline offered their MAGFLO MAG 6000 panel mounted converter and MAG3100 Solution, with a meter measuring the flow into the scrubber and another measuring the flow out. Any difference between the two flows would indicate a leak with the scrubber package and would raise an alarm requiring engineering attention.

This combination provided an IP68 sensor on the inlet and outlet, with a neoprene liner that has a know radiation tolerance and cabling to a remote panel to asses the flow in and out of the package.

The MAG3100 is a magnetic meter for industrial applications, offering many different options of wetted parts for various applications. It has a high degree of accuracy and is widely used by processing and manufacturing companies.

flowline
SPECIALISTS IN FLOW MEASUREMENT

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Further Information



For Further information on the MAGFLO range of Flowmeters contact us on

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EQUIPMENT DESCRIPTION:

MAG 5000 Flow Converter
With plug and play commissioning; Self-diagnostics with error reporting; Bi-directional flow; Flow limit switches; External input and empty pipe detection. Analogue 0-20mA or 4-20mA, Digital Output for Error signal, Flow direction of Flow limit switches
System Accuracy 0.5% (reference conditions)
Housing IP67 – “Plug in” module in Polyamide
MAG3100
Specifications
Size (mm) DN 15-2000
Connection Flange
Pressure (bar) Max. 100
Temperature (°C) -40 to 180
Liner Neoprene,
Electrodes 316 with earthing electrode
Enclosure
IP 67 / 68