TRITIUM IN WATER MONITOR

REAL TIME CONTINUOUS

Model # SSS-33M81
Model # SSS-33M82
Model # SSS-33M84

FEATURES:

•REAL TIME - OFFLINE
•CONTINUOUS MONITORING
•NOT INFLUENCED BY OTHER NUCLIDES
•NO LIQUID SCINTILLANT REQUIRED
•EASY CALIBRATION
•SENSITIVE TO 2,000 pCurie/l Tritium
74 Bq/l
•NEW STATISTICAL SIGNIFICANCE DISPLAY

APPLICATION:

MEETS EPA DRINKING WATER LEVELS
MONITOR LEAKS IN CANDU TYPE REACTORS.
MONITOR TRITIUM CONTAMINATION IN GROUND WATER.
MONITOR LABORATORY OR PLANT LIQUID WASTE STREAM.

SSS-33M81	SSS-33M82	SSS-33M84
10,000 pCi/l (370 Bq/l) in 7 days	5,000 pCi/l (185 Bq/l) in 7 days	2,000 pCi/l (74 Bq/l) in 7 days
20,000 pCi/l (740 Bq/l) in 24 hours	10,000 pCi/l (370 Bq/l) in 24 hours	5,000 pCi/l (185 Bq/l) in 24 hours
40,000 pCi/l (1480 Bq/l) in 12 hours	20,000 pCi/l (740 Bq/l) in 12 hours	10,000 pCi/l (370 Bq/l) in 12 hours
Display update every 2 minute	Display update every 2 minute	Display update every 2 minute

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DESCRIPTION: This system consists of a small light tight detector assembly which is interfaced with the sample via male 1/4" pipe fittings with the readout and processor assembly via two BNC connectors.The sample is passed through a deionizer and filter and thence to the detector assembly, where it is viewed by a matched pair of photo multiplier tubes.

The table top or rack mounted processor and display portion of this system conditions and analyzes the output from the photo multiplier tubes by pulse height and coincidence, thereby permitting the system to eliminate counting most background (noise) counts.

SSS-33M81 includes unique statistical significance display.

This function rates strength of the data: Significance **HIGH**, **LOW**, or **NOT SIGNIFICANT** Thereby preventing most false positives or negatives.

* SSS-33M8 users, see ``Deionizer and Filter'' specification (SSS-33M8/D and SSS-33M8/F).

MEASURING TRITIUM IN WATER AND OIL MIXTURES

Strategies

Tritium is radioactive hydrogen, and hydrogen atoms regularly jump or exchange between different adjacent molecules.

In a mixture of normal water mixed with tritiated oil, both components will, over time, share the tritium equally.

In LIQUID Samples, this allows a separation strategy, in which we,

1. Pull a sample from the mixture
2. Run this sample through a oil-water separator
3. Collect the relatively clean water
4. Pull this water into the SSS-33M81 tritium measurement flow cell
5. Get a good reading
6. Without contaminating or degrading the cell

In GASEOUS Samples, the same principles apply.

1. We employ a vapor separation system
2. Use a PTG-9 tritium measurement Ion Chamber to make the measurements.

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SPECIFICATIONS:

•**Display Update:** Every 2 minutes. All Monitors
•**Tritium Sensitivity:** See chart
•**Range:** 0-100 µ Ci/liter – other ranges optional higher or lower.

Flow Rate: Minimum - 1 ml/min
Maximum - 100 ml/min
•**Sample Temperature:** Standard - < 80° F (liquid); (optional - to 115° F)
•**Ambient Temperature:**
Detector - < 80° F (**Optional** - to 115° F)
Readout - < 115° F
•**Lead Shielding:** 1" thick is standard
2" thick is optional
•**Dimensions:**
Detector - 4"dia x 19"Long
Readout - 10"H x 16"L x 19"W
•**Weight (Standard Unit):**
Detector Housing - 20 lbs.
Readout Housing - 40 lbs.
Shipping - 90 lbs.
Optional shielding – 65 lbs.
•**Display:** Digital 5 digits, plus overflow (LED)

OPTIONS

Data logging hardware; records up to 5 yrs readings
Remote readout via Ethernet
Network reporting and communication via the ORO overdrive network
Model SSS-33M81 requires occasional interruption of sample to allow 24 hour background count.

MODEL SSS-33M82- same as above but in **SSS-33M82** there are 2 flow through detectors. The first one looking at clean "baseline" water and making a "Background count" and the second detector is measuring the potentially contaminated sample water. Then every 24 hours a valve automatically sends the baseline water through the second detector to wash it out and get a new baseline count, and the valve sends the sample water through the first detector to make sure the sample water is continuously monitored so not even a short term (higher level) Tritium release can go undetected.

MODEL SSS-33M84 – achieves increased sensitivity due to increased detection volume, and shielding as well as advanced system design.

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