

PASSIVE GASEOUS EFFLUENT MONITORING SYSTEM - PEGASUS

Easy and Reliable Radiological Impact Evaluation

Framatome's PEGASUS system enables measurements of radioactivity released during operation of the filtered containment venting system.

Challenge

Reliable and representative measurements of the radioactivity released during operation of the filtered containment venting system in case of severe accidents are required for short-term emergency response measures as well as for the correct assessment of long-term environmental impacts.

Solution

Framatome's Passive Gaseous Effluent Monitoring System (PEGASUS) measures and records the radioactive releases during operation of the filtered containment venting system. The results can be used, as a basis for implementing emergency response actions, for assessing the potential risk to the environment and for documenting the development of an accident. The PEGASUS system can be retrofitted to installed systems and is available in two versions.

The **PEGASUS Noble Gas Detection Unit (PEGASUS I)** is installed directly at the vent line and measures the high dose rates that occur during the early stages of a venting operation. Its measurements allow online monitoring of noble gas releases. The data are stored in non-volatile memory and allow online determination of the released radioactivity.

The **PEGASUS Sampling Solution (PEGASUS II)**, is equipped with aerosol and iodine samplers in case a detailed analysis is required after the operation of the filtered containment venting system. PEGASUS II serves as a record evidence for the authorities and enables differentiation between unbound, particle-bound, or organically bound iodine. The sampling flow is generated by a gas-propelled jet pump that has no rotating parts and does not require electrical power.

Both systems can be provided with an uninterruptible, battery backup power supply to provide up to up to 72 hours of independent power for the detection and analysis components.

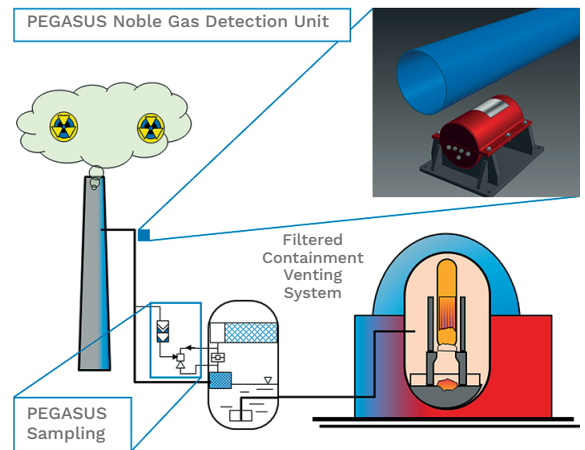


Illustration of a PEGASUS installation

Technical information

Fission Product	Isotopes	Main Form in Containment Atmosphere
Xenon	Xe-133, Xe-133m, Xe-135, Xe-138	Gaseous
Krypton	Kr-85, Kr-85m, Kr-87, Kr-88	Gaseous
Iodine	I-131, I-132, I-133, I-134, I-135	Gaseous molecular iodine Gaseous organic compounds, Aerosol-bounded
Cesium	Cs-134, Cs-136, Cs-137, Cs-138	Aerosol-bound

Passive Concept

- Low power consuming electronics
- No rotating pump
- No need for cooling water

Customer benefits

- Reliable rugged and cost-effective design
- Meet new regulatory requirements
- Installed references in various nuclear power plants
- Recording of evidence for the authorities
- Basis for an early notification of neighboring States

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