# HELGESON SCIENTIFIC SERVICES (HSS)


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# Table of contents

# Helgeson Scientific Services (HSS)

Helgeson Scientific Services (HSS) designs and manufactures advanced radiation monitoring systems focused on personnel safety, facility protection, and waste control. Their portfolio includes whole-body monitors, portal detection systems, and waste management solutions—each developed to support the safe handling of radiological materials in critical environments.

**View all products from Helgeson Scientific Services (HSS)**

**Partner website**

HSS delivers systems that combine technical accuracy with ease of use. Their body and portal monitors enable fast, effective screening of individuals and vehicles, minimizing the risk of contamination and ensuring regulatory compliance for nuclear facilities, recycling centres, and high-security operations. Meanwhile, their waste monitoring solutions help organizations identify and control radioactive materials in scrap, waste, and recycling streams—reducing environmental risk and improving accountability.

From personnel protection to material control, HSS provides the tools that help maintain safety and operational integrity in high-stakes environments. Strengthen your radiological safety framework with trusted, field-proven systems from Helgeson Scientific Services!

# BODY MONITORS

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# HS-BEXA – Alpha Beta hand feet monitor

The HS-BEX monitors are multitasking equipment designed for the detection and measurement of radiation ALPHA and BETA on the hands and feet of potentially exposed personnel through a fully automatic operation.

The system can be configured to have 3, 4, 6 or 7 detectors depending on the application and budget. An equipment that complies with the highest quality standards, designed and assembled in Spain.

Radiation Detection › Body Monitors

# HS-BEX – Beta gamma hand feet monitor

The HS-BEX monitors are multitasking equipment designed for the detection and measurement of radiation BETA and GAMMA on the hands and feet of potentially exposed personnel through a fully automatic operation.

The system can be configured to have 3, 4, 6 or 7 detectors depending on the application and budget. An equipment that complies with the highest quality standards, designed and assembled in Spain.

# DIYS – Bed type whole body counter for internal dosimetry

## Overview:

Compact and easy to operate, the Helgeson “Do-it- Yourself Whole Body Counter” offers a low cost means of ensuring safety for personnel at nuclear facilities, laboratories, or hospitals. The “Do-It-Yourself Whole Body Counter” measures the total body burden of gamma emitters and also approximates where the emitters are deposited within the body. The Helgeson “Do-It-Yourself Whole Body Counter” employs a scanning geometry, long recognized as the geometry which produces the lowest errors due to non-uniform source distribution. Its positional response is far superior to any chair or organ counter. Helgeson supplies analytical software, proven superior over many years, which provides qualitative and quantitative analysis of radioactive depositions. Our graphical representation of the data allows a technician to determine the quality of the evaluation.

## Features:

- **High-Accuracy Scanning Geometry** – Utilizes a proven scanning design that minimizes errors caused by non-uniform source distribution, ensuring highly accurate measurement of gamma emitters throughout the body.
- **Comprehensive Analysis Software** – Comes with advanced analytical software that provides both qualitative and quantitative evaluation of radioactive depositions, supported by clear graphical data representation for precise interpretation.
- **Compact and User-Friendly Design** – Designed for easy operation and installation, offering a cost-effective solution for monitoring personnel safety in nuclear facilities, laboratories, and hospitals.

# HS-ABOMO – Alpha beta gamma portal for personnel monitoring

## Multitasking two-step device

**The HS-ABOMO unit is a multitasking two-step device designed for the detection and measurement of radioactive contamination, ALPHA, BETA and GAMMA, on potentially exposed personnel.**

It has been specifically designed for controlled areas. It includes up to 31 detectors, which work autonomously and independently, allowing to perform simultaneous measurements with different alarm levels.

The user can identify exactly in a different channel the beta cps and gamma cps since the detectors are different for each type of radiation. Its operation is fully automated. The equipment has sensors that detect when a person enters the portal, interrupting the background acquisition and initiating automatically a thorough examination of the subject.

# HS-BOMO – Beta gamma portal for personnel monitoring

## Multitasking two-step device

**The HS-BOMO unit is a multitasking two-step device designed for the detection and measurement of radioactive contamination, BETA and GAMMA, on potentially exposed personnel.**

It has been specifically designed for controlled areas. It includes up to 31 detectors, which work autonomously and independently, allowing to perform simultaneous measurements with different alarm levels.

The user can identify exactly in a different channel the beta cps and gamma cps since the detectors are different for each type of radiation. Its operation is fully automated. The equipment has sensors that detect when a person enters the portal, interrupting the background acquisition and initiating automatically a thorough examination of the subject.

# HS-RAM – Gamma portal for personnel monitoring

## Completely autonomous equipment

**The HS-RAM monitors are completely autonomous equipment designed for the detection and measurement of gamma radiation on exposed workers.**

They are designed to perform high speed measurements, allowing fast counting of a high volume of nuclear power plant workers. With different versions that customize the number of detectors, size, barriers, etc. the HS-RAM is without doubts the most flexible gamma portal for fast screening of personnel.

# QUICKY – Whole body counter for internal dosimetry

**Helgeson “Quicky” In-Vivo Counter is designed to complement any health physics program which includes routine whole body counting.**

The “Quicky” is used to rapidly screen personnel or it can be used with a fixed counting time to obtain more precise results. The printed results provide the documentation for subject identification, counting time and date. Results are reported in Becquerel or Nano curies. The “Quicky” can reduce your regular counting requirements and costs significantly.

### User-friendly software

Software for the “Quicky” is “user-friendly” with a menu format which provides a variety of standard and optional operating programs. System performance software includes a Quality Assurance program which checks the electronics of system, reporting any errors to the operator. An Energy Calibration program allows the gains of the individual detector-amplifier systems to be adjusted to uniformity and conformity to the design parameters.

- Data Acquisition, continuous spectral display.
- Data Analysis with graphs of original data and residuals.
- Calibrations: Energy vs. Channel and Efficiency, FWHM vs Channel.
- Parameter Modification for complete control: acquisition, analysis & miscellaneous parameters.
- File Maintenance.
- Dose calculating software based on ICRP recommendations and approved by the Spanish Nuclear Council.

# PORTAL MONITORS

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# HS-VGAM – Portal vehicle for scrap yards

**The HS-VGAM unit is an automated multitasking device, designed for the detection and measurement of gamma radiation on potentially exposed material, transported in vehicles.**

It is particularly suitable fort he detection of radioactive sources in loads of raw materials, scrap and waste materials.

← Back to partner



# HS-PORT – Portable Gamma Portal monitor for personnel and vehicles

**The HS-PORT has been designed for the detection and measurement of gamma radiation on potentially contaminated personnel, vehicles, etc.**

It has a very fast deployment (one person in 2 minutes) and can be used in several applications like emergency response, monitoring of critical facilities, monitoring of events like concerts, sport events, etc. The system is operated remotely with a mobile phone or laptop without any additional cable connection.

# HS-PoNaI

- Detectors:
  - NaI scintillation detector (can be customized: CsI, LaBr, CeBr, etc.)
  - Number of detectors: 1 detector (can be upgraded to 2 detectors)
  - Detector size: 4x4x16 inches (3x5x16” also available)
  - Energy range: 40 keV – 3 MeV
- Electronics:
  - Plug-in MCA with 2048 channels
  - Automatic gain stabilization
- Other features:
  - PC with Windows 11
  - Software for isotope identification and quantification
  - Spectrums displayed in real time, can be saved to be analyzed later
  - GPS
  - Hard disk memory up to 125 Gb
  - Remote connection with tablets, PCs, etc.
  - Dimensions: 730 x 160 x 170 mm approx.
  - Weight: 25 kg
  - Power: 220 – 115 V , 10 – 36 VDC
  - Battery bank to work autonomously
  - IP67

HS-PoNaI is a fantastic solution for a quick and efficient **in-situ isotope identification** in different applications. It is a strong and customizable equipment with a very simple and intuitive operation thanks to its automatic isotope identification and quantification software. It is equipped with a 4 liters NaI detector (4x4x16”), and all electronics are installed inside a PeliCase providing IP67 protection. Communication can be done remotely via tablet or another device.

# WASTE & RECYCLING MANAGEMENT



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← Back to partner

Radiation Detection › Waste & Recycling Management

# HS-DRUM – Waste characterization system for drums

## Overview:

The HS-DRUM is a specialized scanning and measurement system designed to perform waste characterization of drums, particularly in the context of radioactive or nuclear waste management. It's engineered to evaluate the activity distribution inside waste drums, enabling operators to ascertain how radioactivity is spatially distributed within the waste matrix.

## Features:

- **Multi-Detector Configuration** – Equipped with HPGe and NaI detectors for precise gamma spectroscopy and a dose rate meter for comprehensive radiation assessment.
- **Rotating Drum Scanning System** – Uses a motorized rotating table and roller conveyor for accurate, uniform scanning of 180 L to 400 L drums.
- **Lead Collimation & Calibration Dummies** – Incorporates lead collimators for improved spatial resolution and standardized calibration drums for system accuracy verification.
- **Advanced Analytical Software** – Includes modules for spectrum analysis, calibration, quality assurance, and report generation, with optional Monte Carlo-based theoretical calibration.

← Back to partner

Radiation Detection › Waste & Recycling Management

# HS-FRM – Free release monitor for drums, containers and big bags

## Overview:

The HS-FRM is a free release monitor to be used with different types of waste like drums, containers and big bags.

It is a chamber shielded from the influence of external natural radiation and consisting of detectors in each of the 4 side panels, ceiling and floor.

This allows to perform a fast and efficient detection and quantification of radiation from the waste present inside the chamber.

## Features:

- **Comprehensive Detector Coverage** – Equipped with detectors on all sides, including top and bottom, ensuring full 3D monitoring of radioactive materials within drums or containers.
- **Heavy Lead Shielding** – Features thick lead shielding on all walls, floor, and ceiling to minimize background interference and enhance measurement accuracy.
- **Fast and Sensitive Detection** – Provides rapid scanning with very low minimum detectable activity (MDA), allowing accurate results in just a few minutes.
- **Advanced Analytical Software** – Includes intelligent software for isotope identification, background correction, calibration management, and detailed reporting.

← Back to partner

Radiation Detection › Waste & Recycling Management

# HS-OTM – Object and tool monitors for objects monitoring

## Overview:

The HS-OTM is a monitoring system designed to detect and measure gamma (and optionally beta/gamma) radiation in objects and tools that may have been exposed. It is suited for screening anything from small items up to larger objects (like drums or big bags). The system is configurable in terms of detector number, shielding, and chamber size, so it can be tailored to different workflows. It comes with built-in software for control, alarm, calibration, and data handling.

## Features:

- **Multi-Detector Configuration** – Equipped with up to 10 gamma or beta/gamma detectors for high detection efficiency and comprehensive object monitoring.
- **Customizable Chamber and Shielding** – Adjustable chamber size and lead shielding thickness to suit various object types and ensure accurate measurements.
- **Smart Control and Safety System** – Features a touchscreen interface, automatic measurement timing, presence detection sensors, and visual/audio alarms.
- **Advanced Data Management Software** – Includes modules for calibration, verification, data logging, remote operation, and report generation with ISO-compliant detection limits.

# Complete storage and treatment plant for NORM wastes

## Overview:

The Complete Storage and Treatment Plant for NORM Wastes is a fully integrated facility designed for the safe handling, treatment, and storage of Naturally Occurring Radioactive Material (NORM). Developed by Helgeson Scientific Services, the plant provides a complete solution for industries such as oil and gas, mining, and manufacturing, where NORM waste is commonly generated.

## Features:

- **Comprehensive Treatment Options** — Includes multiple treatment units such as descaling, centrifugation of sludges, incineration, and solidification to address various forms of NORM-waste.
- **Integrated Storage and Disposal** — Besides treating the waste, the plant is engineered for safe storage and final disposal of NORM materials.
- **Custom Plant Design by Helgeson** — The facility is designed and built by Helgeson Scientific Services to meet regulatory, safety, and handling requirements for naturally occurring radioactive materials.
- **End-to-End Waste Handling** — From generation (industrial, mining, oil & gas, etc.) through treatment and storage, the plant supports the full process chain for NORM waste management.

# Descaling system for NORM waste

## Overview:

The Descaling System for NORM Waste is designed to remove radioactive scale deposits from pipes and metal equipment typically used in oil & gas operations. It uses high-pressure water to clean both the interior and exterior surfaces of tubulars and other metallic parts. The system is partially automated (for pipe decontamination) and also includes a manual cleaning booth for larger or complex metal equipment. The unit is transportable for on-site campaigns, minimizing the need to move large contaminated items to centralized cleaning facilities.

## Features:

- **High-Pressure Water Cleaning** – Utilizes water jets up to 1400 bar to efficiently remove radioactive scale from both internal and external pipe surfaces.
- **Automated and Manual Operation** – Features a fully automated cleaning cabinet for tubulars and a manual booth with a high-pressure gun for large or irregular equipment.
- **Closed-Loop Water Treatment System** – Recycles and treats used water without chemical additives, converting waste into a solid matrix for safe disposal.
- **Portable and Customizable Design** – Built for on-site operation with adjustable capacity to handle different pipe diameters and lengths as needed.

# Soil segregation unit

## Overview:

The Soil Segregation Unit by Helgeson is a compact, transportable system designed to analyze, classify, and segregate contaminated soil based on its radioactive content. Housed within a 20-foot container, the unit is ideal for on-site decontamination and remediation projects in industries such as nuclear, mining, and environmental management.

It automatically measures radiation levels in soil samples and separates them into appropriate waste categories (clean, low-level, or contaminated), optimizing waste treatment and minimizing disposal costs. The system supports multiple detector types and includes safety monitoring features for reliable and efficient operation in the field.

## Features:

1. **Flexible Detector Options** — Supports multiple detector types (plastic scintillators, inorganic scintillators, and HPGe) depending on whether you are monitoring alpha, beta, or gamma radiation.
2. **Modular Analysis Cabinet** — Built in a 20 ft container for easy transportation; can be configured with up to two “analysis trains” to double throughput.
3. **Automated Soil Screening and Segregation** — The system automatically segregates soil/material into big bags based on contamination, helping speed up decontamination or waste management workflows.
4. **Operational Safety & Monitoring** — Equipped with aerosol monitoring (for airborne alpha & beta emitters), CCTV to observe internal processes, and designed for easy installation and operation.