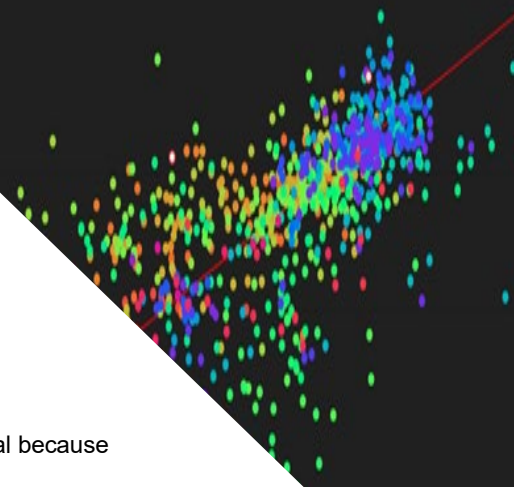


Scaling Factor Modeling



The Westinghouse Solution

Characterizing difficult-to-measure nuclides without damaging a waste package is essential because compromising its structural integrity makes it unsuitable for disposal.

Westinghouse applies the Scaling Factor Method as part of an integrated service to provide a practical means of estimating the activity concentrations of difficult-to-measure nuclides using non-destructive measurements of each waste package. This approach supports reliable, stream-wide characterization while meeting engineered-barrier and design constraints, operational limits, safety expectations, and waste acceptance criteria for disposal within the broader regulatory framework for radioactive waste management.

Description

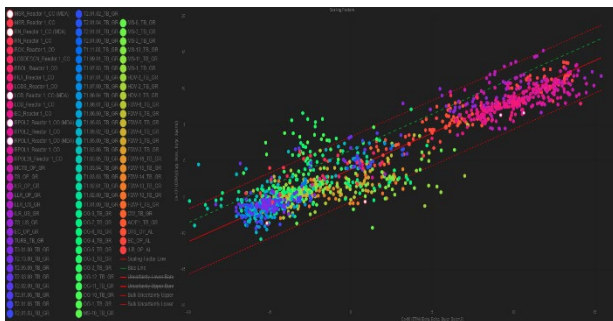
The Scaling Factor Modeling Suite is applied by Westinghouse to deliver integrated visualization and statistical analyses that support the assessment of the nuclide activity database, confirm the applicability of the Scaling Factor Method, and enable the classification and determination of Scaling Factors for compliant waste package characterization aligned with waste acceptance criteria and performance objectives.

The suite also supports the development and maintenance of the nuclide activity database, and applies the statistical tools recommended by the standard for data evaluation, ensuring robust, traceable analyses suitable for compliant waste characterization programs.

Customer Benefits

- Time savings through simplified dataset development, automation of required statistical testing, and efficient comparison of alternative candidates.
- Adherence to applicable standards and data quality objectives.
- Reduction of calculation errors and determination of optimized radionuclide vectors for use in subsequent safety cases, enabling appropriate specification of protective equipment, shielding and systems commensurate to the actual radiological risks, particularly for dismantling operations.

Accurate estimation of radionuclide



Sample ID	Parent	Waste Stream	Unit	Lab	Area	Date	Access
10001-1240	10001	FC-104 1,2001	Unit 1	LAB 1	Area	7/26/2018	HA
10001-2125	10001	FC-104 1,2001	Unit 1	LAB 1	Area	8/4/2017	HA

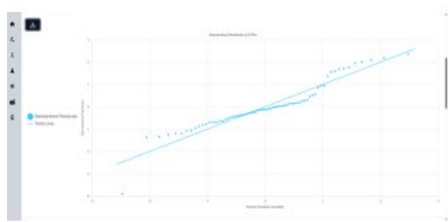
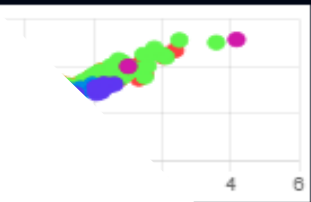
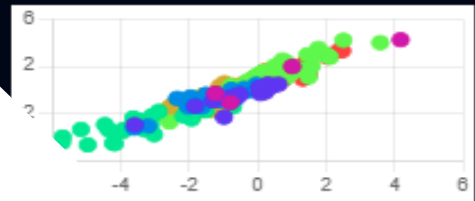
Sample ID	Sample	Date	NUC Name	NUC	Unit	Inventory	Area	Active
10001-1002	C-14	4/21/2017	2.0E+7	1000	LAB 1	6.7E+3	1000+1	
10001-1902	Co-60	4/21/2017	3.2E+2	1000	LAB 1	1.6E+1	1000+1	
10001-1903	Co-60	4/21/2017	6.2E+2	1000	LAB 1	3.2E+2	1000+1	
10001-1907	Co-60	4/21/2017	6.0E+1	1000	LAB 1	3.2E+1	1000+1	

Waste Management

Extended Capabilities of the Scaling Factor Modeling Suite

The Scaling Factor Modeling Suite, developed with 20+ years of Westinghouse waste management experience, provides efficient and robust support for a wide range of real-time tasks that complement the application of the Scaling Factor Method, including:

- Decay correction for decommissioning waste to prevent data drift and support consistent Scaling Factor updates to a reference date.
- Waste stream identification based on the behavior of easy-to-measure nuclides.
- Detection of abnormal or incidental conditions, such as fuel-related anomalies or loss of secular equilibrium within decay chains.
- Waste age estimation using activity-ratio-based analytical methods.
- Definition of radionuclide vectors by comparing gamma spectrometry campaign data with established easy-to-measure nuclide ratios.
- Calculation of combined Scaling Factors for disposal facilities when integrating Scaling Factors from multiple generating sites.
- Development of alternatives to Scaling Factors for non-sampleable waste streams or for cases in which the methodology is not applicable.
- Periodic updating of Scaling Factors as new analytical data becomes available.



Category	Value	Unit	Description
1. Scaling Factor	1.0	1	Reference Scaling Factor
2. Scaling Factor	1.0	1	Reference Scaling Factor
3. Scaling Factor	1.0	1	Reference Scaling Factor
4. Scaling Factor	1.0	1	Reference Scaling Factor
5. Scaling Factor	1.0	1	Reference Scaling Factor
6. Scaling Factor	1.0	1	Reference Scaling Factor
7. Scaling Factor	1.0	1	Reference Scaling Factor
8. Scaling Factor	1.0	1	Reference Scaling Factor
9. Scaling Factor	1.0	1	Reference Scaling Factor
10. Scaling Factor	1.0	1	Reference Scaling Factor

Westinghouse
Scaling Factors
+ New Calculation

Scaling Factors		ETM		OTM		Date	Sample Count	Plant Codes	Description	Actions
ETM	OTM	ETM	OTM	Date	Sample Count	Plant Codes	Description	Actions		
	Co-60	Am-241		30/3/2026	72	AL, GA, CO	SW-RWCA-CU-WY-000001_Revision_0_Test Case_3.4			
	Co-60	Si-90		27/3/2026	3	PDC-CN-IC	SW-RWCA-CU-WY-000001_Revision_0_Case_3.3			
	Co-244	Am-241		27/3/2026	210	CO	SW-RWCA-CU-WY-000001_Revision_0_Case_3.2			