



Nuclear Safety

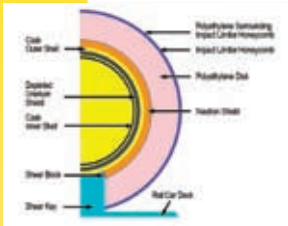
Associates

Expertise in Computational Neutron and Photon Transport



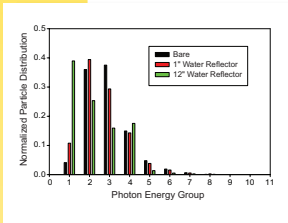
Nuclear Safety Associates' computational neutron and photon transport group consists of highly trained professionals with the expertise and capability to analyze a wide variety of shielding and radiological engineering problems.

Most staff members in this group hold advanced degrees in nuclear engineering, and are experienced in all phases of computational radiological engineering and shielding, including source term development, radiation transport, radioactive plume dispersion, and dose rate analyses. Computational tools utilized include the ORIGIN, MORSE, QAD-CGGP, and SAS3H modules in the SCALE system, MICROSHIELD, MICROSKYSHINE, MCNP, and HOTSPOT.



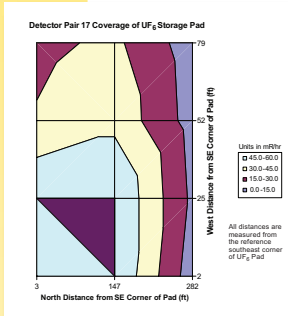
Radiation Shielding Analyses

Staff members are experienced performing both simple line-of-sight and complex deep penetration radiation transport analyses, including accounting for effects such as radiation streaming and skyshine, and are expert at the application of Monte Carlo biasing techniques, determining radiation energy deposition, and the use of flux to dose conversion factors. NSA staff members have analyzed source terms ranging from single isotope decay to complex systems that include neutrons and photons from spontaneous fission and (α, n) reactions. We have also benchmarked calculated dose rates against measured field data for dynamic systems.



Criticality Accident Alarm System Detector Coverage

Nuclear Safety Associates is a leader in the field of Criticality Accident Alarm System (CAAS) detector coverage analysis. Our staff members are experienced applying the requirements of 10CFR70.22 and the guidance in ANSI/ANS 8.3. NSA has performed comprehensive analysis, documented, and defended CAAS coverage for the Westinghouse Fuel Fabrication plant, the AREVA oxide conversion plant in Erwin, TN, and the fuel fabrication and downblending facilities at



Nuclear Fuel Services. Limited scope analysis was performed for the AREVA Richland plant.

Potential Dose from a Criticality Accident

The potential dose delivered to members of the public from a nuclear criticality accident is utilized in emergency planning, determination of the Immediate Evacuation Zone (IEZ), and to determine conformance with regulatory limits and the need for mitigation. Determination of the source term for these analyses requires an understanding of criticality accident dynamics and historical perspective. We consider multiple contributors to the total dose, including direct and secondary photons, direct neutrons, and gamma and neutron dose from both immersion in and inhalation of fission product gases. NSA has completed such studies for Zircotec Precision Industries, Cameco Corporation, Nuclear Fuel Services, and Westinghouse.

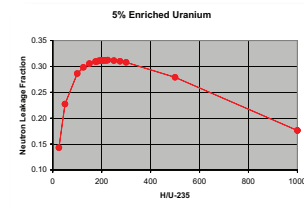
Packaging & Transportation

NSA staff members are experienced performing complex shielding analyses that conform to the packaging and transportation requirements of 10CFR71, and in writing and defending Chapter 5 of the SARP. The shipping packages and storage casks supported by our shielding specialists include special purpose DOE-licensed packages such as the 5320, SRS L Basin Transfer

Cask, the 9972, and the 9975, and NRC-licensed casks such as the Trans Nuclear FSV, the NAC UMS, the WESFLEX, and the GNF NPC.

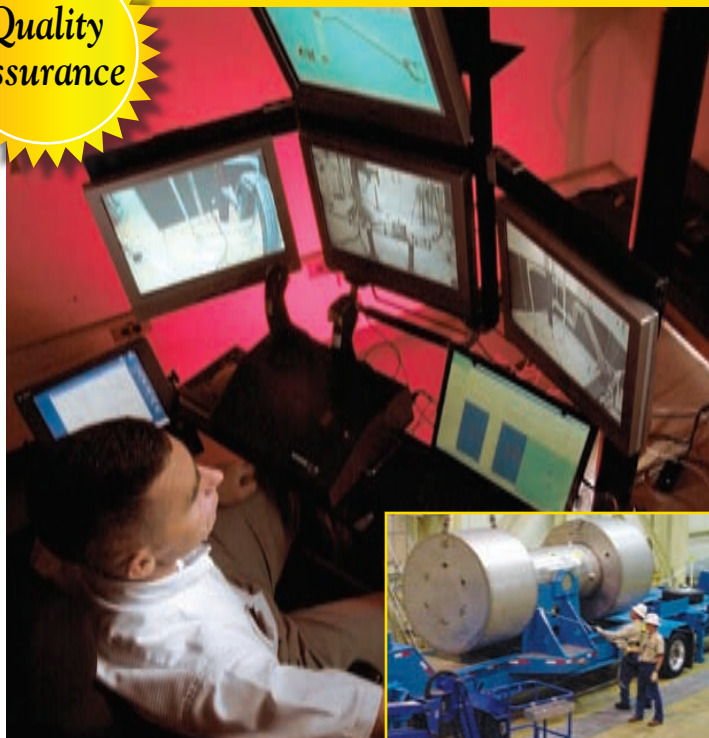
The NSA Computational Cluster

NSA maintains a computing cluster that is accessible by our analysts via a secure internet connection. The advantages of the cluster include substantial computing power and configuration control over the software tools utilized in analyses. We have verified and configuration-controlled versions of essential computational tools including SCALE, MCNP, MICROSHIELD, and MICROSKYSHINE.



Quality Assurance

The NSA quality assurance program is compliant with the requirements of ISO 9001-2000, NQA-1 and 10CFR50 Appendix B. NSA strives for continuous improvement in product quality.

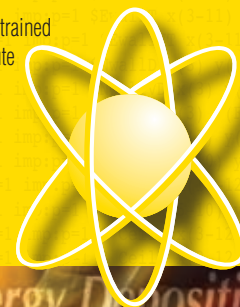


How Can We Help?

How can we help you?

At Nuclear Safety Associates, complete customer satisfaction is our goal. We can provide our highly trained experts for staff augmentation, or we can fully execute projects and deliver products on time and under budget – the choice is yours. Regardless, our staff will produce top quality deliverables that will exceed your goals and needs.

Give us a call today! 423.610.0249



www.nuclearassociates.com

Nuclear Safety Associates
PO Box 4297 • Johnson City TN 37602
T 423.610.0249 • F 423.610.8446

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