The **SCM** offered by **Radiation Safety & Control Services (RSCS)** revolutionized the performance of contamination surveys when it was introduced more than a decade ago. Today it is widely recognized throughout the nuclear industry for its superior production rate while satisfying the DQOs of characterization and final status surveys. It has consistently saved our clients time and money, while meeting or exceeding both site-specific and statutory performance criteria and minimizing the risk of future liability.

This state-of-the-art system uses a Position Sensitive Proportional Counter (PSPC) that is capable of establishing where along the detector an event occurs (NUREG/CR-6450). This allows a long detector to be divided electronically into a continuous array of small, virtual detectors that are similar in efficiency to other counters, but have backgrounds associated with small area detectors. This results in improved sensitivity, due to low background, and specific identification of the location of the radioactivity.

- “The innovative approach and survey and data management technology provided by your team proved to be both cost effective and reliable. Your team consistently produced technically sound surveys at high production rates, while always working safely.”  BNG America

- “The SCM / SIMS rapidly generates survey results that are accurate, reproducible and defensible. We have used the system at both DOD and commercial facilities and have received kudos from our clients and the regulatory agencies.”  Tetra Tech, Inc.
SCM / SIMS Surface Contamination Monitor

The SCM may be operated in either rolling (dynamic) or corner (static) modes both of which utilize large-area PSPCs. In the dynamic mode, the SCM acquires survey information in 25 cm² bins by logging data for each 5 cm width of the PSPC every 5 cm of forward travel. Since data is recorded in 25 cm² pixels over the entire surface surveyed, the SCM obtains 400 measurements for every square meter it traverses. Scan speed is motor controlled, the distance the SCM travels is measured by a precision wheel encoder, and wheels hold the detectors at a fixed height from the surface. By controlling the survey speed and source to detector distance, combined with automatically logging the location of the data obtained, the SCM eliminates errors and uncertainties associated with conventional technology. The static mode is used to survey areas that are generally SCM shown in dynamic (rolling) mode where production inaccessible in dynamic mode, such as corners, stairs, and system components. As in the dynamic mode, 400 measurements are obtained of every square meter.

The enormous amount of survey data generated by the SCM is effectively analyzed and managed using our Survey Information Management System (SIMS). When SCM data is analyzed, the software algorithm considers each 25 cm² measurement as one-fourth of four separate 100 cm² areas. This technique ensures that the 100 cm² area with the maximum activity is identified by eliminating the potential of missing this area due to positioning of the detector, as can occur when using handheld detectors or systems that employ multiple, non-overlapping detectors.

SIMS reports are customized to meet site specific criteria and typically include a summary of survey parameters, a cumulative frequency distribution plot of the survey data to aid in the identification of outliers, a 2-D color image of survey area results, data summary (mean, max, min, standard deviation), and an exception report with a 2-D display of areas over action levels (both 100 cm² and 1 m²).

“…the SCM/SIMS proved to be superior to the conventional, handheld approach from a productivity and cost standpoint. The use of the SCM/SIMS demonstrated a 25 to 34 fold increase in efficiency… the SCM/SIMS resulted in a cost savings of 40%...”

(Cost and Performance Report, Advanced Site Technology Deployment, USDOE)