

“Moving Beyond Time, Distance and Shielding: Developing the Concept of Organizational ALARA”

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Quad Cities presented the organizational ALARA concept as a concept that comes next to the principles of conventional radiation protection, i.e., time, distance and shielding. Organizational ALARA is a concept that solves the problem that even though dose limitation goals are attained at each work unit, dose limitation goals at the time of shutdown may be exceeded (“They can’t see the forest for the trees”). While practical ALARA has paid attention to time, distance, shielding and planning, organizational ALARA pays attention to source term reduction, equipment reliability, worker engagement and strategic planning. Source term reduction is the most basic factor and constitutes the bottom part of the four layers. Equipment reliability influences the amount of field operation and affects planning. While radiation control engineers, ALARA coordinators, the ALARA committee, and other parties have been involved in practical ALARA, bodies from a wide range of fields, such as power plant directors, chemistry, technology, maintenance and repair and operation, are additionally involved in organizational ALARA. The cooperation of field workers greatly influences the reduction of operation time. Strategic planning is long-term management planning, and it planarizes the peaks of exposed dose from special operations, modifications, and other activities, and realizes good performance in the long run. Organizational ALARA evaluates not the collective dose of a certain year or a certain cycle, but the collective dose of five- to ten-year units. Organizational ALARA is not particularly a new concept, but by being conscious of this and checking one’s status, the limitation to the exposure reduction of practical ALARA can be surmounted.

Radiological Hierarchy of Needs

- Akin to Maslow’s Hierarchy of Needs, CRE is affected in this basic order:
- Source Term Reduction
 - Fundamentally underlies all CRE performance
- Equipment Reliability
 - Defines the amount of work and challenges to effective planning
- Worker Engagement
 - Can improve the Time required to complete work
- Strategic Planning
 - Can sustain performance and shave off the CRE peaks

