

## Experiences in Senior Management Leadership in Embracing New HP Innovations

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The purpose of this presentation is to mentor early-years health physics professionals in proven techniques to successfully develop and introduce new health physics innovations to the global nuclear industry. For purposes of this paper, four key attributes from successful engagement in new HP innovations are described and examples of a senior nuclear management professional's achievements in area are highlighted. The four key attributes are:

1. Recognizing and addressing what the public needs to see happening to feel comfortable about supporting nuclear plant operations in their country.
2. Working to develop and use technologies that give better information for assessing HP situations effectively and efficiently.
3. Using networking across the globe (ISOE) to develop more effective means of safe and effective nuclear operations for the next 50 years
4. Always looking toward better ways to implement radiological control systems at nuclear plants by early-years health physicists

John M Palms, PhD, NATC Honorary Board Chair, Distinguished President Emeritus, University of South Carolina, and Constellations Board of Directors Member (retired) was studied to understand how he implemented each of the referenced attributes during his lengthy career in nuclear power governance and academia. Dr. Palms' commitment to ALARA over his 40 years in leadership positions in the nuclear industry made to make a significant impact on the reduction of nuclear worker occupational dose.

Dr. Palms started his professional career at Emory University as Head of the Physics Department. He became Vice-President of the Arts, President of Georgia State and President of the University of South Carolina. As a board member of the largest US nuclear fleet of over twenty-two reactors, Dr. Palms attended the annual ISOE ALARA Symposia sponsored by the ISOE Program, OECD-NEA/IAEA for over 25 years. He is committed to show the Constellation RPMs that he was keenly interested in their RP management successes and challenges.

Dr. Palms encouraged the introduction of national laboratory innovations to the Constellation PWR fleet by championing the use of Los Alamos specialty resin to removal colloids (Co-60) from the primary coolant and plant components. The results of lower refueling outage dose at the PWRs is remarkable when compared to the French PWR fleet which are double the annual dose of Braidwood and Byron PWR Constellation reactors. After the successful 3-nuclear cycle vetting of the specialty resin comparison of colloid removal, the Byron RPM was invited to attend the Constellation Board meeting and report on the significant reduction in PWR source term reduction achieved by following Dr. Palms' innovation recommendation. Over 20 US PWRs use the specialty resin and achieve low refueling outage doses resulting from the Braidwood/Byron HP vetting technical comparison.

Dr. Palms performed his post-doctorate research in CZT detector development at the Los Alamos National Laboratory. He was one of the early researchers in cadmium, zinc, and telluride gamma-

ray measurement systems. He was invited to be the keynote speaker for the University of Michigan global instrumentation symposium where he reflected on how the CZT technology had evolved from Los Alamos National Laboratories to the Nuclear Engineering Department, University of Michigan's pixelated, 3D CZT instrumentation. The CZT instrumentation innovation was rapidly adopted and used by over 70 Canadian and US reactors in the first two years of availability to operating nuclear plants. It is noteworthy to note that the IAEA adopted the pixelated CZT technology for IAEA Safeguards Inspectors as a new state-of-the-art surveillance instrumentation.

Dr. Palms conducted the academic, independent environmental surveillance program for the Susquehanna 1,2 nuclear reactors for over 20 years (published in the HPS Journal). To his credit, the units started up eighty miles upstream of the Three-Mile-Island Unit 2 accident without an objection from the local public. Dr. Palms supported the Local Physicians Seminar on Radiological Health by the Medical School, University of South Carolina. He invited Bernard LeGuen, MD, EDF, Vice President (IRPA President) to speak at the V C Summer Physicians Seminar which gained local physician support for the plant-life extension initiative for continued safe and efficient operation of the reactor in their community.

As the nuclear industry is undergoing an expansion period with the extension of operating units' operating life and the introduction of SRMs, the senior management leadership examples of Dr. Palms provide a key attribute for early-year health physicists to embrace new innovations for the nuclear industry. It is anticipated that many new health physics-related technologies will need to be developed, validated, and implemented to provide excellence in health physics programs for aging nuclear plants and new small modular reactors.