Understanding and Assessing an Emerging Technology in Practice: An Innovative Industry/Government Partnership

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Implementation of effective management strategies for workplace and environmental exposures to engineered nanoparticles are understandably limited due to the relative novelty of this emerging technology. Nevertheless, growth of the nanotechnology industry and associated manufacturing and application of engineered nanoparticles has surged in recent years. This has created human and environmental health risks—either actual or perceived—that must be minimized. Until a scientifically-founded and thoroughly documented nanotechnology health and safety management paradigm is developed, it is prudent for nanotechnology related enterprises to adopt a 'best practices' approach to minimize health and safety risks to employees, surrounding communities, and end-users of nanotechnology-based products. To this end, Luna Innovations Incorporated (Blacksburg, VA), a small business that manufactures, researches, and develops applications for carbonaceous nanomaterials has developed and instituted at its facilities a model five-point management program—NanoSAFE™—that is focused on proactive minimization of perceived or actual nanotechnology health and safety risks. At the heart of Luna's innovative, voluntary management program has been the exchange of information among technical experts from industry, academia, and federal agencies. This exchange has created a dialogue whereby participants can discuss specific health and safety concerns and leverage collective experience to generate practical solutions. The five main components of the program, which will be discussed at length in the presentation, are as follows:

1. Employee Health Assurance
2. Workplace Safety Technologies
3. Toxicological Studies
4. Environmental Impact Assessment
5. Management of Facility and Products

While Luna's described approach should in no way be construed as official guidelines on the subject, the program demonstrates how entities engaged in nanotechnology-related enterprises, particularly small manufacturers of engineered nanoparticles, can proactively manage human and environmental health and safety risks. Research on implementation of this unique nanotechnology safety paradigm has recently been initiated at two U.S. nanoparticle manufacturing and research facilities, and future publications will report on progress made and challenges encountered. (Disclaimer: The findings and conclusions of this abstract have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy.)

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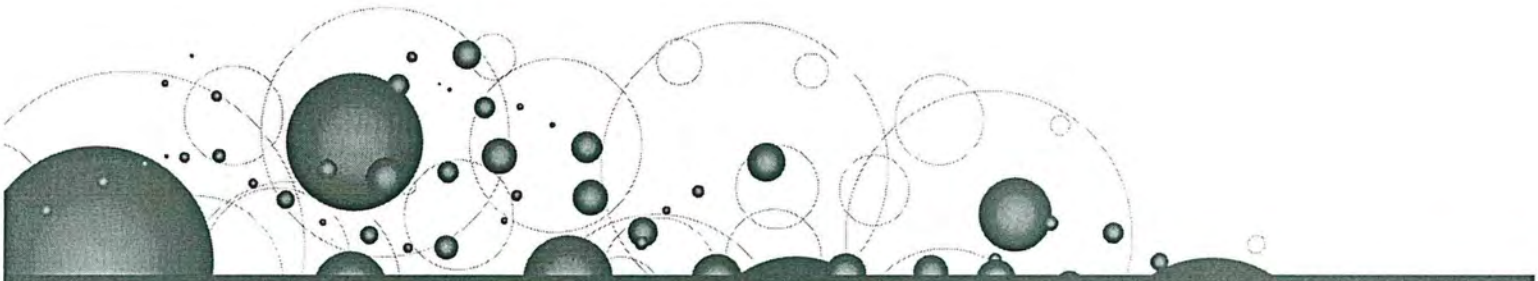

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