



HSS

Expectations for Nanoscale Safety and Health

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Role of HSS Policy Development

- Role of HSS is to develop the ES&H policy
- HSS may also coordinate, collaborate, and assist in policy development with other organizations
- The approach to developing policy could be a top-down or bottom-up approach



History of DOE Nano Policy

- **7/04 – White Paper, “Ensuring the Safety and Viability of Nanotechnology”**
- **3/05 – 1st meeting of Emerging Technology Workgroup to discuss nanotechnology**
- **5/05 – Safety Bulletin , “*Good Practices for Handling Nanomaterials*”**



History of DOE Nano Policy

- **9/05 - DOE P 456.1 “*Secretarial Policy Statement On Nanoscale Safety*”**
- **2/06 - 10 CFR 851 Appendix A 11 “*Nanotechnology Safety*” – *Reserved***
- **3/06 - NSRC Approach to Nanomaterial ES&H**
- **4/07 - Justification Memo for DOE N XXX.X “*The Safe Handling and Transfer of Nanoscale Materials*”**



Additional Guidance



- **NSRC Approach to Nanomaterial ES&H**
- **ASTM - Standard Guide for Handling Unbound Engineered Nanoscale Particles in Occupational Settings (E 2535–07)**
- **ASTM - Terminology for Nanotechnology (E 2456-06)**
- **NIOSH - Interim Guidance for the Medical Screening of Workers Potentially Exposed to Engineered Nanoparticles**



DOE IG Audit Report

- Recommend: HSS adopt and disseminate the NSRC working group's guidance as the Department's expectation of safety policies and procedures at the laboratories for key topics.



HSS Management Decision

- Coordinated with SC and FE
- Based on Lab Directors response to HSS memo requesting information on implementing DOE P 456.1
 - *Indicated Laboratories were implementing P 456.1*
 - *Laboratories were using NSRC Approach document*
 - *HSS Concluded that no new policy was needed at that time*
- Committed to have HS-60 undertake a Special Review of Departmental Nanotechnology activities
 - Address IG's classifying HSS response as not responsive to their Audit Report



Special Review



- **Overall inspection goal to provide status**
 - Implementation of the approach specified in NSRC and
 - Application of ISM.
- **The key inspection topics include**
 - Integration of nanoscale material analysis and controls into work planning and execution at all levels
 - Related institutional procedures and processes
 - Related feedback and improvement processes.
- **Completed reviews**
 - BNL, SNL, SRNL, NREL, JLAB, ANL, and LBNL
- **Summary report will be completed in August 2008**



Preliminary Observations



- Implementation was in the early stages at many sites
- Senior management provided strong support for the review process and responded immediately to identified program weaknesses
- Self identification and correction of deficiencies with nanomaterial activity safety needs improvement
- Many types of engineering controls were effectively used in many cases. However, use of HEPA filters as an engineering control was sporadic



Preliminary Observations



- Further effort is needed at most sites to fully implement nanomaterial process and procedures regarding: transportation, PPE usage, labeling of nanomaterials, inventory of nanomaterials, and labeling and control of nanomaterial waste.
- Nanoscale material activity training had been developed and presented at most sites. In some cases, the participation in training was not extended to support organizations.
- The implementation of baseline medical evaluations requirements and the identification of workers classified as needing baseline evaluations varied widely between the sites reviewed from the recommendations in the Approach document.