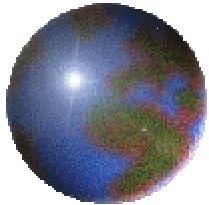


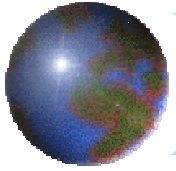
INDUSTRIAL HYGIENE

Issues Facing the Semiconductor Industry



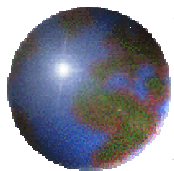
**By Chris Bundrum – Intel
Christine Poupard – Motorola**

**SESHA Academic Lecture Tour
on September 27 and 28, 2001**



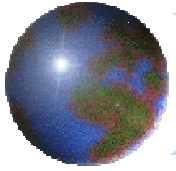
Industrial Hygiene Emerging Issues

- Chemical Approval
- Ergonomics
- E-Biz
- EHS Cross-Training
- Multiple Chemical Sensitivity
- Risk Assessments
- Indoor Air Quality



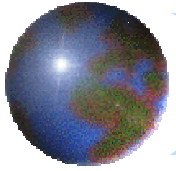
Chemical Approval

- EHS chemical review policy
- Challenge to review new R&D chemicals
 - Developing an effective and manageable review system to cover all EHS concerns
 - Lack of readily available toxicology data
 - Poor quality of MSDS's
 - Proprietary info and trade secrets
 - Managing chemistry changes and program compliance
- Cross-site proliferation and local regulations.



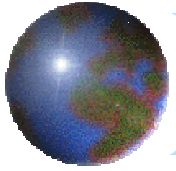
Ergonomics

- Majority of injuries are ergo related and behavior based
 - Offices and Manufacturing
 - Changing behavior and culture can be challenging
- OSHA Standard
 - Lack of standard requires communication and persuasion skills to implement & sustain program and systems
 - Impact of OSHA Standard should it be ratified



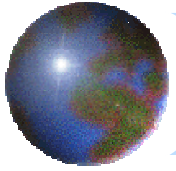
Ergonomics Cont-

- Determining direct and indirect costs
- Quantify loss of productivity caused by ergonomic injury
- Ergo research is ongoing
- Current with ergonomic product enhancements



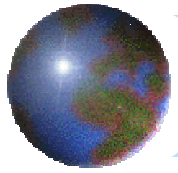
E-Biz

- Critical business need for implementation
- E-Biz skills not well developed for most EHS professionals
- EHS professionals challenged to grow E-Biz skills
- Projects can be resource intensive
- Often pushed to low priority in presence of current issues and responses



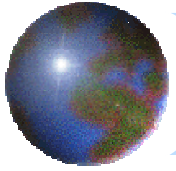
EHS Cross Training

- Improves your marketability
- Seek opportunities to partner with other EHS and related groups: Ergo, IH, Env, Safety, OH
- Try to maintain an “expert” level in an area
 - Formal expert opportunities such as:
 - LSO and RSO
 - Formal program ownership such as Asbestos Management, Lead Awareness, etc
- Old dogs CAN learn new tricks, and it’s healthy for them to do so!



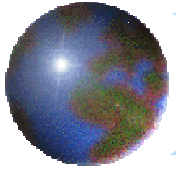
Multiple Chemical Sensitivity

- Understanding the toxigenic & psychogenic impacts
 - Metabolic pathways for MCS are difficult to develop
 - Sensitive to individual susceptibility
 - Levels below TLV may cause adverse health effects
 - External factors can be contributing to MCS symptoms (i.e diesel exhaust, tobacco smoke, paint, pesticides, etc)
- Current literature is inconsistent
 - Experts have mixed opinions
- Work closely with OH Professionals
 - Nurses and Occupational Physicians



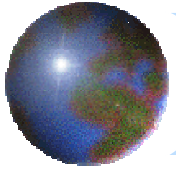
Risk Assessments

- New and emerging technologies and processes needing risk assessment
 - Risk to employees (Toxicity)
 - Environment (Global Warmer, Ozone Depleter, etc.)
 - Community (Odors, Perception, etc.)
 - Compliance (new requirements)
- Document your process & outcomes
- Seek support outside EHS when needed
- Establish system requiring reassessment of processes, tasks, or programs.
- Critical in attaining ISO certifications



Indoor Air Quality

- IAQ is continually a Hot Topic
 - Office Areas
 - Old Buildings
 - New Building
 - Manufacturing Areas
 - Transient Odors
- Current Issues/Concerns
 - Process odors
 - Mold and microbial contamination



Indoor Air Quality

- Challenges for Industrial Hygienists
 - Communicating health risks
 - Managing tough customers
 - Magic wand mentality
 - Keep current with the research
 - Think outside the box!
 - Developing clear follow-up systems
 - Utilize resources
 - Leverage field experts such as HVAC specialists and microbiologists