

# ***50 Year Evolution of EH&S***

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Yuma Pacific Section Annual Meeting

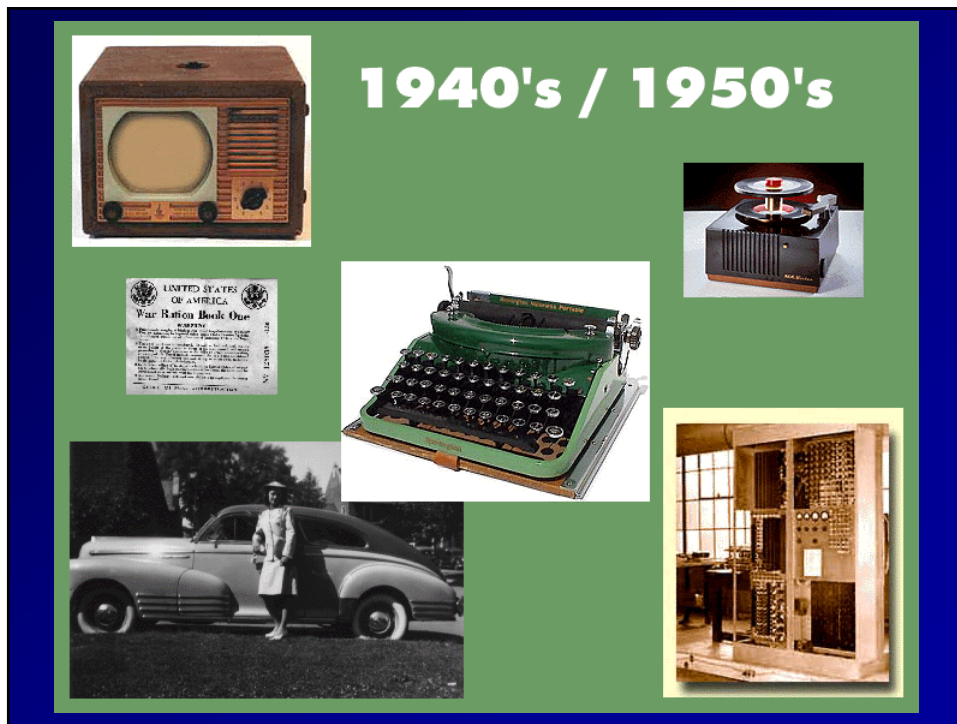
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## ***A 50 Year Evolution of EH&S***

*in the context of*

- *Technological & Political Conditions*
- *Environmental, Health & Safety Climate*
- *Evolving Academic IH Technical Mastery*



## Decades in Summary

### 1940's – 1950's

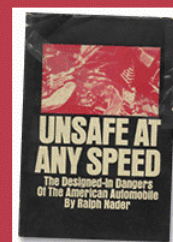
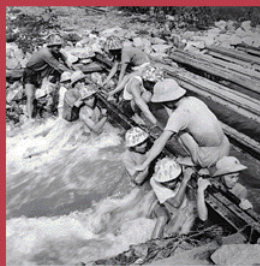
- US fought to recover economic strength post WW II. Smokestack industry applauded.
- First multipurpose computer—technology in its infancy, data analysis capabilities limited. Typewriter, slide rule and B&W television the rage.
- Crude air sampling & lab analytical instruments, same for medical diagnostic tools. IH skill limited.
- Industry focus on H&S risks—silica, tuberculosis, beryllium, dusts, fiberglass, radiation and welding. Heavily influenced by safety view (trauma/acute effects vs. chronic). High level of risk acceptable.

## Decades in Summary

### 1940's – 1950's

- Some H&S activity, though federal regulations few, enforcement weak. First H & S standards under Walsh Healey Act (1936). ACGIH TLVs, 260 chemicals (1948).
- Little focus on product related H&S risks.
- Little sharing of internal H&S info with other companies.
- Modest environmental activity, with few professionals.
- 1940s, limited academic IH courses to formalize practice. Prompted by war effort. Public health focus.
- 1950s, "IH Survey & Analysis" focus, one year academic programs.

## 1960's



## Decades in Summary

### 1960's

- Electrical typewriter introduced. Communication increased.
- Social activism (anti-Viet Nam War) and anti-industry backlash. Publications—Rachel Carson (*The Silent Spring*, 1962), Ralph Nader (*Unsafe at Any Speed*, 1965).
- "Cancer" entered medical realm. Industrial medicine gained respect. Warnings surfaced (cigarettes; Johns-Manville). Public awareness of EH&S issues increased. (1964)
- Presidents Kennedy/Johnson/Nixon "Preserve the Earth" sentiment. President Johnson cited "inadequate standards, lagging research, poor enforcement, shortages of H&S personnel and patchwork of ineffective federal laws." A call for federal government intervention. Growing unrest!

## Decades in Summary

### 1960's

- Professional certification processes (CIH, 1962) and (CSP, 1967) initiated. A few more professionals, but no great numbers.
- Major mine tragedy, uranium miners lung cancer deaths (1967).
- ACGIH Threshold Limit Values expanded to include Physical Agents (1969).
- Black Lung Act became law; EPA formed (1969).
- 1960s, more academic IH courses—"Recognition, Evaluation & Control", as well as "Environmental Community" issues, replaced "Public Health" focus.



## Decades in Summary

### 1970's

- First cell phone developed and U.S. landed on moon. Fortran cards, research capability matured, although cumbersome. Programmable hand held calculators surfaced.
- Air sampling measurement and analytical tools refined. Medical diagnostic tests improved. IH Lab Accreditation programs initiated.
- EPA, MSHA and OSHA formed. Proliferation of EH&S regulations and NIOSH Criteria Documents. Constructive tension between government that generated regulations and industry which tried to understand and deal with them. Government a policeman!
- Federal OSHA started with 8 Industrial Hygienists in enforcement mode. Few companies, except for big chemical, oil and consumer product companies, had Industrial Hygienists.



## Decades in Summary

### 1970's

- OSHA Training Institute for inspectors and public (1972).
- NIOSH fellowships granted, with professionals groomed to step into organizations (early 1970s). Corporations hired EH&S folks who tried to figure out what to do and how to do it (no blueprint). OSHA drove H&S programs.
- Joint NIOSH-OSHA Standards Completion Project initiated and ultimately abandoned. Economic feasibility & quantitative risk assessment required (early 1970s).
- Two spectacular workplace tragedies—New York explosion, liquefied natural gas storage facility (40 dead) and DC high rise building collapse (12 killed, 34 injured) (1973).

## Decades in Summary

### 1970's

- President Kennedy advocated bringing *Health Standards* to same level of importance as *Safety Standards*. Same year—14 OSHA Carcinogens Standard promulgated (1974).
- Criticism—OSHA standards setting process too slow. Congress pressed OSHA to get tougher on business, with White House pressing for regulatory relief.
- President Ford's economic summit spoke to high cost of regulation. Called for cost-benefit evaluation of all new standards. Inflationary Impact Statements slowed standards setting process (1974).

## Decades in Summary

### 1970's

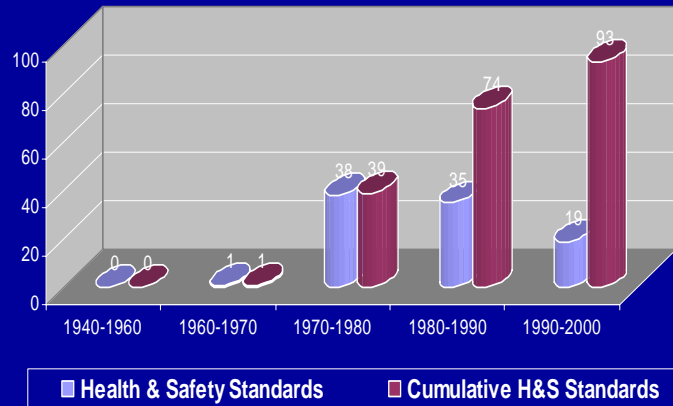
- Assistant Secretary Mort Corn brought era of professionalism to OSHA. Quality of inspectors enhanced; cross training of H&S inspectors (1975-1977).
- Dr. Eula Bingham and organized labor waged war on serious health hazards (1977-1981).
- Rise in epidemiological studies with more powerful computers. Early applied risk assessment models.
- Formative company recordkeeping & retention processes set up.

## Decades in Summary

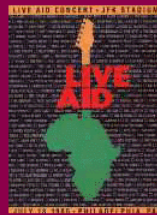
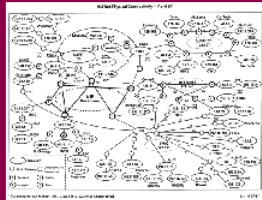
### 1970's

- Product stewardship (and review of EHS concerns associated with full product life cycle) matured.
- Early rise in toxic tort cases. 1970s—"Duty to Warn" era.
- Environmental movement awoke with an explosive force!
- 1970s, IH academic programs now two years in length. Course work narrowed to workplace alone, with less involvement of public health/infectious disease. NIOSH funded ERCs . Dr. Clyde Berry advocated business skill integration.

Federal Occupational Health & Safety Standards by Decade  
Number by Decade and Cumulative



# 1980's





## Decades in Summary

### 1980's

- IBM PC's dominated the market; technology took a data gathering and analysis leap. Internet more extensive, with "hypertext" setting stage for development of the World Wide Web.
- Berlin Wall fell and Soviet Union collapsed.
- Companies downsized and decentralized, paving the way for globalization. Business management models and organizations changed rapidly. Organized labor weakened.
- IH sampling & analytical capability matured, as did medical diagnostics.
- Some slowing of H&S regulations (Asst Secretary of Labor Thorne Auchter's Regulatory Relief agenda modified OSHA's policing role of 1970s). Joint EPA/OSHA focus on certain standards (asbestos).
- Company records retention systems matured. Era of documentation.

## Decades in Summary

### 1980's

- Predominantly, an era of EH&S standard implementation. Business integration was key. Emphasis—not what you do, but how you do it!
- Company product liability efforts in full swing (toxic tort initiated). HazCom and warnings forced organizations to share and leverage information. Effort to view full product cycle—supplier, manufacturer, distributor, customer, disposer, transporter and community.
- Abundant number of EH&S professionals.
- First efforts to quantify health risks. Risk assessment tools in use. Public's tolerance for risk decreased.
- Environmental regulations churned out at full speed! Focus shifted to disposal and community concerns.
- 1980s, academic programs broadened to include OH/environmental. Paralleled EPA's emergence. Industrial Hygiene only programs waning.



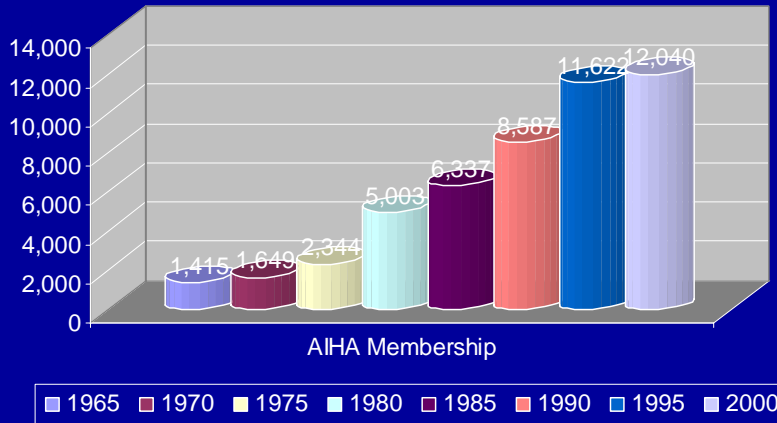
1990's

## Decades in Summary

### 1990's

- Technology matured quickly—internet, cell phones, PDA's. Analytical capability increased. Communication and information sharing grew.
- Enhanced analytical and medical diagnostic capabilities. Lower detection levels often resulted in more stringent standards.
- Globalization, competitive edges, big focus on quality systems & business efforts which added value to bottom line. Organized labor struggled.
- EH&S regulations generated, but more slowly. Era of continued implementation, complicated by company downsizing and consolidation of resources (EH&S fusion). Focus on site contractor injuries & illnesses.
- Tolerance for risk greatly reduced by both workers and public. Longer term health risks emphasized. Many qualified EH&S professionals, although many shifted careers in wake of business trends.
- 1990s, academic focus expanded beyond occupational exposure and risk assessment, infectious disease. Community and public health issues grew.

### American Industrial Hygiene Association Membership



2000  
and  
beyond



## The New Millennium: 2000 and Beyond

- Wearable technology (bio-engineering) advances; PDA's a must.
- Growth of GPS systems, smart bombs, dirty bombs, suicide bombers and bioterrorism.
- The United States the last remaining Super Power and the world enforcer. Economic bases shifting to India, China and Russia. A "flat world" economy surfaces.
- The World Trade Center, the "War on Terrorism", the war in Afghanistan and the "Iraqi Freedom War."
- 2000, academic programs included more epidemiology, biomedical sciences, and dual tracks. Very few IH only programs.

## Technology Changes – Smithsonian Institution

*"the spread of the information age throughout society"*



Alexander Graham Bell Early Telephone



WW II - ENIGMA Machine and Bombe



Apple I Computer – Jobs & Wazniak



Analog Video and Digital CD-ROM discs

## Has Industrial Hygiene Kept Pace With Historical Demands?

- Over 50 years, profession embraced the shifts in scientific focus and developed tools and information for member application.
- Over 50 years, IH academic programs kept pace with environmental and occupational concerns impacting workforce and communities.
- **In short, YES!**

## Is Profession in Crisis?

- **YES, if it ignores:**
  - **New ways** to leverage/ apply unique technical mastery
  - **Examples**—global warming health issues (Lloyd's of London high level task force), homeland security, emergency response & recovery, globalization & increasing infectious disease, community health issues, construction related health issues & emphasis on green buildings, new materials & product health issues, energy conservation related health issues, food, water, biomedical research, foreign economic powers (China, Russia, India) staggering environmental issues.



## Is Profession in Crisis?

### ■ YES, if it ignores:

- **Development** of resources & tools for the lay community (the non-IH) to employ.
- **New technology delivery methods** to share IH information and skill worldwide.
- **Mid-career EH&S professionals** and their leveraging growth opportunities.
- **Working alliances** with AAAS, trade groups, international groups, insurance groups, FBI.

## Is Profession in Crisis?

***Profession is in crisis if it thinks it is.***

***Profession can craft its....***

***own destiny***

***contribution***

***and legacy!***

**Thank You - Any Questions?**