COMPLIANCE ISSUES

PART 2

September 26, 2019

Presenters:
Don Webb
Naz Ritchie

PERITUS
ENVIRONMENTAL CONSULTANTS INC.

Topics

- Indoor Air Quality and Industrial Hygiene Considerations
- Other Compliance Considerations
  - National Pollutant Release Inventory (NPRI)
  - Waste Audits
  - Other Approvals

Indoor Air Quality and Industrial Hygiene Considerations

Carbon Dioxide Concentrations

- Carbon dioxide (CO_2) as a surrogate for indoor air quality measurement
- Major source of CO_2 in typical office environment is the exhaled breath of occupants
- Indoor air concentrations are controlled by dilution [*engineering controls*] with outside air and CO_2 concentration at 450 to 500 ppm
- Ideal indoor air would contain only fresh outside air

Indoor Air Quality (IAQ)

- ASHRAE ventilation standards of 15-20 cfm of outdoor air per occupant - designed to dilute human bioeffluents odor to an acceptable level
- In general, 15 cfm per occupant will keep indoor air CO_2 levels below 700 PPM

Regulation 185/19

On January 1, 2020, subsection 3 (2) of the Regulation is revoked and the following substituted: (O. Reg. 185/19, s. 2)

3. (1) Every employer shall take all measures reasonably necessary in the circumstances to protect workers from exposure to a hazardous biological or chemical agents in the workplace

(2) The measures to be taken shall include the provision and use of:

(a) substitution of the hazardous biological or chemical agent;

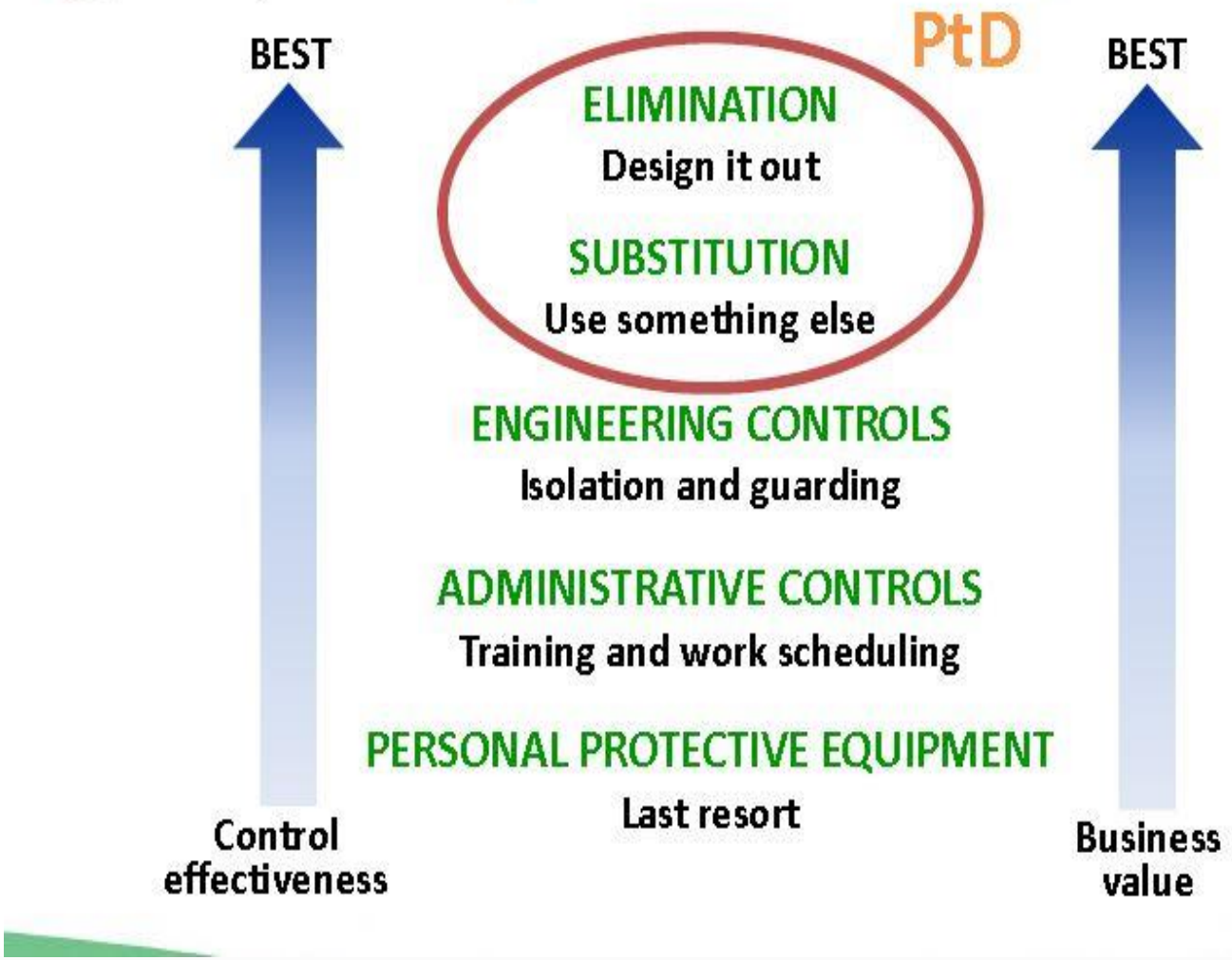
(b) engineering controls;

(c) administrative controls, including work practices;

(d) hygiene facilities and practices; and

(e) if section 7.2 applies, personal protective equipment
O. Reg. 185/19

Hierarchy of Controls ANSI/AIHA Z10



Engineering and Administrative Controls

- Engineering controls (dilution and supply/ exhaust ventilation) **protect employees effectively without placing primary responsibility of implementation on the employee**
- **Personal Protective Equipment** (PPE) places primary responsibility of exposure control on the employee, but management still have the responsibility for adverse exposure scenario (WSIB) claims

Why Be Concerned With Health & Safety?

- Trailing measures (hearing loss) of 'failure' are used to assess an organization's health and safety program performance
- Today's occupational/industrial hygienist have the responsibility to formulate a set of analytical tools using the business metrics such as:
  - **Return On Investment (ROI)** and **Payback**
  - **Net Present Value (NPV)**
  - **Return on shareholder equity, etc.**

Why Be Concerned With Health & Safety?

- ***Health & Safety is good business***
  - **Right thing to do…**
    - Employee morale / protection of most valuable resource
    - Control costs (direct and indirect)
- ***Health & Safety excellence correlates with business excellence*** (quality, efficiency, profitability)

NIOSH Prevention through Design Initiative

"Reform the environment, stop trying to reform people. They will reform themselves if the environment is right."

- Buckminster Fuller

The NEED: Design *IS* a Risk Factor

- Australian Study, 2000–2002
- Main finding: design contributes significantly to work-related serious injury
- 37% of workplace fatalities are due to design-related issues
- In another 14% of fatalities, design-related issues may have played a role

Photo courtesy of Thinkstock

NIOSH Prevention through Design Initiative

Anticipating **and** ***DESIGNING OUT*** **hazards in tools, equipment, processes, materials, structures, and the organization of work is** ***the most effective way*** **to prevent occupational injuries, illnesses, and fatalities.**

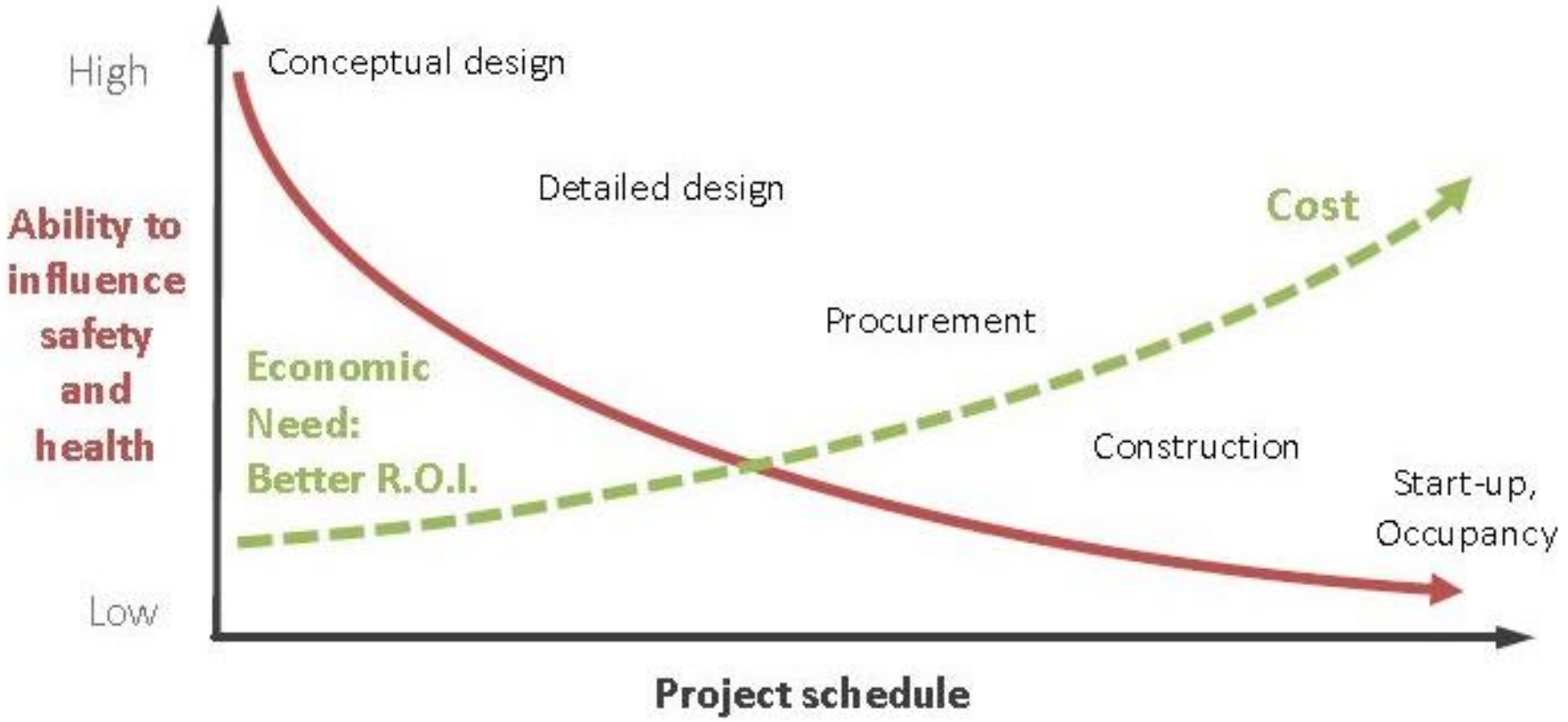
Engineering and Administrative Control

- For example (Noise), occupational health and safety regulations are clear, there is nothing in the regulations or recognized standards that demands or establishes limits on **NOISE, only the limit on exposure to certain or delirious levels of NOISE.**
- The regulations do not demand that machines be silenced, plants be quieted, or the dangerous levels be eliminated. The regulations require that workers **not be exposed to dangerous amounts of NOISE**.

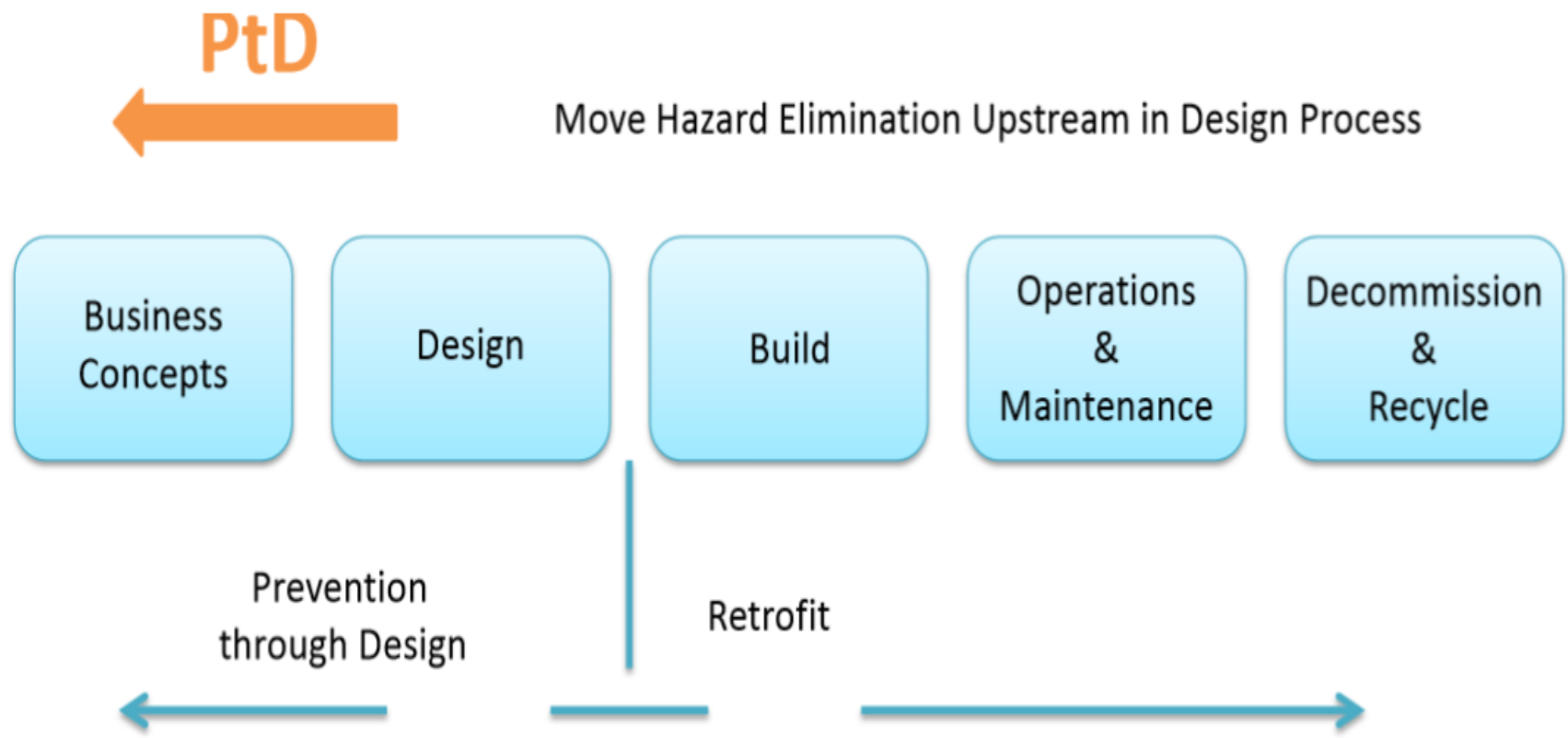
Engineering and Administrative Control

- Eliminate hazards and controlling risks to workers to an acceptable level “at the source” or as early as possible in the life cycle of equipment, products or workplaces.
- Include worker safety and health in design, redesign and retrofit of new and existing work premises, structures, tools, facilities, equipment, machinery, products, substances, work processes and the organization of work.

The NEED: Bang for the Buck



Hazard Elimination



To move worker protection from an afterthought to a forethought in process, product and facility design

Yes!

If we…

- Focus on workers as much as property
- Try to design out hazards and not just add "safety systems" – Inherently Safe Designs
- Have multidiscipline Design Safety Reviews
- Follow risk assessment and reduction process and not just meet legal minimum (PSM regs)

Working Safer by Design

WORKING SAFER BY DESIGN

Field Study – Impalement Protection

Protection often removed to work

Working Safer by Design

Courtesy of TJ Lyons, Gilbane Federal

WORKING SAFER BY DESIGN

Preventing through Design Risk Elimination

PERITUS ENVIRONMENTAL CONSULTANTS INC.

Ladders and Scaffolds Take Time

PERITUS
ENVIRONMENTAL CONSULTANTS INC.

Noise Control Priority Factors

- The Noise Control Priority Factor (NCPF) is defined as: $\mathrm{NCPF} = \frac{(\mathrm{NE}\times\mathrm{LD}\times\mathrm{EC}\times\mathrm{SF}\times\mathrm{PF})}{\frac{\mathrm{CK}}{\$1{,}000}}$

Where:

- NE Number of employees affected by source(s)
- LD Potential for noise to produce significant damage
- EC Environmental characteristics factor
- SF Problem solution potential success factor
- PF Productivity factor
- CK Estimated cost of controls (per thousand dollars)

Noise Control Priority Factors

Case No.	Noise Control Priority Factor [NCPF]
Air Gun at 1 metre Exhaust Mufflers	17.8
Laboratory Mixer Exhaust Mufflers	5.3
All Spray Booth Silencers	1.8
Priority Dept. Spray Booth Silencers	1.8
Drawer Spray Booth Silencers	0.5
Sanding Dept Sanders Exhaust Mufflers	0.2

Other Compliance Considerations

National Pollutant Release Inventory

PERITUS
ENVIRONMENTAL CONSULTANTS INC.

National Pollutant Release Inventory

- A national program to quantify pollutant releases
- NPRI reports are due June 1st every year
  - (for those required to report)
- Inventory Report
  - Uses purchase records, utility bills, waste manifests, etc.
  - Quantify the amount of regulated substances coming in and going out
    - How much is released to air, or recycled, or used in final products, etc.

NPRI-Required to Report?

- Canadian Gazette Notices release lists of NPRI substances every year
  - Each substance has a reporting amount
  - If your facility uses more than this amount for any substance, you are required to report to NPRI
- If you reported last year, you are required to report this year
- If your facility has less than 20,000 annual employee hours you are NOT required to report

Waste Audits

Regulatory Requirements

- Regulation 102/94: Waste Audits and Reduction
- Guide to Waste Audits for Industrial and Commercial Sectors

Waste Audit Requirement

- Any manufacturing establishment in which:
  - At least one month in the past 2 years had more than 16,000 employee hours

What's Involved

- Field staff will collect trash from work areas
- Sort waste into material categories: organics, aluminum, polystyrene, etc.
- Summary report: Outline types of waste produced in each area
- Waste Reduction Plan: Outline strategies to reduce the amount of waste (e.g. placement of recycling bins)

Other Approvals

- Permit to Take Water (PTTW):
  - More than 50,000 L per day of water from surface or groundwater
- Municipal Permits
  - Storm Sewer Discharge Agreement
  - Building Permits or Site Plan Approval
- Conservation Authority Permits

Questions?

PERITUS
ENVIRONMENTAL CONSULTANTS INC.

Thank You

For more information or any questions, please contact:

Naz Ritchie
General Manager
Peritus Environmental Consultants Inc.
519-594-0018
naz.ritchie@peritusenv.com
www.PeritusEnv.com

Don Webb
Industrial Hygienist
Caledon Industrial Hygiene
416-417-0115
dkwebb@rogers.com