SYSTEMATIC APPROACH AND STRATEGY OF OCCUPATIONAL HYGIENE

STAGE 1
PREPARATION

STAGE 2
APPRAISAL

STAGE 3
PROGRAMME RESOLUTION

STAGE 4
REPRESENTATIVE SAMPLING AND ASSESSMENT

STAGE 5
CONTROL
START

Preliminary Evaluation of Hazard

Question
What is material?
What is process?
What are intermediate products?
What are final products?
What are wastes?

Action
Trace related published
Trace direct or related
Industrial experience

Does this suggest problem?

NO
YES
STOP

Is the factor

- Chemical?
- Physical?
- Biological?
- Pathology?

NO

Mechanics

Yes

ergonomics

Follow similar route to chemical

Is the Hazard

- Immediately dangerous to life or limb?
- Dangerous over a long period?
- Not dangerous but having ill-effects?
- Not dangerous but having ill-effects?
1. Can process be allowed to continue in present form for short period?
   - NO
   - YES: Consider long-term strategy
   - NO: Can effective temporary control be applied immediately?
     - NO: STOP PROCESS
     - YES: Is systemic evaluation needed?
       - YES: First consider economic & social aspects
       - NO: Apply Control
2. Appraisal
NO

Survey necessary

Condition unsafe

Condition unsafe

Condition unsafe

Change process or apply control

Survey unnecessary

Of similar process elsewhere

Of process in question
Is preliminary survey needed to determine priorities

YES

Priorities determined

NO

Priorities determined

Does the process produce

Physical hazard? e.g. noise

Chemical hazard

Biological hazard? e.g. bacteria

Follow similar route to physics hazards

Stage 3 Programme resolution

Follow similar route to biological hazards
Chemical Hazard

Internal, by:
- Mouth
- Skin
- Lungs

Internal, by:
- Explosion & Fire
- To eyes
- To Skin

Assess & Control

The air contact

Criteria review

Assess & Control
Measurement

Purpose
- To assess exposure of individual
- To identify and quantify source and processes creating hazard

What is time scale?

Is toxic hazard
- Acute?
- Chronic?
- Cumulative?

Result used to develop control systems

Direct reading instruments preferred

Can result be used to assess individual exposures
Stage 3

**Need to assess**
- Short-term exposure
- Long-term exposure

**What will be basic for evaluation**
- Continuous?
- Operational?
- Random?

**Preferred technique**

Stage 4
Representative Sampling & Assessment
Preferred Technique

For intake
- For intake
- (Breath)
- Blood

For exposure
- Environmental
- Air
- Surface
- Liquid & solid wastes
Dust that damage the lungs | Asbestos | Dust that damage other organs | Fumes | Mists | Vapours & gases

Collect only respirable dust

Collect on filter after removing coarse dust with cyclone or elutriator, weigh & analyse

Collect on filter for microscop y, special technique to identify mineralogical type

Collect all airborne material

Generally collect on filter, analyse in field or laboratory, some special techniques available

Collect on adsorber, elute & analyse in laboratory, collect in impingers or bubblers & titrate, some physical instruments available

Result from biological measurement

Result from environmental measurement
Result from clinical & pathological studies

Apply criteria

Assessment of result

Conditions safe

Condition uncertain

Conditions unsafe

When will further test be required?

Review measurement

Change process or procedure. Apply controls.

Stage 5 Control
Have all control strategies been tried?

- Review information collected and assess
- Review information collected and assess
- Review information collected and assess
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- Review information collected and assess

Make note and proceed to next choice of control

- Is there a strategy or combination acceptable on all these costs?
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