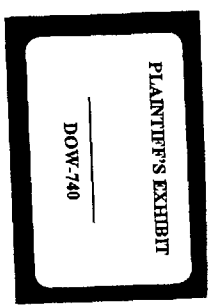
ST0038135

INDUSTRIAL HYGIENE RESPONSIBILITIES
FOR MICHIGAN DIVISION PLANT ASSIGNMENTS

1. CONDUCT SURVEYS AS APPROPRIATE
2. FOLLOW-UP ON PREVIOUS SURVEY RECOMMENDATIONS (DOCUMENT)
3. UPDATE AND REVIEW CPAI ANNUALLY WITH SUPERVISION
4. INVESTIGATE ALL MEDICAL VISITS DUE TO CHEMICAL EXPOSURE AND COMPLETE FORM
5. PARTICIPATE IN PRE-STARTUP INSPECTIONS AND AUDITS AS REQUESTED
6. PARTICIPATE IN PLANT TRAINING PROGRAMS, I.E., HAZARD COMMUNICATION STANDARD, RESPIRATORY PROTECTION, ASBESTOS REMOVAL, ETC.
7. REVIEW CAPITAL PROJECTS WITH INDUSTRIAL HYGIENE MANAGER FOR INDUSTRIAL HYGIENE CONSIDERATIONS
8. PARTICIPATE IN THE REACTIVE CHEMICAL REVIEWS ASSOCIATED WITH YOUR PLANT ASSIGNMENT
9. ASSIST SUPERVISION WITH TROUBLE-SHOOTING ACTIVITIES



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7. REVIEW CAPITAL PROJECTS WITH INDUSTRIAL HYGIENE MANAGER FOR INDUSTRIAL HYGIENE CONSIDERATIONS
8. PARTICIPATE IN PRE-JOB SAFETY MEETING FOR OUTSIDE CONTRACTORS AS REQUESTED
9. TAKE PART IN NEW SUPERINTENDENT ORIENTATION MEETINGS WITH SUPERVISION, MEDICAL, AND INDUSTRIAL HYGIENE MANAGER
10. PARTICIPATE IN THE REACTIVE CHEMICAL REVIEWS ASSOCIATED WITH YOUR PLANT ASSIGNMENT
11. ASSIST SUPERVISION WITH TROUBLE-SHOOTING ACTIVITIES
12. SUBMIT MONTHLY HIGHLIGHTS TO INDUSTRIAL HYGIENE MANAGER
13. UPDATE PLANT INDUSTRIAL HYGIENE PROGRAM STATUS SHEET AND PROJECT TRACKING SYSTEM
14. SCHEDULE QUARTERLY PROGRAM STATUS REVIEW MEETINGS WITH INDUSTRIAL HYGIENE MANAGER
15. BE RESPONSIBLE FOR THE ENTIRE INDUSTRIAL HYGIENE PROGRAM

SMG
9/86

NEW SUPERINTENDENT INDUSTRIAL HYGIENE ORIENTATION PROGRAM

PLANT SUPT:
BLDG. NO.:

DATE:
ATTENDEES:

- ☐ Industrial Hygiene Services Resources
- ☐ Chemical and Physical Agent Inventory
- ☐ I.H. Data Sheets (T.I.M.E., MSDS)
- ☐ Ventilation/Fume Hoods
- ☐ Respirators
- ☐ Hazard Identification Symbols
- ☐ Radiation Sealed Sources
- ☐ Asbestos
- ☐ Dust Monitoring
- ☐ Industrial Hygiene Studies
- ☐ Continuous Air Monitors
- ☐ Hazard Communication Standard
- ☐ Protective Equipment Comm.
- ☐ Dow I.H.G. (Health Board)
- ☐ Industrial Hygiene Emergency Call
- ☐ Regulated Chemicals
  - Acrylonitrile
  - Chloromethyl Methyl Ether
  - Bis Chloromethyl Ether
  - Ethylene Oxide
  - Vinylchloride
- ☐ Noise Surveys
- ☐ Heat Stress Surveys
- ☐ Mercury Spills
- ☐ Industrial Hygiene Reporting Index

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PLANT INDUSTRIAL HYGIENE PROGRAM STATUS

1. Plant (Unit) Name:

2. Building Number:

3. Date of Last CPAI Update:

4. Regulated Chemicals on CPAI:

5. Ongoing Sampling Protocol: Yes No
   Agent(s):

6. Date of Last Comprehensive Survey:

7. Date of Last Specific Survey:
   Agent(s):

8. Surveys Currently Underway:
   Agent(s):

9. Date of Last Noise Survey:
   Job Classifications with EER >1.

10. CAM(s) Yes No
    Agent(s) Monitored:

11. Written Respirator Policy:

12. Plans:

Hygienist: _____

Date: _____

INDUSTRIAL HYGIENE PROJECT TRACKING SYSTEM

Project Number:_____ Date:_____

Person(s) Responsible:_____

Sponsor:

( ) J. Weymouth
( ) L. Washington
( ) C. Bauer
( ) D. Calvin
( ) J. Brozzo
( ) W. Knee
( ) J. Mier
( ) Distribution
( ) D. Janish
( ) L. Mastic
( ) R. Calendine
( ) E. Gooding

Other:_____

Process/Location: _____

Type of Study:

( ) CM - Chemical
( ) VT - Ventilation
( ) RD - Radiation
( ) NS - Noise
( ) EC - Ed./Comm.
( ) QA - Qual. Assur.
( ) PC - Prot. Cloth. Test
( ) RT - Respirator Test
( ) DR - Direct Read. Inst.
( ) MM - Monitoring Method
( ) P - Presentation/Pub.
( ) MS - Miscellaneous

Extent of Study:

( ) C - Comprehnsive
( ) S - Specific
( ) O - Ongoing
( ) C/P - Comprehensive/Protocol
( ) S/P - Specific/Protocol
( ) O/P - Ongoing/Protocol

Initial Planned Start Date:_____

Status:

( ) AP - Awaiting Protocol
( ) AC - Awaiting Customer
( ) IP - In Progress
( ) AA - Awaiting Analytical
( ) AR - Awaiting Report
( ) AX - Awaiting IHM, Etc.
( ) CD - Project completed
( ) XX - Cancelled

Description: _____

9/86

ST0038139

R & D REPORT

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DOW CHEMICAL U.S.A.

RESTRICTED: for use within The Dow Chemical Company only.

CRI NUMBER

LABORATORY REPORT CODE: HEH2.13-1-10(1)

DATE ISSUED: 10-6-75

DEPARTMENT	ACCOUNT NO.	PROBLEM NUMBER
HER Industrial Hygiene Laboratory	178	0000009

CRI NUMBER

TITLE

TRAINING PROGRAM FOR INDUSTRIAL HYGIENISTS

AUTHOR(S) SIGNATURE(S)

E. J. Schneider E J Schneider 10/10/75

REVIEWER'S SIGNATURE

R. R. Langner Ralph R. Langner 10-13-75

DESCRIPTIVE SUMMARY WITH CONCLUSIONS: (Include in this space references to data books, and to earlier related reports, patents and publications.)

As a guide to those areas of Industrial Hygiene where experience is needed for good basic training an outline has been prepared for members of the Industrial Hygiene Laboratory. While certain basic skills and knowledge are readily acquired by most individuals within a few months; to acquire the competence, self-assurance and experience necessary to make good judgments on a variety of industrial hygiene problems, two years is considered a minimum training period. Even then the experienced individuals will acknowledge that they are only beginning to possess the necessary skills to cope with the complexities of many industrial hygiene problems.

ST003140

lgm

DISTRIBUTION:

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Central Report Index (5)

FORM C-40340

The knowledge and experience needed to practice industrial hygiene in a professional manner at The Dow Chemical Company is achieved gradually, over a period of several years. While certain basic skills and knowledge are readily acquired by most individuals within a few months, to acquire competence, self-assurance and experience on a variety of industrial hygiene problems, two years is considered a minimum training period. Even then the experienced individuals will acknowledge that they are only beginning to possess the necessary skills to cope with the complexities of many industrial hygiene problems.

The following outline is presented as a guide to those areas of industrial hygiene where experience is needed for good basic training. The items are grouped, not as to priority, because to have the experience be of value a great deal of overlapping, combining and repetition of various skills is necessary. There is no suggested time-table for gaining experience in using the various instruments. The nature of the workload of the Industrial Hygiene Laboratory will govern the opportunities for experience. There is, however, always a place for individual initiative and inquisitiveness in gaining experience.

I. PREPARATION OF KNOWNS & CALIBRATION OF EQUIPMENT

A. Static Systems

1. Saran Bag Technique
2. Aeration Flask & Ampule Technique
3. Bell Jar Technique

B. Dynamic Systems

1. Using Monodrum Drives
2. Using Double Syringe Drives

C. Techniques for Flow & Volume Calibration

1. Dry Test Meter
2. Wet Test Meter
3. Glass Burette/Soap Bubble
4. Calibrated Rotameters

I. INSTRUMENTAION

A. Vapor

1. Air Movers

a. Glass Syringe Pump

b. Vacuum Brush

c. Evacuated Cans

d. Rotary Vacuum Pumps

(1) Gomco Pump Kits

(2) Gast Pumps

e. Personal Samplers

(1) MSA 4-8 Hour Pumps

(2) Sipin Pump

(3) SKC Pump

2. Collection Equipment

a. Fritted Glass Absorbers and/or Bubblers (Greenburg-Smith Standard and Midget Impingers)

b. Cold Traps; Freeze Out Techniques

B. Particulate

1. Collection Equipment

a. Greenburg-Smith Standard and Midget Impingers

b. Membrane Filters

c. Andersen Sampler -- Particle Sizing

d. Unico Cascade Impactor

e. MSA & Bendix Electrostatic Precipitators

f. Casella Thermal Precipitator

g. GCA Respirable Dust Monitor

2. Particle Counting

a. Light Field Microscope/Whipple Disc Technique

b. Phase Contrast Microscope/Abestos Fibre Counting

C. Chemical Analyzers

1. Detector Tube Kits

a. Draeger

b. Unico

c. Bacharach

d. Kitagawa

e. Bendix

f. MSA

2. MDA UEI-7000 Toxic Gas Detector/Treated Paper Tapes for
   a. Toluene Diisocyanate
   b. Hydrogen Sulfide
   c. Phosgene
   d. Nitrogen Dioxide
   e. Chlorine
3. Ecolyzer (Energetic Science): Carbon Monoxide and Hydrogen Sulfide
4. J&W Mercury Vapor Sniffer
5. Redox Halogen Meter
   a. Chlorine
   b. Bromine
   c. Hydrogen sulfide
   d. Hydrogen cyanide
6. Gas Tech Halide Meter (All Airborne Organic Halogenated Hydrocarbons)
7. Miran Infrared Gas Analyzer
8. AID Portable Gas Chromatograph

D. Ventilation

1. Anemotherm Air Meter
2. Thermoanemomter
3. Swinging Vane Velometer
4. Pitot Tube & Inclined Manometer
5. Smoke Tubes

E. Noise (Basics) -- General Radio Equipment

1. Sound Level Survey Meter Model 1565-B
2. Octave Band Analyzer Model 1933
3. Impact Noice Analyzer Model 1556
4. Audiodosimeters
5. Special Applications
   a. Random Noise Generator & Amplifier
   b. Audiooscillator & Amplifier
   c. Graphic Level Recorder

F. Light

1. Illumination Meter, Weston Model 756
2. Spectroradiometer, International Light

G. Heat Stress

1. Botsball Thermometer
2. Wet & Dry Bulb Thermometers
3. Psychrometer/Humidity Recorders
4. Vernon Globe (Black Globe)
5. Anemotherm or Thermoanemometer

H. Radiation (Basics)

1. Microwave Meter, Narda
2. Ionization Chamber Meters, Victoreen Model 440 and Model 491
3. Geiger Muller, Tracerlab
4. Special Applications
   a. Eberline Multiple Source Calibrator
   b. Harshaw Thermoluminescence Detection Equipment

III. TYPES OF ENVIRONMENTAL SURVEYS

A. Chemicals

1. Vapors
2. Dusts
3. Skin Contact

B. Ventilation

C. Noise

D. Light

E. Heat

F. Radiation

1. Nonionizing
2. Ionizing

IV. INDUSTRIAL HYGIENE ACTIVITIES

A. Auditing Process Industrial Hygiene Activities

1. Setting Hazard Ratings

2. Reviewing

a. Health Inventories

b. Process Flow Diagrams

c. Descriptions of Process Chemistry

3. Understanding & Reviewing the Data Sheet of Properties, Health Hazards & Precautions for Safe Handling of Materials

B. Educational Effort

1. Preparing Consequences of Overexposure Material for Hazardous Materials

2. Conducting Safety Meetings Using the Prepared Industrial Hygiene Program Slide Talk & Discussing Consequences of Overexposure for Pertinent Materials

C. Evaluating Single Material Exposure Problems

D. Evaluating Multiple Material Exposure Problems Involving More Than One Job Classification

E. Conducting Comprehensive Industrial Hygiene Survey for a Process and/or Production Department

F. Conducting Environmental Exposure Studies for Product Departments

G. Conducting Environmental Exposure Studies in Dow Customer Plants

H. Assuming Industrial Hygiene Program Responsibility for Production Department(s)

I. Assuming Industrial Hygiene Program Responsibility for Production Divisions

J. Assuming Industrial Hygiene Program Responsibility for Product Department(s)

K. Self Development

1. Helping & Observing
2. Working Alone on a Single Project
3. Working with Others as a Leader
4. Planning, Organizing & Carrying Out Project
   a. Summarizing Data (Writing Reports)
   b. Data Handling (Computer Analysis)
5. Reporting to Management Verbally

V. SPECIAL PROJECTS

A. Accept Assignment to Update & Improve the Following Industrial Hygiene Files

1. Subjective Response
2. Unit Operations
3. Methods
4. Equipment
5. Vender
6. Literature
7. Building Card

B. Air Sampling Methods Development

C. Portable Instrument Development

D. Special Projects to Give Recognition to Industrial Hygiene & Improve Company Image

VI. FORMAL TRAINING COURSES

A. Industrial Ventilation (Michigan State)

B. Industrial Toxicology (Wayne State)

C. Radiological Safety (Dow Internal Course)

D. Others

1. AIHA Conference Short Courses
2. NIOSH Training Courses
3. Michigan State Adult Education (Toxicology Course)

VII. TECHNICAL COMMITTEES

Serve on various committees for AIHA, ASTM, etc.

VIII. PUBLICATIONS IN TECHNICAL JOURNALS

Continually evaluate your work to determine if there is merit in preparing papers for publication

IX. PERIODIC SEMINARS FOR INDUSTRIAL HYGIENE LABORATORY EDUCATION

As a result of conversations with various members of the Industrial Hygiene Laboratory, the following subjects have been suggested for topics at weekly staff meetings.

A. Discussion on the Basis for Setting TLVs & the Workings of ACGIH & ANSI Z-37 Committees

B. Discussion of the Functions of OSHA, EPA, NIOSH ANSI, ACGIH & How They Relate to Federal & State Laws

C. Discussion on Personal Protective Devices Such as Respirators, Gloves, Protective Clothing, as they Relate to Safety, Types, of Usage, Adequacy, Etc.

D. In-Depth Discussion on Various Instruments & Air Sampling Techniques

   Examples are Miran infrared analyzers, dust sampling, portable polargraph, etc.

E. Discussion on Management's View of Industrial Hygiene

   1. Major Manager, Michigan Division (DeLine)

   2. Role of Industrial Hygiene in Health & Environmental Research (Blair)

   3. Long Range Goals of Industrial Hygiene Function (Langner)

F. Personal Relations

1. Techniques for Selling Industrial Hygiene to Management

2. Company's Philosophy on:

a. Self-Development

b. Whole Job Concept

G. Information, Protection & Security

A discussion of the guildelines for protecting property information.