FORMALDEHYDE VAPOR EXPOSURE SAMPLING PLAN

PURPOSE

To assess the potential for adverse effects of workplace exposure to Formaldehyde vapor and outline the follow up process in the event exposure exceeds acceptable levels.

SUPPORTING DATA

- OSHA standard 1910.1048
- ***http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10075&p_table=standards***
- ***http://www.osha.gov/OshDoc/data_General_Facts/formaldehyde-factsheet.pdf***
- Washington Administration Codes (WAC) Chapter 296-856 Formaldehyde
- ***http://apps.leg.wa.gov/wac/default.aspx?cite=296-856***
- College of American Pathologists Anatomic Pathology Standard .08216 Formaldehyde/Xylene Safety:
    1. Montanaro A. Formaldehyde in the workplace and in the home. Exploring its clinical toxicology. *Lab Med.* 1996;27:752-757
    2. Goris JA. Minimizing the toxic effects of formaldehyde. *Lab Med.* 1997;29:39-42
    3. Wenk PA. Disposal of histology stains. *Lab Med.* 1998;29:337-338
    4. Occupational Safety and Health Administration. 29CFR1910.1048 and 1450, revised July 1, 1998

DEFINITIONS

Formaldehyde is a colorless, strong-smelling gas often found in aqueous solutions used as a preservative for pathology specimens or microbiology samples, to include but not limited to, pathology gross examination and ova and parasite exam. Follow this link for a description of ***Formaldehyde Health Hazards***.

Formaldehyde Vapor Monitoring Badge is a passive air sampling device that measures the exposure of one employee to Formaldehyde vapor during a 15 minute or to a person or environment in an 8 hour window.

Action Limits

The Action level which is the OSHA standard's trigger for increased industrial hygiene monitoring and initiation of worker medical surveillance is 0.5 ppm when calculated as an 8-hour time-weighted average (**TWA**).

Occupational Exposure is defined as the permissible exposure limit (**PEL**) for Formaldehyde vapor. The **PEL** is 0.75ppm when measured as an 8-hour time-weighted average (**TWA**) and 2 ppm measured in the form of a short-term exposure limit (**STEL**) which is the maximum exposure allowed during a 15 minute period by the Formaldehyde Vapor Monitoring badge.

SCOPE

Facility/Departments/Units with potential exposure to Formaldehyde vapor at or above the Action Level includes areas that perform gross examination of tissues, ova and parasite exam, and tissue disposal at SJMC. Job class of employees includes pathologists, pathology aides, pathology assistants, and microbiology techs in Pathology and Microbiology services at FHS.

POLICY

Routine sampling requires utilizing a 15 min exposure collected at least 7 days apart until 2 consecutive negative results are obtained. Routine sampling confirms that the new employee is correctly utilizing safety practices minimizing exposure as well as confirming effective ventilation in new work areas. The results of acceptable limits of exposure will infer that staff with less exposure to Formaldehyde vapor are also within acceptable limits without testing.

A. Starting Monitoring

1. **Criteria for Initial Monitoring**
   Initial monitoring is performed when there are new personnel hired including include pathologists, pathology aides, pathology assistants, and technical staff performing Ova and Parasite exams (medical technologists, or medical lab techs in microbiology). Initial monitoring is also performed when new processes or production environments utilizing formalin are implemented.
2. **Criteria for Repeat of Initial Monitoring**
   Initial monitoring must be repeated any time there is a change in production, equipment, process, personnel, or control measures which may result in new or additional exposure to formaldehyde for any employee involved in the activity, or when employee(s) develop symptoms of potential over-exposure to formalin (i.e. mucous membrane or respiratory irritation)
3. **Resumption of Monitoring**
   If any personnel report signs or symptoms of respiratory or dermal conditions associated with formaldehyde exposure, the laboratory must promptly monitor the affected person's exposure.

B. Completion of Monitoring

Criteria for Discontinuation of Monitoring

Laboratory may discontinue periodic formaldehyde monitoring if results from 2 consecutive sampling periods taken at least 7 days apart show that employee exposure is below the action level **and** the short-term exposure limit, **and** no change has occurred in production, equipment, process, personnel or control measures that may result in new or additional exposure to formaldehyde, and there have been no reports of conditions that may be associated with formaldehyde exposure.

C. Monitoring Method

Sampling supplies Badge Vapor-Trak FRMALDHYD are ordered thru Lawson (#109799) from ***Kem Medical Products***.
Department managers will insure that sampling for 15 minutes during the highest anticipated exposure will be completed at the new hire of pathologists, pathology aides, pathology assistants, microbiologist, and microbiology techs. Peak exposure time determined by the manager and may differ by job class. Department managers select appropriate staff and work areas for 8 hour sampling, and conduct monitoring per sampling instructions. See ***Formaldehyde Vapor Monitor Instructions*** for step by step sampling instructions. Department manager will submit badge with completed paperwork to Kem Medical Products using pre-addressed mailer.

D. Results, Actions, Documentation, and Reporting

Results will be sent to Laboratory department manager by Kem Medical Products.
Lab Manager will review results, with employees within 15 working days, obtain employee signatures, and take appropriate actions.

Results and action steps will be documented and reported to Hazardous Materials Committee annually by Lab Regulatory Manager (***See Addendum A***).

E. Action Limits

The action level (maximum exposure limit) for Formaldehyde vapor is 2 parts per million(ppm)/15 minute time-weighted average (TWA) or 0.5ppm/8 hour TWA.

- **Within Action Limit:**
  - Manager will share sampling results with the employee within 15 working days, obtain employee's signature, and forward to FHS employee results to Employee Health where it will be retained in the confidential Employee Health Record. Contracted Employees test results will be forwarded to the contracted company for retention.
- **Above Action Limit**:
  - **If the last monitoring results reveal employee exposure at or above the STEL, and the employer shall repeat the monitoring of the employees at least every 6 months**.
  - Department manager will submit a work order to Facilities Department to evaluate ventilation. If ventilation appears to be working properly and staff have no symptoms, rule out that the result is a false positive (i.e. splashing of badge) resume monitoring until *Criteria for Discontinuation of Monitoring* has been met.
  - Employees who have symptoms will be referred for physician evaluation
  - An Employee IRIS will be completed for any employee exhibiting symptoms of over-exposure (i.e. respiratory irritation)
- **Above Permissible Exposure Limit (PEL)**
  - Department Manager is to halt Formaldehyde use activities in locations where the PEL is exceeded.
  - **Manager will instruct employee to complete a Self Insurer Accident Form (SIF2) where a formal claim number is assigned to the case.**
  - Department Manager will Notify Workers Comp representative
  - Workers Comp representative will convene stakeholders to create response plan addressing employee exposure, other possible employees exposures, and the physical space. Stakeholders (including Department Manager, Employee Health, Facilities, and Safety & Regulatory) will decide when Formaldehyde use activities in effected locations may resume.
  - Manager will share results of sampling with the employee within 15 days and include the corrective actions being taken, obtain employee's signature, and forward to FHS employee results to Employee Health where it will be retained in the confidential Employee Health Record**.** Employee Heath will forward records to the primary employer of contracted staff involved.
  - Workers Comp will assist in facilitating the employee with finding a medical provider for evaluation.
  - Employee Health will store records per current exposure record requirements.

F. Engineering and Work Practice

Personal protective equipment (gloves, scrubs, eye protection, and aprons as needed) and engineering controls will be implemented to reduce and maintain worker exposure to formaldehyde at or below the 8-hr TWA and STEL. If these controls cannot reduce exposure to or below PELs, a respirator will be provided.

FORMALDEHYDE VAPOR EXPOSURE SAMPLING PLAN

DATE OF ORIGIN: 05/13
LAST DATE REVISED:
LAST DATE REVIEWED:
NEXT REVIEW DATE: 05/16
REQUIRED REVIEW: Employee Health, Hazardous Materials Committee, Laboratory
DISTRIBUTION: Regional Administrative Manual
CROSS REFERENCE:

POL 528.50 ADDENDUM A
ANNUAL ROUTINE FORMALDEHYDE VAPOR EXPOSURE REPORTING TO HAZARDOUS MATERIALS COMMITTEE

Department/Location of Testing	Testing Date	Results within acceptable Limits? (yes or no*)

* If results are outside of acceptable limit then be prepared to report actions taken and resolution.

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Signature of Employee Health Director Date