**(Model SOP)**

**United States Army**

**Name of the Clinic**

**Occupational Health**

**(OFFICE SYMBOL) SOP No.\_\_\_\_\_\_**

**Effective Date\_\_\_\_\_**

**Date Removed from Service\_\_\_\_\_**

**LEAD MEDICAL SURVEILLANCE**

**1. PURPOSE**

1. To provide guidance in performing, interpreting, and conducting medical examinations to satisfy the basic medical surveillance requirements prescribed in the current DoD 6055.05-M (Occupational Medical Examinations and Surveillance Manual), and the current OSHA regulatory standards on lead exposure.

**2. AUTHORITY AND REGULATORY COMPLIANCE**

Federal and DoD/DA regulations regarding lead medical surveillance are listed in the References section of this SOP.

**3. REFERENCES**.

1. 29 CFR 1910.1025, Lead
2. DoD 6055.05-M, Occupational Medical Examinations and Surveillance, 02 May, 2007 (Change 1, 16 September 2008).
3. AR 40-5, Preventive Medicine, 25 May 2007.
4. AR 40-66, Medical Record Administration and Healthcare Documentation,

17 June, 2008 (RAR: 04 January 2010).

1. AR 385-10, Army Safety Program, 02 Jul, 2013.
2. DA PAM 40-11, Preventive Medicine, 22 Jul, 2005.

**4. ABBREVIATIONS / TERMS**

μg/dL= μg/100g

AL - Action Level

BLL - Blood Lead Level

BUN - Blood Urea Nitrogen

CBC - Complete Blood Count

CEMR - Civilian Employee Medical Records

COA - Course of Action

FEP/ZPP – Free Erythrocyte/Zinc Protophorphyrin

Hgb/Hct - Hemoglobin / Hematocrit

IH - Industrial Hygiene

MRP - Medical Removal Protection

OSHA- Occupational Safety and Health Administration

OHC- Occupational Health Clinic

OHN-Occupational Health Nurse

OHP-Occupational Healthcare Provider

PEL - Permissible Exposure Limit

RBC – Red Blood Cell

SOP - Standard Operating Procedure

TWA - Time Weighted Average

UA - Urinalysis

**5. PROCEDURES**

1. Determination of Need for Medical Surveillance of Lead

1. OSHA Standards
2. The Action Level (AL) without regards to use of a respirator refers to measurements above 30 μg/m3 in air over an 8-hour TWA
3. The Permissible Exposure Limit (PEL) refers to measurements above 50 μg/m3 in air over an 8-hour TWA
4. The Maximum Permissible Limit for those working more than 8 hours in any work day refers to 400 divided by hours worked in the day in μg/m3
5. Standards on Workplace Initial Air Monitoring by Industrial Hygiene
6. Below Action Level
   1. Will require no repeat measurements, except:

* A new production, process, or control
* Introduction of new personnel
* Employer has reason to suspect a change

1. Above AL but below PEL
   1. Repeat monitoring at least every 6 months
   2. Continue monitoring until two consecutive measurements, at least 7 days apart, are below the AL then monitoring may be discontinued
2. Above PEL
   1. Repeat monitoring quarterly
   2. Until two consecutive measurements, at least 7 days apart are below PEL

* If at or above AL follow guidance in Section b)

1. Identified Workers Needing Medical Surveillance Examinations include:
2. Workers identified by Industrial Hygiene data
3. By job title / workplace / individual exposure
4. Workers who are or may be exposed above the AL (30 μg/m3)for 30 days per year
5. Medical Surveillance Guidelines for Lead
6. Baseline Examination (Newly Hired or Newly Assigned Workers)
7. Required Elements
8. Detailed Medical and Work History

* History of Past Lead exposure (occupational or non-occupational)
* Personal habits (smoking, hygiene)
* Past Problems: gastrointestinal, hematologic, renal, cardiovascular, reproductive, and neurologic problems

1. Laboratory Tests:

* Blood Lead Level (BLL)
* Free Erythrocyte/Zinc Protophorphyrin (FEP/ZPP) Level (required each time a BLL is measured)

If BLL or FEP/ZPP is elevated after occupational exposure consider:

* CBC with Hgb/Hct, RBC indices, and Peripheral Smear

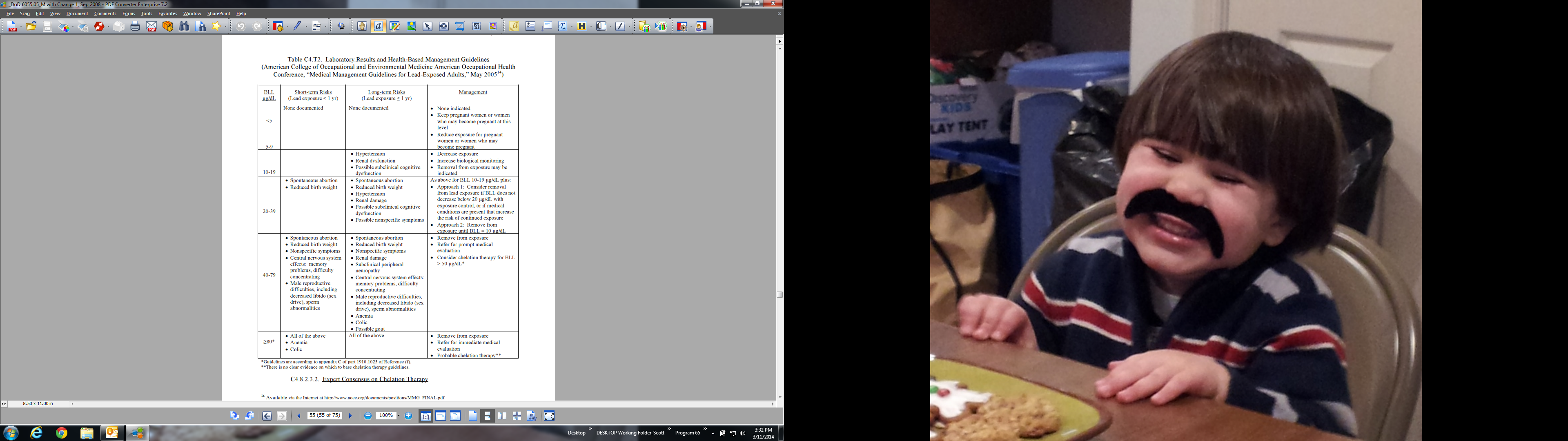
Morphology

* Basic Metabolic Panel (includes BUN and creatinine)
* Urinalysis (UA) and Microscopy
* Any laboratory/other tests deemed necessary by the provider

1. Physical Exam

* Oral mucosa/gums and Teeth
* Hematologic
* Gastrointestinal
* Renal
* Cardiovascular incl. Blood Pressure, Pulse
* Neurological systems conducting a mental status, cranial, peripheral nerve evaluation (motor, sensory and reflexes)
* Pulmonary status (respiratory clearance criteria)

1. Other Elements for Baseline Exam (not specific for lead surveillance)
2. Immunization Status Review
3. Vision Screening
4. Pulmonary Function Test (if indicated by respiratory hazards)
5. Height/Weight / BMI
6. Newly hired or assigned lead workers must also complete these surveillance items for the first 3 months after the baseline exam:
7. Monthly BLL measurements
8. Monthly BP measurement
9. Monthly Health status review
10. If the worker’s BLL is below 10μg/dL; exams can occur every 6 months
11. Periodic Examination
12. Annual (minimum) BLL and FEP/ZPP are required for workers with a blood lead level at or above 40μg/dL in the preceding 12 months
13. Any emergency exposure
14. When medically appropriate for each worker either removed from duty or with limited duty regarding lead exposure, or as determined by the occupational provider
15. Upon request of the worker for medical advice regarding lead exposure and reproductive health
16. Standards of Practice for Handling BLL Results (US Army Recommended Guidelines)
17. Table C4.T2 from DoD 6055.05-M (below) shows the current guidelines for determining the appropriate Course of Action (COA) for management and health risk impact based on the measured BLL:



1. Provider’s Written Recommendation
2. Providers must notify the employer in writing within 5 working days whenever the Blood Lead Level is at or above 40μg/dL (the provider may also notify the worker either verbally or in writing if desired)
3. Medically determine and make recommendation to the employer on the following:
4. Placement of the worker under a Medical Removal Protection (MRP) program
5. Specific Triggers:

* IH Driven:
  + 8-hr TWA daily air Lead exposure is at or above the Action Level (30μg/m3)
  + More than 30 days in a year, air monitoring results are above Action Level
  + BLL at or above 40μg/dL

1. Increased Medical Monitoring that may lead to MRP based on clinical judgment

* Any individual with any medical condition including:
  + Chronic renal dysfunction

- Serum Creatinine: >1.5mg/dL (men); >1.3 mg/dL (women)

* + - * + Hypertension
        + Neurologic disorders
        + Cognitive dysfunction
        + Pregnancy

Note: Frequency of BLL under MRP is MONTHLY until BLL <20 μg/dL

1. Participate in a multi-provider review of cases in the event a second opinion is requested
2. Recordkeeping

1. Medical records of employees will be kept for the duration of employment plus 30 years.