

<u>CNS OPERATIONS MANUAL</u> ADMINISTRATIVE PROCEDURE 0.36.14  HEXAVALENT CHROMIUM (CR VI) AIR MONITORING	USE: INFORMATION QUALITY: QAPD RELATED EFFECTIVE: 4/13/08 APPROVAL: ITR-RDM OWNER: D. A. JONES DEPARTMENT: SAFETY
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REV.	DATE	CHANGES
0	4/13/08	New procedure for Hexavalent Chromium air monitoring.

## 1. PURPOSE

1.1 The purpose of this procedure is to provide guidance on Hexavalent Chromium monitoring.

## 2. DISCUSSION

2.1 Action Level - 2.5 µg/m<sup>3</sup> calculated as an 8 hour TWA.

2.2 Exclusion Level - 0.5 µg/m<sup>3</sup> calculated as an 8 hour TWA.

2.3 Hexavalent Chromium (CR VI) - Chromium is a metal and exists in several different forms: divalent, trivalent, and hexavalent. Hexavalent Chromium is toxic and carcinogenic. When inhaled, it can damage the lining of the nose and throat, and irritate the lungs. When swallowed, it can upset the gastrointestinal tract and damage the liver and kidneys.

2.4 PEL - 5 µg/m<sup>3</sup> calculated as an 8 hour TWA.

## 3. RESPONSIBILITIES

3.1 Industrial Safety is responsible for interpreting this procedure and 29CFR1910.1026.

3.2 Maintenance is responsible for:

3.2.1 Conducting and/or coordinating air monitoring and sampling of Hexavalent Chromium.

3.2.2 Ensuring distribution and retention of exposure monitoring records.

3.2.3 Ensuring monitoring results are provided to employees.

## 4. INSTRUCTIONS

**CAUTION** – If sampling is performed in an RCA/CA and the samples cannot clear the contamination monitoring equipment, the sample is discarded and a Condition Report generated for tracking.

### 4.1 TYPES OF AIR MONITORING

- 4.1.1 Air monitoring to assess the exposure levels produced by a particular activity.
- 4.1.2 Air monitoring to determine the exposure of the individual performing the activity.

### 4.2 SAMPLING METHOD

- 4.2.1 Sampling and analysis shall comply with OSHA Method No. ID0215, Hexavalent Chromium in Workplace Atmospheres.

### 4.3 INITIAL MONITORING FOR A JOB

- 4.3.1 Before performing any job in which the potential for Hexavalent Chromium exposure may exist, air monitoring data for that job or a similar representative job must be recorded and evaluated. Air monitoring data for like job tasks may be obtained and used from other industrial sources outside.
- 4.3.2 If no monitoring data exists for a particular job configuration (space size, base metal, filler metal, volume, and duration of welding), then a Job Safety Hazards Analysis (JSHA) per Procedure 0.36.12 shall be performed and the appropriate respiratory protection shall be worn.

### 4.4 MONITORING LOCATIONS

- 4.4.1 Monitoring cassettes suggested placement:
  - 4.4.1.1 Welder breathing zone (required).
  - 4.4.1.2 2' to 5' from Welder to represent Helper/Fire Watch.
  - 4.4.1.3 General area to represent other workers not associated with welding activity.

### 4.5 EXPOSURE MONITORING MEASUREMENTS

- 4.5.1 This record must include the following information at a minimum:
  - 4.5.1.1 The date of measurement for each sample taken.

4.5.1.2 The operation involving exposure to Hexavalent Chromium that is being monitored should include as appropriate:

- a. Base metal (type of metal and size, e.g., 10" stainless steel pipe).
- b. Type or ID of filler metal.
- c. Amount of filler metal deposited.
- d. Total weld time.
- e. Any additional information that would be useful for trending information.

4.5.1.3 Type of personal protective equipment, such as respirators worn.

4.5.1.4 Engineering controls used including:

- a. Type of unit (e.g., HEPA ventilation, HEPA vacuum).
- b. Rated flow of unit.
- c. Duct/hose diameter.
- d. Duct/hose distance from ignition source.
- e. Orientation of duct/hose face to ignition source (e.g., vertical, directly over weld or horizontal, 180° from Welder).
- f. Capture velocity of duct face and ignition source.

4.5.1.5 Number, duration, and the results of samples taken.

4.5.1.6 Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

## 4.6 PERIODIC PERSONNEL MONITORING DATA

### 4.6.1 INITIAL MONITORING

4.6.1.1 Initial monitoring shall be performed for tasks that are not equivalent to current approved base and filler metals and/or with approved engineering control configuration.

### 4.6.2 ADDITIONAL MONITORING

4.6.2.1 Additional monitoring must be performed:

- a. Any time there has been a relevant change in the process, materials, equipment, work practices, or control methods that may result in new or additional exposure.

b. At the request of the worker.

#### 4.6.3 PERIODIC MONITORING

4.6.3.1 When specific processes exceed the exclusion or action level, periodic monitoring shall be done.

- a. Greater than exclusion limit, every 6 months.
- b. Greater than action level, every 3 months.

### 5. RECORDS

5.1 Monitoring and Exposure Records are sent to CNS Records (quality record upon Reviewed By signature).

### 6. REFERENCES

#### 6.1 COMMITMENTS AND OBLIGATIONS MATRIX

COMMITMENTS AND OBLIGATIONS	AFFECTED STEPS
QAPD	None

#### 6.2 CODES AND STANDARDS

6.2.1 29CFR1910/1026.

6.2.2 OSHA Method No. ID0215, Hexavalent Chromium in Workplace Atmospheres.

#### 6.3 PROCEDURES

6.3.1 Administrative Procedure 0.36.12, Job Safety Hazards Analysis (JSHA).



**ATTACHMENT 1 TYPICAL HEXAVALENT CHROMIUM MONITORING RECORD**

Test No.	Ventilation		Ventilation Duct			Ventilation Source (LFPM)	Measured Linear Flow Per Minute (LFPM)		
	Type/Model	Rated Flow	Diameter	Distance from Weld	Location/Orientation		Duct Face	1/2 Duct Dia	1.0 Duct Dia
					<u>Location:</u>				
					<u>Orientation:</u>				
					<u>Location:</u>				
					<u>Orientation:</u>				
					<u>Location:</u>				
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					<u>Location:</u>				
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Monitor: \_\_\_\_\_ Date: \_\_\_\_\_ Reviewed By: \_\_\_\_\_ Date: \_\_\_\_\_

Monitoring and Exposure Records are sent to CNS Records.