National Occupational & Process
Safety Conference
May 14 - May 15, 2013
The Woodlands Waterway Marriott Hotel &
Convention Center
The Woodlands, TX

NSC-13-14

OSHA Standard 1910.1026 Chromium (VI) Monitoring Protocols at a Local Refinery

Presented By:

Alan Brown
Health Supervisor
Total Petrochemicals &
Refining USA, Inc
Port Arthur, TX

American Fuel & Petrochemical Manufacturers

1667 K Street, NW
Suite 700
Washington, DC
20006

202.457.0480 voice
202.457.0486 fax
www.afpm.org

AFPM
American
Fuel & Petrochemical
Manufacturers
The new NPRA.

OSHA 1910.1026 on Hexavalent Chromium (VI)

Annual Conference – The Woodlands, Texas
May 9, 2013

G. Alan Brown, CSP, CPEA
Total Petrochemicals & Refining USA, Inc.

TOTAL

Hexavalent Chromium (VI)

New OSHA Standard 1910.1026 Chromium (VI)

On May 28, 2006 OSHA published a new standard regulating those occupational exposures to chromium (VI) in all forms and compounds in the general industry, except:

-Pesticides regulated by the Environmental Protection Agency in the treatment of wood with preservatives and exposures to Portland cement.

Certain portions of the new standard are effective as of May 28th such as employee training and communication of chromium (VI) hazards to employees. The remainder of the standard becomes effective on November 28th, 2006 except for engineering controls, which shall be implemented no later than May 31, 2010.

The Action Level required by the new standard is 2.5 ug/m3 which is one-half the 8 hour time weighted average limit of 5 ug/m3. In order to determine what levels of exposure we may have within those operations at the TOTAL Port Arthur Refinery, we will be conducting monitoring during the 2006 Turnarounds on the FCCU and the RPC.

Hexavalent Chromium (VI)

Issues to be covered:

- Preparation
- Medical Surveillance
- Fit Testing
- PPE and Respirators
- Decon
- Industrial Hygiene monitoring
- Report and Follow-up

Hexavalent Chromium (VI)

Preparation

Hexavalent Chromium (VI)

Medical Surveillance

- Required if you are exposed at or above the action level of 2.5 ug/m3 for 30 days or more per year.
- Utilized ExperTox out of Houston for baseline blood testing.
- Done to identify those with exposures prior to working at PAR
- Contractor found 4 individuals experiencing total chrome exposure.
- In 2006, PLHCP's were not able to provide pre-hire Chrome VI monitoring.

Hexavalent Chromium (VI)

Fit Testing

- Found that the welders and helpers were not fit tested on the masks being used.
- Found that the hole watches were not fit tested at all.
- Fit Testing service was provided by Sprint Safety on site.

Hexavalent Chromium (VI)

PPE and Respirators

- Originally recommended full-face supplied air respirators for all welders
- All other entrants were required to wear half-face HEPA P-100 respirators
- Required Tyvek with hood and booties to be vacuumed with HEPA vacuum upon exit of the confined space.
- Downgraded respirators after first three shifts to half-face HEPA only

Hexavalent Chromium (VI)

Decon

- Required a 55 gallon drum at each exit
- Used PPE was required to be disposed into the drum
- Disposed of PPE drums into waste container roll-off box.

Hexavalent Chromium (VI)

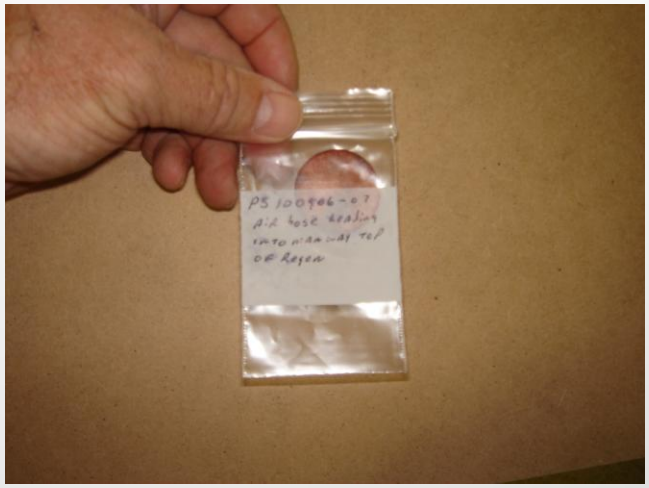
Industrial Hygiene monitoring

- Highest results were 152 ug/m3
- Results were inside the Regen working within the cyclones
- Had multiple (up to 12) welders at one time
- All utilized half-face supplied air
- Highest results were arc gouging

Hexavalent Chromium (VI)

Report and Follow-up

- ChemTex provided 2 hour rush analysis
- No positive results on the wipe tests.



RESULTS

Date	Job Activity /Task	Hot Work	Total Time (min)	Metal Code	Work Environment	Ventilation Control	Electrode Type	Vessel Type	Result (actual in ug/m3)	Sample Type	
2-Oct-06	Welder	CAC (gouging)	583	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	114.86	Full shift (12 hr)	
2-Oct-06	Welder	Not specified	532	Cr5	Inside vessel	Local Exhaust Ventilatio	NA	Vertical	63.387	Full shift (12 hr)	
3-Oct-06	Welder	Grinding	530	Cr5	Inside vessel	Local Exhaust Ventilatio	NA	Vertical	69.651	Full shift (12 hr)	
3-Oct-06	Welder	Grinding	527	Cr5	Inside vessel	Local Exhaust Ventilatio	NA	Vertical	59.241	Full shift (12 hr)	
3-Oct-06	Welder	CAC (gouging)	600	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	65.35	Full shift (12 hr)	
3-Oct-06	Welder	CAC (gouging)	623	Cr5	Inside vessel	Local Exhaust Ventilatio	Copperclad Rods	Vertical	52.176	Full shift (12 hr)	
3-Oct-06	Welder	CAC (gouging)	602	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	135.74	Full shift (12 hr)	
3-Oct-06	Welder	CAC (gouging)	623	Cr9	Inside vessel	Local Exhaust Ventilatio	Copperclad Rods	Vertical	62.978	Full shift (12 hr)	
3-Oct-06	Welder	CAC (gouging)	600	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	152.48	Full shift (12 hr)	
3-Oct-06	Welder	CAC (gouging)	600	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	87.696	Full shift (12 hr)	
4-Oct-06	Welder	CAC (gouging)	591	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	55.985	Full shift (12 hr)	
4-Oct-06	Welder	CAC (gouging)	589	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	54.824	Full shift (12 hr)	
4-Oct-06	Welder	CAC (gouging)	600	Cr5	Inside vessel	Local Exhaust Ventilatio	Inweld Chamfer Rods	Vertical	80.645	Full shift (12 hr)	

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- The employer will have an employee information and training program that details the hazards of Hexavalent Chromium and methods to minimize exposure.
- Medical surveillance of each welder prior to the job. The screening will require a blood sample for toxic analysis. Any welders showing signs of Chromium disease will not be allowed to work around Chromium work.

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- Total will require written proof from the contractor that this testing has been conducted and that the medical surveillance testing was negative.
- Every person working in a confined space where Chromium work is being performed will be required to be fit tested and wear a ½ face respirator with the high efficiency P-100 HEPA filters as a minimum. This includes helpers, scaffold builders and laborers if they work in the area where Chromium work is being performed .

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- All personnel working in a confined space where Chromium work is being performed will be required to wear full FR disposable clothing including boots and hood or have the clothing laundered using a vendor approved by Health Services.
- Welders will be required to wear full-face or one-half face positive pressure airline respirators and should be fit tested for either.
- The general contractor shall contract a approved Industrial Hygiene company to conduct personnel and area monitoring for Chrome VI.

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- The contractor shall provide adequate personnel monitoring pumps to facilitate monitoring of at least 10% of all personnel working with or around Chromium work. This includes welders, helpers, laborers, scaffold builders, refractory workers, inspectors, etc. and others from other companies who would be exposed to the contaminated atmosphere.
- We will monitor each welder or grinder while welding or cutting is in progress.
- Monitoring will be done on the following:
- 1.25% chrome
- 5% chrome
- 9% chrome
- Alloy 20
- Inconel
- All stainless steels

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- Welders inside a confined space will have a vacuum system immediately adjacent to their specific welding location. All exhaust will be filtered through a HEPA filter.
- A marked container immediately adjacent to each welding area will be available such that each person coming out of the area of Chromium work can dispose of their contaminated FR clothing each and every time they leave the Chromium work area.

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- A wash up station will be established by the contractor for their employees to wash up prior to going to lunch or break.
- Once results start to come in, Total may consider reducing the welder PPE if the results indicate readings allowing a ½ mask negative pressure and HEPA filter.

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- Our sampling has indicated that gouging, SMAW and FCAW welding of stainless or higher material, inside a confined space, would require supplied air. Gouging operations will require additional consideration for vacuum systems and exhaust ventilation. Our sampling results have indicated that GTAW welding produces the least amount of exposure.

Hexavalent Chromium (VI)

2007 Crude Unit T/A Protocol

- Consideration should be given for confined space attendants supplied by the contractor to be fit tested for full and half face respirators.

Hexavalent Chromium (VI)

Hexavalent Chromium (VI)

Hexavalent Chromium (VI)

AFPM

American
Fuel & Petrochemical
Manufacturers

The new NPRA.